



**Comments of Natural Resources Defense Council,
Center for Biological Diversity, Clean Water Action,
Conservancy of Southwest Florida, Earthworks,
National Parks Conservation Association,
and South Florida Wildlands Association**

**Regarding the Environmental Assessment for
a Proposed Oil and Gas Plan of Operations:
Nobles Grade 3-D Seismic Survey within Big Cypress
National Preserve proposed by Burnett Oil Company, Inc.
(November, 2015)**

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**Natural Resources Defense Council • Center for Biological Diversity
Conservancy of Southwest Florida • Earthworks
National Parks Conservation Association • South Florida Wildlands Association
Clean Water Action**

December 31, 2015

Tamara Whittington
Superintendent
Big Cypress National Preserve
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Re: Comments on the Environmental Assessment for a Proposed Oil and Gas Plan of Operations: Nobles Grade 3-D Seismic Survey within Big Cypress National Preserve proposed by Burnett Oil Company, Inc.

Dear Superintendent Whittington:

The undersigned organizations write to provide comments on the proposed Environmental Assessment (“EA”) for Burnett Oil Company’s 3-D Seismic Survey proposal within Big Cypress National Preserve (“Preserve” or “Big Cypress”). The Burnett Oil Company, Inc. (“Burnett”) has proposed to conduct geophysical exploration activities over 110 square miles (70,454 acres) within the Preserve (hereinafter, “proposed action”).

We urge the National Park Service (“NPS”) to reject Burnett’s proposed plan of operations (“POP”). If NPS nonetheless decides to allow the proposed action to go forward, the agency must prepare a full Environmental Impact Statement (“EIS”) for all phases of exploration because the proposed action constitutes a major federal action under the National Environmental Policy Act (“NEPA”). NPS has the broad legal authority to protect the Preserve’s resources and cultural and recreational values from the adverse effects of oil and gas development. NPS fails to provide this much-needed protection because the EA: (1) improperly segments Burnett’s larger four-phase exploration proposal; (2) fails to evaluate all of the direct, indirect, and cumulative impacts of the proposed action, subsequent exploration phases, and adjacent exploration activities on Preserve resources and values; (3) fails to fully evaluate impacts to endangered and threatened species and critical habitat for these species; (4) fails to analyze the effectiveness of the proposed mitigation measures; and (5) fails to evaluate a reasonable range of alternatives to the proposed action.

I. Commenting Parties and their Interests.

The **Natural Resources Defense Council** (NRDC) is a non-profit environmental membership organization with more than 565,000 members throughout the United States. Over 13,200 NRDC members reside in Florida. NRDC members use and enjoy Big Cypress National Preserve for a variety of purposes, including: recreation, solitude, scientific study, and conservation of natural

resources. NRDC has had a longstanding and active interest in the protection of the nation's public lands. For many years, NRDC has worked with the National Park Service to enhance public participation in government decision making and to protect important lands and wildlife.

The **Center for Biological Diversity** is a nonprofit, public interest environmental organization dedicated to the protection of imperiled species and the habitat and climate they need to survive through science, policy, law and creative media. The Center is supported by more than 900,000 members and activists throughout the country, including several thousand in Florida. The Center works to secure a future for all species, great or small, hovering on the brink of extinction.

The **Conservancy of Southwest Florida** is a regional environmental nonprofit organization servicing Hendry, Glades, Lee, Charlotte, and Collier counties. The Conservancy has over 6,000 supporters who enjoy the recreational opportunities and quality of life afforded by south Florida's natural resources. The Conservancy strives to protect land, water, and wildlife through programs in science and research, policy and advocacy, environmental education, and wildlife rehabilitation.

Earthworks is a non-profit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. With the support of 65,000 members nationwide, we document and expose threats, engage residents in advocacy, and push for the changes necessary to protect water, air, land, and health. Earthworks is actively engaged in advancing both state and federal policies and regulations to protect public lands such as the Big Cypress National Preserve and to ensure that companies such as Burnett Oil are held to stringent operational and accountability standards.

The **National Parks Conservation Association** (NPCA) is a non-profit organization that together with one million members and supporters, including more than 62,000 in Florida, speaks for America's national parks. Since our founding in 1919, NPCA has been an independent, nonpartisan voice working to strengthen and protect our nation's natural, historical, and cultural heritage to protect, connect and restore these incredible places for present and future generations.

South Florida Wildlands Association (SFWA) is a non-profit environmental organization incorporated in the State of Florida to protect remaining wildlife habitat in the Greater Everglades. SFWA's focus is on protecting the large swaths of still undeveloped land which still exist outside of south Florida's urban boundaries. We focus on public and private lands alike. SFWA's conservation efforts are carried out through educational talks at various community venues, emailed action alerts, posts on social media, interviews and articles in the press and other media, communications during agency hearings and public comment periods, and, where necessary, litigation.

Clean Water Action is a non-profit organization with over 800,000 members nationwide, 7,500 in Florida, of diverse people and groups joined together to protect our environment, health, and economic well-being and community quality of life. Our goals are clean, safe and affordable water; prevention of health threatening pollution and empowerment of people to make democracy work. Clean Water Action works on policies and regulations at the local, state, and federal level.

II. Preserve Resources at Stake.

Big Cypress was established by Congress “[i]n order to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed.” 16 U.S.C. § 698f(a) (2015). NPS “envisions the preserve as a nationally significant ecological resource” and “a primitive area where ecological processes are restored and maintained and where cultural sites are protected from unlawful disturbance.”¹ Big Cypress was the first national preserve incorporated into the National Park Service. 16 U.S.C. § 689(f), *et seq.*² The Preserve covers 720,567 acres of a water-dependent ecosystem in southwestern Florida, and it includes much of the western Everglades.³ The Big Cypress Swamp is a western extension of the Everglades hydrologic system. The Big Cypress basin provides approximately 42% of the water flowing into Everglades National Park and is a vast hydrologic network—among the least altered remaining in South Florida.⁴

The Preserve is also home to a wide array of important species, including the Florida panther—one of the most endangered mammals in the country—as well as the Florida black bear, Florida bonneted bat, Eastern indigo snake, wood stork, red-cockaded woodpecker, many species of wading birds, and rare plants like the ghost orchid. The Preserve is also beloved for the many outdoor recreation opportunities it provides. In 2014, the Preserve hosted almost 1.2 million recreational guests.⁵

The proposed action recommended by NPS in the EA involves an unprecedented off-road seismic survey over more than 110 square miles (70,454 acres) within the Preserve. Approximately 75% of the proposed action area is within the original Preserve, and 25% of the proposed action area is within the Addition lands portion of the Preserve.⁶ The proposed action would involve the construction of five separate staging areas, four of which are in wetlands, and the off-road usage of heavy “vibroseis” trucks and other off-road vehicles in pristine habitat likely creating well over 1,000 miles of new disturbance.⁷ The size, magnitude, and survey

¹ U.S. Department of Interior, National Park Service, Big Cypress National Preserve, General Management Plan and Final Environmental Impact Statement, Volume I, at iii (January 27, 1992) (hereinafter, “GMP/EIS”).

² National Park Service, Big Cypress National Preserve Geologic Resource Evaluation Report, Natural Resource Report NPS/NRPC/GRD/NRR—2008/021 (February 2008) at 2, https://www.nature.nps.gov/geology/inventory/publications/reports/bicy_gre_rpt_view.pdf (hereinafter, “BICY Geologic Resource Evaluation Report”).

³ *Id.*

⁴ *Id.* at 1.

⁵ U.S. Department of the Interior, National Park Service, Annual Park Recreation Visitation (1904 - Last Calendar Year): Big Cypress NPRES, Integrated Resource Management Applications (IRMA) Portal (Dec. 10, 2015), [https://irma.nps.gov/Stats/SSRSReports/Park Specific Reports/Annual Park Recreation Visitation \(1904 - Last Calendar Year\)?Park=BICY](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=BICY).

⁶ Burnett Oil Co., Inc. et al., Nobles Grade 3-D Seismic Survey, Big Cypress National Preserve and Big Cypress National Preserve Addition Plan of Operations at 1 (Dec. 2014) (hereinafter, “Plan of Operations” or “POP”), <http://parkplanning.nps.gov/document.cfm?parkID=352&projectID=53498&documentID=66527>.

⁷ *Id.* at 86. (Calculation is based on total distances between source and receiver points. It can be assumed that effectively all distances between source points will involve vehicle traffic by heavy vibroseis trucks. A significant portion of the total distance between receiver points is also likely to involve vehicle traffic, and refueling and other support vehicles are likely to create some additional disturbance.)

technology⁸ of the proposed action is unprecedented in the Preserve.

III. NPS has broad authority to regulate oil and gas exploration in the Preserve.

A. Legal Framework

The Preserve was created by Congress in 1974. In 1988, the Congress expanded the Preserve through the Big Cypress National Preserve Addition Act (“Addition Act”). Under these laws, NPS is required to administer the Preserve “in a manner which will assure [its] natural and ecological integrity in perpetuity.” 16 U.S.C. § 698i(a). Proper administration of the Preserve includes issuing such rules “as [the Secretary of the Interior] deems necessary and appropriate to limit or control the use of Federal lands and waters with respect to . . . exploration for and extraction of oil, gas, and other minerals . . .” *Id.* at § 698i(b).

The Addition Act requires the NPS Secretary to issue rules “governing the exploration for and development and production of non-Federal interests in oil and gas . . . as are necessary and appropriate to provide reasonable use and enjoyment of privately owned oil and gas interests, *and consistent with the purposes for which the Big Cypress National Preserve and the Addition were established.*” *Id.* at § 698m-4(a) (emphasis added). Congress established the Preserve “[i]n order to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed . . . and to provide for the enhancement and public enjoyment thereof.” *Id.* at § 698f(a). More generally, the Organic Act requires NPS to “promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” 54 U.S.C. §100101. Collectively, these laws empower NPS to reject oil and gas exploration and development activities that would conflict with other resources in the Preserve.

Non-federal oil and gas activities in NPS units are also generally governed by the rules contained in 36 C.F.R. Part 9, Subpart B (hereinafter, “9B rules”). The 9B rules govern “all activities within any unit of the National Park System in the exercise of rights to oil and gas not owned by the United States where access is on, across or through federally owned or controlled lands or waters.” 36 C.F.R. § 9.30(a). The 9B rules “are designed to insure that activities undertaken pursuant to these rights are conducted in a manner consistent with the purposes for which the National Park System and each unit thereof were created, to prevent or minimize damage to the environment and other resource values, and to insure to the extent feasible that all units of the National Park System are left unimpaired for the enjoyment of future generations.” *Id.*

NPS therefore has broad authority to reject the proposed action in order to preserve, conserve, and protect the natural, scenic, hydrologic, floral and faunal, and recreational values of the Preserve. The Regional Director shall not approve a plan of operations unless: (1) the operator

⁸ Environmental Assessment for A Proposed Oil and Gas Plan of Operation: Nobles Grade 3-D Seismic Survey within Big Cypress National Preserve proposed by Burnett Oil Company, Inc. dated November, 2015 (hereinafter, “Environmental Assessment” or “EA”) at 11.

shows that the operations will be conducted in a manner which utilizes technologically feasible methods least damaging to the federally-owned or controlled lands, waters and resources of the unit while assuring the protection of public health and safety, and (2) operations would not substantially interfere with management of the unit to ensure the preservation of its natural and ecological integrity in perpetuity, or would significantly injure the federally-owned or controlled lands or waters.” 36 C.F.R. §§ 9.37(a)(1) & (3).

Further, the Preserve’s own General Management Plan/Environmental Impact Statement (hereinafter, “GMP/EIS”) makes clear that NPS has the authority to deny the POP when it states:

Criteria for Denial of a Plan of Operations: A plan of operations could be denied approval if it would be detrimental to the purposes of the preserve (for example, the existing regulations could not provide the level of protection necessary) or if the levels of environmental impact resulting from such operations were unacceptable (for example, the 10 percent threshold was exceeded). If the denial was viewed as a potential for the taking of property, funds would be sought from Congress to acquire the affected mineral estate.⁹

Oil and gas activities in the Addition Lands portion of the Preserve are governed by Appendix 6 to The Arizona Florida Land Exchange and Related Federal Documents on the Agreement Among the United States of America and Barron Collier Company dated May 12, 1988 (“Additions Agreement”). However, Burnett asserts that it has designed its Plan of Operations (“POP”) in compliance with the 9B rules, including the Addition Lands.¹⁰ As further described herein, NPS fails to use its existing authority to protect the resources and values in the Preserve by not rejecting Burnett’s POP, and by not performing a thorough environmental analysis in an EIS for all phases of exploration.

B. The Padre Island National Seashore Oil and Gas Management Plan provides a notable example of NPS’ authority to regulate private mineral interests.

NPS has long recognized, and exercised, its authority to regulate private interests in lands managed by the agency. For instance, in the Padre Island National Seashore Oil and Gas Management Plan (“Padre Island Plan”), NPS acknowledged its “unambiguous authority to regulate nonfederal oil and gas development in units of the National Park System.”¹¹ The Padre Island Plan provides a useful discussion of the legal basis for this authority.

The Padre Island Plan notes that the authority to manage and protect federal property arises from the Property Clause of the United States Constitution. The Property Clause provides that “Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States . . .” U.S. Const. Art. IV, § 3, cl. 2. Congress’ power over the public lands is without limitations, and extends to conduct that occurs

⁹ National Park Service, Big Cypress National Preserve General Management Plan and Final Environmental Impact Statement dated January 27, 1992 (hereinafter, “GMP/EIS”) at 62.

¹⁰ Environmental Assessment at 4.

¹¹ U.S. Department of Interior, National Park Service, Oil and Gas Management Plan for the Padre National Seashore (Mar. 2001) at 4, http://www.psiee.psu.edu/news/2006_news/sept_2006/oil_and_gas_plan.pdf (hereinafter, “Padre Island Plan”).

on or off federal land which affects federal lands. Courts have consistently upheld Congress' broad delegation of authority to federal land managing agencies under the Property Clause in a variety of contexts. *See, e.g. Kleppe v. New Mexico*, 426 U.S. 529 (1976); *Stupak-Thrall v. United States*, 70 F.3d 881 (6th Cir. 1995) (upholding Forest Service's authority to regulate privately-held surface rights to a lake within a wilderness area); *Duncan Energy Co. v. Forest Service*, 50 F.3d 584 (8th Cir. 1995) (upholding Forest Service's authority to regulate activities on federally owned surface from activities related to private mineral rights underlying National Forest); *United States v. Vogler*, 859 F.2d 638 (9th Cir. 1988) (upholding NPS regulation of access to a private mining claim in a park).¹²

The Padre Island Plan also noted that the 9B rules fall within the broad scope of authority granted to NPS by Congress under its Organic Act that includes the power to regulate conduct that occurs on or off federal land, which may affect federal land. The 9B rules are designed to control conduct associated with private mineral rights on federal land to avoid or minimize harm to park resources and values. Thus, the United States need not own the mineral interest beneath the park unit to regulate rights associated with that interest that may affect the federally owned surface.¹³ The Padre Island Plan added that "both state and federal law govern the conduct of oil and gas operations at Padre Island. However, to the extent that state laws conflict with the federal statutory and regulatory requirements governing the exercise of nonfederal oil and gas rights at Padre Island National Seashore, the state law must yield to federal requirements."¹⁴

Notably, the Padre Island Plan, and its interpretation of the Property Clause, was reviewed and upheld by the U.S. Court of Appeals for the Fifth Circuit as a valid exercise of statutory and regulatory authority. *Dunn-McCampbell Royalty Interest, Inc. v. Nat'l Park Serv.*, 630 F.3d 431 (5th Cir. 2011). This approval was granted despite the court's acknowledgement that the Padre Island Plan prohibits drilling, seismic exploration, the construction of pipelines, and other oil and gas infrastructure and/or activities in certain parts of the Seashore and that "increased costs" due to these measures "might discourage resource exploitation." *Id.* at 434.

C. NPS has the ability to regulate private mineral interests.

In *Minard Run Oil Co. v. United States Forest Service*, 670 F.3d 236 (3d Cir. 2012), the Third Circuit held that U.S. Forest Service review of proposals by private mineral rights owners for oil and gas development in the Allegheny National Forest did not constitute major federal actions subject to NEPA. *Id.* at 250. This case has been cited for the proposition that federal agencies cannot regulate oil and gas development in public lands, although multiple commentators have questioned the court's reasoning. *See, e.g.,* Jeremy Goldstein, *Minard Run Oil Co. v. U.S. Forest Service: Split Estates in the Allegheny National Forest*, 39 Ecology L.Q. 635, 640 (2012) (noting that the holding in *Minard Run* and in a separate case in the Fourth Circuit are "directly at odds with conclusions reached by the Sixth, Eighth, Ninth, and Tenth Circuit courts."); Jessica Diaz, *A Forest Divided: Minard Run Oil Co. v. U.S. Forest Service and the Battle over Private Oil and Gas Rights on Public Lands*, 40 Ecology L.Q. 195, 209 (2013)(in reaching its conclusion, "the

¹² Padre Island Plan at 4.

¹³ *Id.* at 4-5.

¹⁴ *Id.* at 5.

court overlooked alternative explanations for why Congress may have drafted this language the way it did”).

Even if *Minard Run* were correctly decided, its holding is not applicable here. First, *Minard Run* limited its reasoning to lands acquired by the Forest Service under the Weeks Act. See 670 F.3d at 252. The court noted that it interpreted the Weeks Act to “require[] that any rules or regulations that the Secretary wishes to apply to easements reserved by the grantor [] be ‘expressed in and made part of’ the instrument of conveyance.” *Id.* (quoting *United States v. Srnisky*, 271 F.3d 595 (4th Cir. 2001)). No such restrictions apply to NPS here. Congress explicitly contemplated subsequent NPS regulation and oversight of oil and gas development in Big Cypress. See 16 U.S.C. § 698i(b) (directing NPS to develop “rules and regulations . . . to limit or control the use of Federal lands and waters with respect to . . . exploration for and extraction of oil, gas, and other minerals”); 16 U.S.C. § 698m-4 (providing that standards for oil and gas activities may be based in part on “exploration and development and production practices used in similar habitats or ecosystems within the Big Cypress National Preserve or the Addition at the time [rules are developed] . . . or at the time of the submission of the application seeking authorization for such activities”). Therefore, it is clear that NPS authority to regulate oil and gas activities in Big Cypress is much broader than that of the Forest Service under the Third Circuit’s reading of the Weeks Act in *Minard Run*.

In a non-Weeks Act case, the Eighth Circuit Court of Appeals held that the Forest Service had the authority to determine what constituted reasonable use of the federal surface by a private mineral owner. *Duncan Energy Co. v. U.S. Forest Serv.*, 50 F.3d 584, 591 (8th Cir. 1995). Moreover, the court held that to the extent that state law was inconsistent with that authority, it was preempted by federal law. *Id.* While bright line tests have not been established by the courts to determine questions of what constitutes reasonable use of the surface estate, federal courts have confirmed that the power and authority of agencies to exert control is exercised procedurally in the manner normally used to regulate federal lands. For example, the FWS’ authority to protect the Baca National Wildlife Refuge was found to be a “federal action” subject to NEPA. *San Luis Valley Ecosystem Council v. U.S. Fish & Wildlife Serv.*, 657 F. Supp. 2d 1233, 1244 (D. Colo. 2009) (where mineral rights on National Refuge property are owned by third parties, the owner “shall, to the greatest extent practicable, conduct all . . . operations in such a manner as to prevent damage, erosion, pollution, or contamination to the lands, waters, facilities and vegetation of the area” (quoting 50 C.F.R. § 29.32)).

Proposals by a private owner of mineral rights to minimize impacts on the surface estate do not automatically qualify as reasonable use. Generally, where it is merely convenient for the mineral estate owner to use or occupy the surface estate, or where a less impactful alternative exists, the surface owner may deny a proposed intrusion as trespass. See, e.g. *Gerrity Oil & Gas Corp. v. Magness*, 946 P.2d 913 (Colo. 1997). Even where a mineral owner proposes a “necessary use of the surface, the [mineral] lessee has a responsibility to exercise its privilege reasonably, in a manner designed to minimize intrusion and surface damages.” *Id.* at 938; see also *Noblin v. Harbor Hills Dev., L.P.*, 896 So.2d 781, 784 n.2 (Fla. Dist. Ct. App. 2005) (approvingly citing multiple cases holding that the mineral rights holder may access only that surface which is “reasonably necessary” to access the oil and gas, and that the right of entry extends only to “such manner and [] such means as would be fairly necessary for the enjoyment of the mineral estate”).

It would appear that NPS believes that it has no choice but to approve the proposed action,¹⁵ which is not the case. In reality, NPS would not automatically cause a taking of private property by rejecting the proposed action. A taking occurs when an agency denies all economically viable use of a property in interference with its owner's reasonable expectations for its use. *See, e.g., Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978); *see also Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019 (1992) (takings occur where regulations completely deprive an owner of "all economically beneficial use" of a property). Moreover, use restrictions that serve a substantial public purpose have been upheld against "taking" challenges. *See, e.g., Goldblatt v. Hempstead*, 369 U.S. 590 (1962); *Hadacheck v. Sebastian*, 239 U.S. 394 (1915).

As further discussed herein, NPS has not yet evaluated a reasonable range of alternatives to the proposed action, including those alternatives that would avoid or minimize impacts to the surface estate. Such alternatives would not deprive mineral estate owners of "all economically beneficial use." The alternatives analysis required by NEPA provides an excellent tool for determining what constitutes technologically feasible methods least damaging to the Preserve in the context of site-specific resource values, whether such methods can be conducted in a manner consistent with the purposes for which the Preserve was created, and in a manner that ensures that the Preserve is left unimpaired for the enjoyment of future generations.

IV. An Environmental Impact Statement is Necessary.

A. The Proposed Action Constitutes a Major Federal Action.

NEPA requires federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). Whether a Federal action is "major" depends on the significance of the impact on the human environment. *See, e.g., Preserve Endangered Areas of Cobb's History, Inc. v. U.S. Army Corps of Engineers*, 87 F.3d 1242 (11th Cir. 1996). "Major" for the purposes of the NEPA "reinforces but does not have a meaning independent of significantly." 40 C.F.R. § 1508.18. "Significantly" requires considerations of both context and intensity. 40 C.F.R. § 1508.27. An agency must analyze the significance of a proposed major action in several contexts, such as the affected interests. 40 C.F.R. § 1508.27(a). Although an evaluation of significance often relies on subjective judgment, evaluations of significance consider both an impact's context and intensity.¹⁶

1. Context

The proposed action's effects "must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality." 40 C.F.R. § 1508.27(a). NPS acknowledges in its NEPA Handbook that an impact's significance is influenced by "the importance of the resource or value being impacted, the geographic location and timing, and other relevant factors that provide context for more fully understanding the

¹⁵ U.S. Department of Interior, National Park Service, Big Cypress Questions and Answers, Nobles Grade 3-D Seismic Survey (distributed at the Public Meeting at Big Cypress National Preserve on December 8, 2015) at 1.

¹⁶ U.S. Department of the Interior, National Park Service, National Park Service NEPA Handbook (2015) (hereinafter, "NEPA Handbook") at 19-20.

severity of the impact.”¹⁷ Moreover, the relationship of an affected resource to a park unit’s purpose and significance can be an important factor when considering context.¹⁸

The context here is that the Preserve contains vast undeveloped unique ecosystems, many of which consist of Important Resource Areas that serve as habitats for several protected species, including the endangered Florida panther. The Preserve is located in an environmentally sensitive region in South Florida located adjacent to the historic Florida Everglades to which it provides approximately 42% of the water flowing into Everglades National Park from its vast hydrologic network—which NPS acknowledges is among the least altered remaining in South Florida.¹⁹ Water flows on the surface of the Preserve in marshes and sloughs and below ground through porous substrate in aquifers.²⁰ Big Cypress Swamp serves as a significant aquifer recharge area²¹ to aquifers that provide drinking water to nearby communities.

As further described herein, the impacts to the environmental and recreational values in the Preserve from the proposed action would be severe since it would involve unprecedented off-road seismic exploration that would initially traverse 70,454 acres of the Preserve, mostly within wetland communities. Subsequent exploration phases would result in impacts to approximately one third of the Preserve.²² Environmental, recreational, and Tribal interests would be adversely affected by such vast and unprecedented oil exploration in this ecologically sensitive region. Consequently, the proposed action and subsequent phases of exploration conflict with the purpose of establishing the Preserve to “...assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed . . . and to provide for the enhancement and public enjoyment thereof.” 16 U.S.C. § 698f(a).

2. Intensity

The intensity analysis refers to the severity of the anticipated impact of the proposed action on the human environment. 40 C.F.R. § 1508.27(b). “Intensity relates to the degree to which the agency action affects the locale and interests identified in the context part of the inquiry.” *Nat’l Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, 731 (9th Cir. 2001). NPS’ NEPA Handbook acknowledges that the following factors must be considered when evaluating the intensity of the proposed action: (1) Impacts that may be both beneficial and adverse; (2) The degree to which the proposed action affects public health or safety; (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas; (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial; (5) The degree to which the potential impacts are highly uncertain or involve unique or unknown risks; (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; (7) Whether the action is related to other actions with individually insignificant but cumulatively significant

¹⁷ NEPA Handbook at 20.

¹⁸ *Id.*

¹⁹ BICY Geologic Resource Evaluation Report at 1.

²⁰ *Id.* at 6.

²¹ *Id.*

²² Plan of Operations at 1.

impacts; (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources; (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act; and (10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.²³

Here, the intensity of the proposed seismic surveying would be severe and adverse. It would occur throughout 70,454 acres of the Preserve, including in remote and previously undisturbed areas. This type of off-road seismic surveying is unprecedented in the Preserve, and the full impacts to the public health and safety of visitors to the Preserve have not been evaluated. The Preserve possesses many characteristics that are unique to South Florida, including its proximity to Everglades National Park, and Seminole and Miccosukee tribal lands. The Preserve also contains several Important Resource Areas, including cypress strands, mixed-hardwood swamps, sloughs and cypress domes, marshes, hardwood hammocks, old-growth pinelands, and mangrove forests.²⁴

The proposed action is highly controversial and NPS has received thousands of comments in opposition to the POP during the scoping process. A petition to “Save Big Cypress National Preserve” citing impacts to recreation and wildlife containing 1,350 signatures further demonstrates the significant public concern over the proposed action.²⁵ The potential impacts of this new seismic technology are highly uncertain and involve unique or unknown risks due to its size and off-road nature. The proposed action would establish a precedent that future exploration actions by Burnett and other operators could move forward without a full evaluation in an EIS. As further described herein, the proposed action would have cumulative and significant impacts on the Preserve, which could jeopardize the quality of the water the Preserve provides to Everglades National Park and nearby communities, destroy Important Resource Areas, and jeopardize areas of the Preserve eligible for a wilderness designation. The proposed action would adversely affect a critically endangered species, the Florida panther, and other protected species. Consequently, the context and intensity of the proposed action make it “a major Federal action significantly affecting the quality of the human environment” under NEPA, which requires NPS to prepare an EIS.

B. The EA Unlawfully Segments the Larger Exploration Project.

Segmentation refers to the practice of breaking up large projects into several smaller projects in an effort to avoid full NEPA review of the cumulative impacts of the project as a whole. Courts have held that it is unlawful to segment a project into smaller components in order to avoid designating it as a major federal action that requires the completion of an EIS. *See, e.g., State of N.J., Dept. of Environmental Protection and Energy v. Long Island Power Authority*, 30 F.3d

²³ NEPA Handbook at 20-22; *see also* 40 C.F.R. § 1508.27(b).

²⁴ Environmental Assessment at 12.

²⁵ Petition to “Save Big Cypress National Preserve” addressed to Superintendent Tamara Whittington, et al., https://www.change.org/p/tamara-whittington-superintendent-big-cypress-national-preserve-save-big-cypress-national-preserve?recruiter=13042750&utm_source=share_petition&utm_medium=copylink. (Last visited December 31, 2015).

403 (3d Cir. 1994); *Ross v. Federal Highway Admin.*, 972 F. Supp. 552 (D.Kan. 1997), *decision aff'd*, 162 F.3d 1046 (10th Cir. 1998); *Coalition on Sensible Transp., Inc. v. Dole*, 826 F.2d 60 (D.C. Cir. 1987); *Preserve Endangered Areas of Cobb's History, Inc. v. U.S. Army Corps of Engineers*, 87 F.3d 1242 (11th Cir. 1996).

To assist in identification of improper segmentation under NEPA, Council on Environmental Quality (“CEQ”) regulations require the scope of every EIS to consider connected actions. 40 C.F.R. § 1508.25. Actions are connected if they: automatically trigger other actions which may require environmental impact statements; cannot or will not proceed unless other actions are taken previously or simultaneously; and are interdependent parts of a larger action and depend on the larger action for their justification. *Id.* at § 1508.25(a)(1). These regulations also mandate consideration of cumulative actions, “which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” *Id.* at § 1508.25(a)(2).

The EA improperly segments Burnett’s POP by only analyzing Phase I of the four phases of the seismic exploration originally proposed. NPS expressly acknowledges in the EA that it does not include an analysis of the three other phases of the same exact method of seismic exploration that Burnett wants to undertake within the Preserve.²⁶ Phase I of the seismic exploration is clearly connected to the other three phases of exploration in the Preserve described in Burnett’s POP.²⁷ Notwithstanding Burnett’s attempt to unlawfully segment its four-phase exploration proposal, all four exploration phases must be properly evaluated together in an EIS. The four exploration phases are closely related, immediately adjacent to each other, and constitute interdependent parts of the larger action to explore for oil resources, which would have significant cumulative impacts on the Preserve. Each of the four phases of exploration would require evaluation in an EIS. Therefore, NPS must evaluate the impacts of all four phases of exploration collectively in an EIS. NPS’ breaking up of the larger exploration plan into smaller components to avoid the completion of an EIS unlawfully segments the larger plan of exploration under NEPA.

C. The EA itself demonstrates that an EIS is required.

An agency may prepare an EA to assist it in “determining whether to prepare an environmental impact statement or a finding of no significant impact.” 40 C.F.R. § 1508.9(a)(1). However, “no matter how thorough, an EA can never substitute for preparation of an EIS if the proposed action *could* significantly affect the environment.” *Anderson v. Evans*, 371 F.3d 475, 494 (9th Cir. 2004) (emphasis added). An EIS is required if the proposed action may significantly affect the environment; it is not necessary to establish that significant effects *will* occur.” *Id.* at 488 (emphasis added). “[T]he plaintiffs need not demonstrate that significant effects will occur. A showing that there are substantial questions whether a project may have a significant effect on the environment is sufficient.” *Id.*, quoting *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998) (internal citations omitted). “The purpose of an EIS is to obviate the need for speculation” on the potential effects of the proposed action. *Sierra Club v. U.S. Forest Serv.*, 843 F.2d 1190, 1195 (9th Cir. 1988).

²⁶ Environmental Assessment at 2.

²⁷ Plan of Operations at 1-2.

NPS acknowledges that an EIS is the appropriate NEPA pathway when the proposal is expected to, or has the potential to, result in significant adverse environmental impacts, and there is a high degree of controversy over the environmental impacts of a proposed action.²⁸ “If an action has the potential to result in significant adverse impacts and applying mitigation measures cannot ensure that significant adverse impacts will be avoided, an EIS must be prepared.”²⁹

The nature and size of the proposed off-road seismic exploration would result in significant adverse direct impacts to the environment within remote and previously undisturbed areas of the Preserve, areas proposed for wilderness designation, wetland vegetation, soils, aquifers, hydrology, and critical habitat for protected wildlife. The creation of seismic lines involves cutting of trees and creating surface disturbance to flora, fauna, soils and watercourses. In some cases, wide roads and clearings are needed for seismic equipment, helicopter landings and work camps, and are created by using bulldozers, hydroaxes, and large construction equipment.³⁰ These impacts would significantly impact Preserve resources and visitor experiences. Additionally, NPS received thousands of comment on Burnett’s proposed plan of operations during scoping, which evidences a high degree of controversy surrounding the proposed action. Consequently, NPS must prepare an EIS.

V. The EA Unlawfully Tiers to an Incomplete and Out-dated Analysis in the 1992 General Management Plan/EIS

In 1992, NPS completed the GMP/EIS for the original Preserve. However, the GMP/EIS is severely outdated. The NPS must undertake a new GMP for the Preserve, and must not tier to the GMP/EIS, because many conditions have changed since 1992. NEPA requires that an agency supplement its original analysis when “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 40 C.F.R. § 1502.9(c)(1)(ii). Here, an EIS is required because there is new information that shows that the proposed action would affect the quality of the human environment in a significant manner, and to a significant extent not already considered in the 1992 GMP/EIS. *Sierra Club v. Bosworth*, 465 F. Supp. 2d 931, 937 (N.D. Cal. 2006), quoting *Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 374 (1989).

A. The EA Fails to Address Current Conditions in the Preserve.

To start, climate change has significantly altered the south Florida ecosystem since 1992. According to the 1992 GMP/EIS:

Areas like Big Cypress, which are near sea level, have little topographic gradient, and contain terrestrial and aquatic ecosystems that are highly sensitive to changes in precipitation patterns, may be the first areas to exhibit alterations as a result of global climate change. The potential timing of such changes are unknown but are

²⁸ NEPA Handbook at 18.

²⁹ *Id.* at 19.

³⁰ Harvey Consulting, LLC, Onshore Seismic Exploration Best Practice and Model Permit Requirements: Report to Sierra Club and Natural Resources Defense Council (January 20, 2011) at 7, (hereinafter, “Onshore Seismic Exploration Best Practice and Model Permit Requirements”), which is attached hereto and incorporated herein as Exhibit A.

probably beyond the 15-year life of this plan. If conditions substantially change within the next 15 years, this issue will be reassessed, and the general management plan will be revised as necessary.³¹

According to the Committee on Independent Scientific Review of Everglades Restoration Progress of the National Research Council, climate change is a major threat to the persistence and functioning of wetlands ecosystems. The Panel has concluded that sea level in south Florida “is rising almost an order of magnitude faster than the long-term rate of 0.35 mm/yr that prevailed for the past 4,000 years.” The National Oceanic and Atmospheric Administration has calculated the average sea-level rise in south Florida to be 8.8 inches over the past century, “more than 30 percent higher than the global average of 6.7 inches (17 cm) for the 20th century.”³² Conditions have substantially changed since 1992, and therefore, NPS should complete a new GMP for the Preserve that is based on current conditions. NPS must also prepare a new EIS that fully evaluates the proposed action based on current conditions.

Another changed condition is the population in southern Florida, which has increased dramatically. The seven counties in southern Florida (Lee, Hendry, Palm Beach, Collier, Broward, Monroe, and Miami-Dade) gained a total of nearly 2.5 million in population between 1990 and 2015. According to the Florida legislature’s Office of Economic and Demographic Research, the state’s population is expected to grow by another nearly two million residents by 2040.³³ This increases the potential for many more visitors to visit the Preserve for recreational purposes, a number that has already increased by almost tenfold since 1992. Management planning must be updated to take into account growing recreational use of the Preserve. Higher population also has significant implications for greater traffic on nearby roads, increased pressure on water resources, and growing real estate development, which can limit essential habitat for threatened and endangered species.

Recreational opportunities have also increased in the Preserve. When the GMP/EIS was finalized, “The primary visitors to Big Cypress are hunters, ORV users, and owners of improved properties rather than the general public. Only a minimal effort has been made to inform the general public about the preserve.”³⁴ NPS statistics show that visitation in 1991 was 159,172. In 2014, it was 1,192,858.³⁵

In addition, at the time of the 1992 GMP/EIS, four commercial use permits had been issued in the Preserve, but only one permit holder offered short, scheduled tours for visitors to limited portions of the Preserve, either by airboat or swamp buggy.³⁶ Currently, there are twelve permitted companies that provide visitor services within the Preserve, only one of which is

³¹ GMP/EIS at 18.

³² National Research Council of the National Academies, Progress Toward Restoring the Everglades: The Fifth Biennial Review – 2014, The National Academies Press, Washington, D.C. (2014) at 131-133.

³³ Florida Office of Economic and Demographic Research, Total County Population: April 1, 1970 - 2040*, <http://edr.state.fl.us/Content/population-demographics/data/CountyPopulation.pdf>.

³⁴ GMP/EIS at 197.

³⁵ U.S. Department of Interior, National Park Service, Big Cypress National Preserve, Annual Park Recreation Visitation, <https://irma.nps.gov/Stats/Reports/Park/BICY>.

³⁶ GMP/EIS at 198.

“inactive.”³⁷ Given the increases in visitation and recreational use in the Preserve, it is likely that disturbance of ecosystems has also increased as a result—yet this has not been evaluated even though it would establish a different baseline for evaluating the proposed action’s risks to nesting and denning areas, vegetative communities, and other aspects of oil exploration, than what was anticipated by the 1992 GMP/EIS.

Since 1992, there have also been significant changes related to the status of the highly endangered Florida panther. There have been ongoing development pressures and habitat loss in south Florida, as well as two revisions to the FWS’ panther recovery plans (in 1995 and 2008) that must be taken into account by the NPS.³⁸

When the 1992 GMP/EIS was written, there had never been a 3D-seismic survey activity in the Preserve. The only 3D-seismic survey activity that has taken place since 1992 was a far smaller project than the proposed action at Raccoon Point in 1999. Also since 1992, an Off-Road Vehicle management plan for the Preserve was issued in in 2000 (hereinafter, “ORV Plan”). The ORV Plan provides more recent information on the impacts of off-road vehicle access and use on water, soil, vegetation, wildlife and other aspects—none of which was fully considered in the 1992 GMP/EIS. Therefore, the NPS cannot tier to the outdated 1992 GMP/EIS, and must prepare an EIS for the proposed action.

B. The EA Fails to Address the Impacts of New Exploration Technology.

The EA also references the 1998 EA for Oil and Gas Plans of Operations Calumet Florida, Inc. Raccoon Point 3-D Seismic Evaluation in Big Cypress National Preserve, noting that the EA resulted in a finding of no significant impact (“FONSI”).³⁹ The exploration and production technology was different in 1998 than it is today. Also, the area proposed for the Raccoon Point 3-D Seismic evaluation was much smaller than the proposed action area in this EA. The operator in the Raccoon Point survey utilized a completely different technology known as the “shot-hole” method of seismic exploration, which is not the same as the methodology being proposed here. NPS cannot tier to outdated NEPA documents, evaluating operations with different scale and technology, to support an evaluation of the proposed action. Rather, the proposed action must be evaluated under current off-road seismic exploration technologies in a new EIS.

The fact that the existing 9B rules are currently undergoing revisions to reflect current NPS policies and technologies evidences that 1992 technology, such as that evaluated in the GMP/EIS, and 1998 analysis, such as that in the EA for Raccoon Point, are outdated. The 9B rules were finalized in 1979. NPS has found that changes to the 9B rules are needed in order to “improve understanding, efficiency, enforcement, and resource protection in parks.”⁴⁰ NPS has also determined that:

³⁷ U.S. Department of Interior, National Park Service, Big Cypress National Preserve, Permitted Commercial Services Operators, <http://www.nps.gov/bicy/learn/management/permitted-commercial-operators.htm>.

³⁸ United States Department of the Interior, Fish & Wildlife Service, Florida Panther Recovery Plan, Third Revision (2008) (hereinafter, “Panther Recovery Plan”).

³⁹ Environmental Assessment at 9.

⁴⁰ U.S. Department of Interior, National Park Service, Draft Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities: Environmental Impact Statement (2015) at i (hereinafter, “proposed 9B rule revisions”).

[T]he oil and gas exploration and development industry has made significant advances in technology and practices over the last 36 years since the 36 C.F.R 9B regulations were initially promulgated (these include three-dimensional geophysical exploration, extended-reach directional and horizontal drilling capability, and use of containerized drilling fluid systems), and the proposed revisions are designed to reflect such advances, particularly with respect to protection of park natural and cultural resources, and human health and safety.⁴¹

The EA would allow the POP to go forward under outdated rules. The POP should not be considered under the existing 9B rules, which are outdated and not adequately protective of Preserve resources. Instead, the POP should be considered once the proposed 9B rule revisions take effect. The proposed 9B rule revisions are more appropriate to protect Preserve resources from current technology and would result in long-term beneficial impacts on wetlands, compared to the current rules, including: improved erosion and sedimentation control, storm water management, improved spill prevention (contamination) and counter-measure actions, as well as reduction in altered hydrology, and beneficial effects on wetland function and values.⁴² Other proposed regulatory changes would result in an improved process of handling minor acts of noncompliance, accelerated reclamation of sites, and funding sources that could indirectly benefit resources at the parks.⁴³ The proposed 9B rule revisions would result in requirements governing the re-contouring and reestablishing of native vegetative communities; exotic and invasive plant species control; and overall proper site reclamation. This would result in reduced erosion and contaminated soil exposure, and a reduction in overall damage or loss of vegetation communities and special status plants when compared to the existing rules.⁴⁴

Another change proposed in the proposed 9B rule revisions is elimination of the outdated bond limit for financial assurance. The existing 9B rules provide an inadequate bonding cap of up to \$200,000 per operator, *per park unit*. 36 C.F.R § 9.48(b)(3) (emphasis added). NPS acknowledges that in some cases, this could present a substantial financial burden on NPS and the taxpayer.⁴⁵

The existing 9B rules require, “at a minimum,” rehabilitation of the area of operations “to a condition which would not ... adversely affect, injure, or damage federally-owned lands or waters.” 36 C.F.R. § 9.39. Here, NPS fails to provide an estimate of reclamation costs in the EA, even though the restoration work that would be needed in the Preserve following completion of the proposed action would be extensive. The EA also fails to require a specific wetland restoration plan and long-term maintenance and monitoring, which as further described below, is typically required for wetland restoration in the state of Florida. If NPS requires adequate wetland restoration and maintenance and monitoring from Burnett, the reclamation costs will only increase.

⁴¹ *Id.*

⁴² *Id.* at x.

⁴³ *Id.*

⁴⁴ *Id.* at xii.

⁴⁵ Proposed 9B rule revisions at 142.

The EA identifies the following reclamation activities necessary to avoid or minimize potential impacts from the proposed seismic activities⁴⁶:

- Wetland, saturated soil, and standing water surveys;
- Trash collection;
- Treatment of marred or wounded standing trees with pruning paint or wound coating;
- Manual restoration of ruts, depressions, and vehicle tracks to original contour conditions;
- Surveys conducted by NPS to identify all adverse impacts to wetlands;
- Decompacting and re-grading of soils to match original grade;
- Revegetation of disturbed areas with native species in specific patterns;
- Restoration of wetland acreage to compensate for temporal loss of wetland function;
- Restoration of adverse impacts to staging areas; and
- As-identified restoration for disturbance to red-cockaded woodpecker, wood stork, bald eagles, and wading birds.

Under the current 9B rules the maximum financial assurance that the NPS could receive for the completion of these restoration activities and any others that may arise during the proposed action is \$200,000. This amount is inadequate for restoration and maintenance and monitoring throughout 110 square miles of the Preserve. Therefore, the current bonding limits leave the taxpayer exposed in the event that a company defaults on its reclamation and cleanup responsibilities. In the event of operator default on its reclamation responsibilities, NPS would need to seek and acquire funding for site reclamation. Under the proposed 9B rule revisions, the existing bonding cap on reclamation would be eliminated and replaced with a requirement that the amount of financial assurance equal the estimated actual cost of reclamation. With this provision in place, NPS could conduct reclamation in the short-term using the financial assurance mechanism in the event of operator default.⁴⁷

The proposed 9B rule revisions also include authorization for NPS to collect fees for “privileged access” of federal surface lands beyond those related to existing mineral rights.⁴⁸ This change was included in part to respond to development in the Preserve, where operators constructed an 11-mile road across NPS lands to reach a private lease that caused indirect effects on more than 3,000 acres. NPS refers to this road as “one of the more extreme examples”⁴⁹ of uncompensated access in NPS system. Though road construction and other privileged uses of federal lands remain undefined in the proposed action, road construction, or, at a minimum, significant impacts to existing roads would likely occur within the 110 square mile proposed action area. If NPS authorizes the proposed action under the current 9B rules, it risks losing thousands of dollars in uncompensated “privileged access” fees.

The proposed 9B rule revisions also require additional operating standards for geophysical operations, which further evidences that the EA is not based on current information. Additional

⁴⁶ Environmental Assessment at 32-37.

⁴⁷ *Id.*

⁴⁸ General Provisions and Non-Federal Oil and Gas Rights, 80 Fed. Reg. 65571, 65584 (Dep’t of Interior proposed Oct. 26, 2015) (to be codified at 36 C.F.R. parts 1 and 9).

⁴⁹ National Park Service, The National Park Service 9B Oil & Gas Regulation Revision: A Pictorial Overview (January, 2014) at 9.

information that would be required in each proposal include: the number of crews and number of workers in each crew; names and depths of geological zones targeted for imaging, the methods of access along each survey line for personnel, materials, and equipment; and a map showing the positions of each survey line including all source and receiver locations as determined by a locational survey.⁵⁰ Additional operating standards include: using survey methods that minimize the need for vegetative trimming and removal; locating source points using industry-accepted minimum safe-offset distances from specific facilities; and using equipment and methods that will minimize impacts to federally owned lands, waters, and resources, and visitor uses and experiences.⁵¹

Our understanding is that there are no other oil and gas proposals currently being considered by NPS under the current outdated 9B rules while the proposed 9B rule revisions are pending. By allowing the proposed action to move forward under the existing outdated 9B rules, NPS fails to adequately protect Preserve resources and values. NPS itself acknowledges that the current 9B rules are outdated and are inappropriate for modern-day oil and gas industrial operations, yet NPS still advances the proposed action under the existing 9B rules. The proposed action should not be considered until the updated 9B rules are finalized. This is necessary to ensure adequate protection of the Preserve during oil exploration.

Moreover, NPS acknowledges that “GMP reviews may be needed every 10 to 15 years, but may be needed sooner if conditions change significantly. If conditions remain substantially unchanged, a longer period between reviews would be accepted.”⁵² Here, NPS expressly acknowledges that updated planning is required in the Preserve for oil and gas development when it stated in 2010, that a Preserve-wide oil and gas management plan was being prepared by NPS to provide guidance for oil and gas exploration for the entire Preserve, including the Addition Lands.⁵³ However, this updated plan has never been completed. As described above, conditions within the Preserve have substantially changed since the original management plan for the Preserve was completed 23 years ago, and even since NPS’ 2010 statement that a new management plan for oil and gas development was being prepared. Therefore, NPS should not approve any further oil and gas operations in the Preserve until it updates its 9B rules and completes a new Preserve management plan that reflects current NPS policies and evaluates current oil and gas exploration technology.

VI. The EA Fails to Adequately Address Cumulative Impacts.

The EA contains an inadequate cumulative impacts analysis and fails to analyze the cumulative impacts of all past, present, and reasonably foreseeable related activities. Agencies are required to consider cumulative actions and similar actions in defining the scope of an EIS. “Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.” 40 C.F.R. § 1508.27(7). “Cumulative actions” have cumulatively significant impacts when considered with other proposed actions. 40 C.F.R. § 1508.25(a)(2). “Similar actions are defined as actions when viewed with other reasonably foreseeable or proposed agency actions, have

⁵⁰ National Park Service, General Provisions and Non-Federal Oil and Gas Rights; Proposed Rule, 80 Fed. Reg. 65571 at 65595.

⁵¹ *Id.* at 65598.

⁵² National Park Service, Management Policies 2006, at 26, <http://www.nps.gov/policy/mp2006.pdf>.

⁵³ ORV Plan at 34.

similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.” 40 C.F.R. § 1508.25(a)(3). Thus, “when several proposals for actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together.” *Kleppe v. Sierra Club*, 427 U.S. 390, 409-410 (1976); *City of Tenakee Springs v. Clough*, 915 F.2d 1308 (9th Cir. 1990) (holding that the NEPA requires that, where several actions have a cumulative or synergistic environmental effect, this consequence must be considered in an EIS).

Clearly, the four phases of seismic exploration that Burnett intends to undertake in the Preserve within a four-year period within a 366± square mile area⁵⁴ are related, and would have substantial cumulative impacts on the environmental, recreational, and cultural values of the Preserve. NPS acknowledges that the NG3-D seismic survey is a use of technology that has not been previously used in the Preserve.⁵⁵ The unprecedented off-road utilization of vibroseis trucks throughout almost one third of the Preserve, including in areas that have never experienced any disturbance, to conduct seismic operations is exactly the sort of circumstance that requires a thorough cumulative impact analysis. Therefore, the cumulative impacts of all four phases of the exploration must be evaluated together in a single EIS.

NPS must consider the cumulative impacts of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. This includes the actions of non-Federal actors. 40 C.F.R. § 1508.7; *Resources Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1993) (rejecting the Forest Service’s argument that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them). Here, the EA fails to mention that a seismic survey has been approved by the State of Florida on 161 square miles of private and state lands located immediately adjacent and directly to the north of the Preserve by a company called Tocala, LLC.⁵⁶ NPS must analyze the cumulative impacts of oil and gas exploration on the Preserve, including the impacts from the neighboring seismic exploration.

As further described below in the section on adverse environmental impacts of the proposed action, these impacts would be further exacerbated by subsequent phases of exploration in the Preserve, and exploration activities on adjacent lands. Therefore, NPS must evaluate the cumulative impacts of the proposed action, subsequent phases of exploration in the Preserve, and adjacent exploration activities together in a single EIS. It is unlawful for NPS to segment the overall exploration project and to ignore adjacent exploration activities in order to avoid an evaluation of the cumulative impacts of all of these projects in an EIS.

VII. The EA Fails to Take a “Hard Look” at the Proposed Action’s Adverse Environmental Impacts.

According to the EA, the potential “short-term” adverse impacts of the vibroseis trucks and other vehicle activity and the use of staging areas include: “matting down of plants, scraping of trees,

⁵⁴ Plan of Operations at 1.

⁵⁵ Environmental Assessment at 11.

⁵⁶ See State of Florida Department of Environmental Protection Oil and Gas Geophysical Permit number G-166-13, issued to Tocala, LLC, on January 16, 2014, which can be viewed at: http://www.dep.state.fl.us/water/mines/oil_gas/drill-apps.htm.

exposure of plant roots; or bending, breaking, and trimming of low shrubby and woody undergrowth,” as well as “soil rutting and soil compaction.”⁵⁷ NPS states that the vibroseis trucks used in the proposed action “would use existing trails to the extent practical; however, many of the formerly used trails have been largely grown over, and the extent of trails in the Addition portion of the survey area is very limited, as the Addition has been closed to ORV use since the NPS acquired most of the land in 1996. Implementation of [the proposed action] would contribute a small adverse increment to these impacts.”⁵⁸

At the same time, NPS states that “[o]perations would avoid all forms of new construction, such as new roads and fill pads.”⁵⁹ NPS also states there is “potential use of trails recovering from past recreational ORV use.”⁶⁰ It is not technically possible to avoid new construction if there are no adequate existing roads or trails available to use during the proposed action. In order to use overgrown trails, Burnett would have to reconstruct or modify these trails. The EA also states that the operation will use “routes that are already devoid of large trees,”⁶¹ but it also states that there are more than 45,000 acres of forests in the survey area, including: Cypress forests, Mesic and Hydric Pine Flatwoods, Mesic and Hydric Hammock, and Swamp Forest.⁶² Therefore, it is not clear how the proposed action would avoid large trees.

The EA states that vibroseis source lines would be located on existing roads, trails and disturbances, where feasible.⁶³ However, the EA fails to include any Geographic Information System (“GIS”) data or maps depicting the locations of existing roads, trails, and disturbed areas that would be used to locate vibroseis source lines. The EA also fails to identify the locations where the construction of new trails would be necessary, and fails to specify the width of the source lines. Consequently, the public is unable to understand or provide important comment on these potentially significant adverse impacts of the proposed action on Preserve resources and trails.

NPS fails to acknowledge that the operation of 61,700-pound vibroseis trucks⁶⁴ through wetlands and other Important Resource Areas would, in effect, create new trails. In the Wetlands Statement of Findings portion of the EA, NPS states “...there is a potential for rutting, soil compaction, and vegetation destruction for a total two-track distance of 510± miles.”⁶⁵ Therefore, it appears that 510 miles of new trails could potentially be created as a result of the proposed action, mostly within wetlands. This is a significant amount of wetland impacts, not a “small” amount of impacts, as the impacts are characterized by NPS in the EA.⁶⁶

⁵⁷ Environmental Assessment at 88.

⁵⁸ *Id.* at 88-89.

⁵⁹ *Id.* at 32.

⁶⁰ *Id.* at 33.

⁶¹ *Id.*, Appendix B at 30.

⁶² Environmental Assessment at 12.

⁶³ *Id.* at 33.

⁶⁴ Plan of Operations, *supra* note 3, Exhibit 8 (Field Testing of Vibroseis Buggy), Exhibit B (Vibroseis Buggy Specifications) at page 5 (specification sheet with heading “AHV4-PLS 362 Vibrator Buggy W/Frame Rollover Protection).

⁶⁵ Environmental Assessment, Appendix B at 23.

⁶⁶ Environmental Assessment at 89.

Because the EA fails to even acknowledge the fact that the operation of heavy vibroseis trucks and other equipment would create new trails in the Preserve, the EA does not contain any information on the amount of new trails that would be created, the width of the new trails, or the impacts of the new trails on resources in the Preserve. The EA also fails to provide any GIS data or maps depicting the locations of existing roads, trails, and disturbed areas that would be used to locate vibroseis source lines. The EA also fails to identify where the construction of new trails would be necessary. The undersigned organizations recently obtained GIS data from NPS containing the locations of the proposed action area and existing trails in the Preserve, and used this information to create a map.⁶⁷ The map shows that, other than the Florida National Scenic Trail, few trails currently exist within the proposed action area. Therefore, the map clearly shows that Burnett would have to create new trails in order to access the majority of the proposed action area.

The EA also fails to evaluate the consequences of the off-road surveying activities, which is necessary since the environmental impacts of ORV trails and forest roads are well documented. The NPS has itself documented the impacts of ORVs on the Preserve in several NEPA documents. The 2000 Supplemental EIS for the ORV Management Plan recognizes the severe environmental impacts of ORVs and the safeguards that are needed to protect the values and resources of the Preserve from their impacts.

ORV use in the Preserve is referred to as a “high impact recreational activity”⁶⁸ and is responsible for rutting, compaction and oxidation of soils, destruction of plants and roots, alteration of wetland hydrology, facilitating the spread of invasive plant species throughout the Preserve, and causing behavioral disturbances to endangered animal species.⁶⁹ Here, the proposed action would cause even greater impacts than those impacts associated with recreational ORV use. The EA acknowledges that “the wider [vibroseis truck] tires would mat down wider strips of vegetation than typical ORVs...”⁷⁰ Therefore, the NPS must fully evaluate the impacts of the new trails created by vibroseis equipment on Preserve resources.

A. There has been no hard look at past or present oil and gas activities in the Preserve.

Regardless of whether an EIS or an EA is prepared, NEPA requires that agencies take a “hard look” at the environmental consequences of the federal action. 42 U.S.C. § 4321, *et seq.*; *see also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *Britt v. U.S. Army Corps of Engineers*, 769 F.2d 84, 90 (2d Cir. 1985) (finding that where an agency has failed to take the requisite “hard look,” a court may enjoin it from pursuing the project until an appropriate EIS is prepared). Approval of the proposed action represents a critical stage of agency decision-making that would result in an irreversible and irretrievable commitment of resources. *See Sierra Club*, 717 F.2d at 1414. Therefore, NEPA requires NPS to take a hard look

⁶⁷ See Map of Trails in Big Cypress National Preserve, a copy of which is attached hereto and incorporated herein as Exhibit B.

⁶⁸ ORV Plan at vi.

⁶⁹ *See, generally*, U.S. Department of Interior, National Park Service, Big Cypress National Preserve Final Recreational Off-Road Vehicle Management Plan: Supplemental Environmental Impact Statement (2012) (hereinafter, “ORV Plan”).

⁷⁰ Environmental Assessment at 32.

at the environmental consequences of the proposed action and future phases of exploration in an EIS.

The 1992 GMP/EIS for the Preserve includes a stipulation that within the original Preserve, “[o]nly 10% of the preserve may be under the influence of oil and gas exploration and development activities at any given time.”⁷¹ An Area of Influence (“AOI”) is defined as the area surrounding an activity that experiences changes in noise, hydrology, water quality, vegetation, soils, air quality, wildlife habitat, and visitor perception.⁷² Geophysical surveys that do not use helicopters are assessed as having a 0.5 mile radius of influence, while those using helicopters, as is the case with the proposed action, are assessed as having a 0.75 mile radius of influence. The GMP/EIS notes that at the time of the plan development, “a 39.4-mile geophysical survey operation routinely using helicopters for transportation could be allowed, providing a proposed plan of operations was approved.”⁷³ There is no evaluation in the EA to determine whether the proposed action exceeds the AOI limitation.

Burnett’s plan of operations asserts that the AOI will not exceed 2.7% which, when combined with existing oil and gas activities, would result in impacts to only 5.4% of the Preserve.⁷⁴ However, Burnett’s calculation utilizes a method related to the “peak workday AOI” which appears to encompass only a small fraction of the overall proposed action.⁷⁵ Burnett’s analysis appears to be based upon an assumption that complete reclamation would happen immediately, in all cases. However, the full impacts of the survey would not be immediately known. Many adverse impacts, such as compaction and rutting of the soil, fractures to karst limestone, changes in hydrology, native wetland vegetation regeneration, and the introduction and spreading of exotic and nuisance vegetation may only become apparent months, or even years, after the proposed action is completed. Also, some of these impacts may be difficult or impossible to completely reclaim or restore. This is noteworthy because Burnett’s underlying assumption in its calculation of the AOI is that the AOI can be calculated to take into account only the impacts that occur on a “peak workday,” which assumes that all prior impacts would have already been remediated. NPS must also evaluate past and present oil and gas activities in conjunction with the proposed action, to ensure that the AOI in the Preserve would not be exceeded.

Additionally, the Bear Island Stipulation in the 1992 GMP/EIS for the Preserve limits the acreage that may be used for oil and gas exploration activities. Specifically, “[i]n the Bear Island unit the area of direct impact associated with future oil and gas exploration and production operations may not exceed the current acreage of unreclaimed roads, pads, pipelines, and geophysical survey lines in the unit (173 acres)⁷⁶. The Bear Island unit has one of the highest concentrations of important resource areas in Big Cypress, and the unit is already heavily disturbed by oil and gas development (18.9 percent of the unit was influenced by oil and gas activity as of 1992)⁷⁷. The EA fails to evaluate the current concentration of oil and gas activity in the Bear Island Unit. Allowing additional surface disturbance in the Bear Island unit, in the

⁷¹ GMP/EIS, Appendix C at 358.

⁷² *See, Id.* at 58; Appendix B.

⁷³ GMP/EIS at 59-60.

⁷⁴ Plan of Operations at 103.

⁷⁵ *See, Id.* at Exhibit 14 at E14-4 and E14-5.

⁷⁶ GMP/EIS at 57.

⁷⁷ *Id.* at 58.

absence of proper reclamation of existing disturbed sites, would violate the limitations stated in the GMP/EIS for the Preserve.

B. There has been no hard look at impacts to existing vegetation and the potential for introduction and exacerbation of exotic and nuisance plant species.

NPS itself acknowledges in its proposed 9B rule revisions that during the geophysical exploration phase, adverse impacts on wetland communities can result from localized vegetation clearing, ground disturbance, and crossing of small wetlands.⁷⁸ Surface disturbance from survey crews traversing an area during geophysical exploration could cause damage to vegetation. The introduction or spread of nonnative invasive vegetation could occur during this phase as a result of vehicular traffic. Leaks and spills from refueling of vehicles used in the surveys could harm or kill vegetation. In many areas of the park units, the use of vehicles for geophysical exploration operations would not meet a technologically feasible least damaging standard, thereby eliminating the adverse impacts associated with their use. Where soils are compacted or rutted, plant growth could be altered.⁷⁹

Nonetheless, the EA contemplates that the proposed action would cause only “short-term” adverse vegetative impacts would result primarily from movement of vibroseis trucks along source lines and the use of proposed staging areas for equipment storage and daily mobilization.⁸⁰ The EA anticipates “potential short-term” disturbances to plants “could” occur through the matting down of plants, scraping of trees, exposure of plant roots, or bending, breaking, and trimming of low shrubby and woody overgrowth.⁸¹ However, NPS fails to provide any scientific or technical analysis to support its conclusion that disturbances to vegetation would be “short-term” only.

The EA also refers to matting down of plants, presumably due to the weight of the 61,700 pound vibroseis trucks⁸², and the composite interlocking mats, which can weigh up to 1,050 pounds.⁸³ However, NPS has not evaluated the full impacts of the vibroseis trucks and plates, or the composite interlocking mats on vegetation. NPS acknowledges that the NG3-D seismic survey is a use of technology that has not been previously used for seismic surveying in the Preserve.⁸⁴ NPS also acknowledges that wide tires and large vehicles “increase the potential for contact with natural resources.”⁸⁵ Nonetheless, NPS fails to fully evaluate the adverse impacts of the proposed action on vegetation in the Preserve.

Plants reflect much of the physical nature of the community, particularly hydrologic and edaphic characters. Disturbances in the plant community may originate as a physical change, such as

⁷⁸ Proposed 9B rule revisions at 204.

⁷⁹ *Id.*

⁸⁰ Environmental Assessment at 88.

⁸¹ *Id.*

⁸² *See, generally*, Environmental Assessment; *see also* See Burnett Plan of Operations, Exhibit 8 (Field Testing of Vibroseis Buggy), Exhibit B (Vibroseis Buggy Specifications) at page 5 (specification sheet with heading “AHV4-PLS 362 Vibrator Buggy W/Frame Rollover Protection).

⁸³ *Id.* at 12; Plan of Operations at Exhibit 9.

⁸⁴ Environmental Assessment at 11.

⁸⁵ *Id.*

mechanical movement of soils in the substrate, or chemical change, such as a difference in local hydrology. Physical disturbances to substrates often result in soils that support greater numbers of ruderal plants (weeds), and lower species diversities.⁸⁶ Further, NPS has acknowledged that seismic survey lines from the 1970s are still visible in the vegetation decades later in aerial photography.⁸⁷ Therefore, it is essential that NPS take a “hard look” at the impacts of the proposed action on vegetation in the Preserve since they can clearly be long-lasting.

The Preserve consists almost entirely of wetlands.⁸⁸ Notably, 83% of the proposed action area (approximately 58,740 acres) is comprised of wetland habitats.⁸⁹ Eleven major land use types are located in the proposed action area, including cypress stands, mixed-hardwood swamps, sloughs and cypress domes, marshes, hardwood hammocks, old-growth pinelands, and mangrove forests, which are classified as “Important Resource Areas” in the GMP/EIS for the Preserve.⁹⁰

The Florida Department of Environmental Protection (“DEP”) issued an Environmental Resource Permit (“ERP”) to Burnett which requires that all staging areas within wetlands shall use a composite mat system.⁹¹ Therefore, it is clear that Burnett must construct at least some mats in order to comply with the ERP. DEP also acknowledges that vegetation impacts resulting from the proposed action include vegetation defoliation and habitat “layover” of vegetation as a result of off-road vehicle traffic and due to utilization of a mat system.⁹² The GMP/EIS states that “no surface occupancy for the placement of...pads... may be permitted in or on any vegetation community identified as an Important Resource Area.”⁹³ However, NPS fails to evaluate how the proposed action complies with the no surface occupancy requirement in the GMP/EIS, which prohibits placement of pads in Important Resource Areas.

The GMP/EIS also prohibits the use of motorized vehicles for the conduct of geophysical exploration in or on Important Resource Areas, except old-growth pinelands as specified in Minerals Management Plan (“MMP”) stipulation.⁹⁴ The EA also fails to evaluate how the proposed action complies with this prohibition. Based on the foregoing, NPS fails to take a hard look at the impacts of the proposed action on existing vegetation.

C. There has been no hard look at impacts to soils.

NPS acknowledges in its proposed 9B rule revisions that surface disturbance from survey crews traversing an area during geophysical exploration could cause localized soil compaction and rutting. Soil Hydrologic Groups typically found in lowland areas (wetlands and floodplains) are very susceptible to adverse impacts from oil and gas operations. In general, these soils have high clay contents, low permeability, are moderately to highly compactable, and have low infiltration

⁸⁶ See ORV Plan at 90-100.

⁸⁷ GMP/EIS at 161.

⁸⁸ Environmental Assessment, Appendix B at 4.

⁸⁹ *Id.*

⁹⁰ Environmental Assessment at 12.

⁹¹ Florida Department of Environmental Protection, Environmental Resource Permit number 11-0323836-002 issued to Burnett Oil Co., Inc. on July 15, 2015, available at: http://www.dep.state.fl.us/south/SD_Projects.htm.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ GMP/EIS at 359.

rates and recharge potentials. Wet or saturated soils are the most sensitive to disturbance from vehicle use.⁹⁵ Compaction reduces the soil's water-holding and infiltration capacities which could increase runoff of surface waters and accelerate soil erosion, and ultimately degrade existing soil and wetland communities.⁹⁶ Disturbance of existing unpaved surfaces and resultant road runoff or the crossing of small areas of wetlands along tributary streams may also affect surface water and wetland resources. Where soils are compacted or rutted, surface hydrology could be altered.⁹⁷ Additionally, leaks and spills from refueling of vehicles used in the surveys could pollute soil.⁹⁸

The EA identifies thirteen soil types with the proposed action area that were taken from the 1954 Soil Survey of Collier County.⁹⁹ However, the EA acknowledges that the engineering properties of these soils were not evaluated, and that the cap rock "generally" provides a good base for roads and vehicles.¹⁰⁰ Where cap rock is absent, however, the EA states that the "soft, siliciclastic material does not support equipment without flotation devices or tracks."¹⁰¹ The EA also acknowledges that soils would be impacted by rutting and compaction.¹⁰² DEP acknowledges that soil impacts resulting from the proposed action include ruts, depressions, and vehicle tracks (i.e., potential depressions in the soil left by a vehicle that contains uprooted vegetation, soil displacement, and/or soil compactions which is visibly identifiable or greater than 3 inches).¹⁰³ DEP also acknowledges that restoration of these impacts, including re-grading and re-stabilization of soils via silt fences and subsequent planting of appropriate native vegetation to prevent turbidity in adjacent wetlands will be necessary.¹⁰⁴ However, NPS fails to provide a site-specific evaluation of soils to support its conclusion that the impacts to soil would be "short-term" in duration only. The EA fails to fully evaluate these soil impacts and does not provide any documentation to support its conclusion that the impacts to soil would only be temporary in nature.

The EA states that Burnett conducted a field demonstration in an undisclosed location within the proposed action area on April 24, 2015, to observe how a vibroseis truck would perform in wetlands.¹⁰⁵ The EA acknowledges that a vibroseis truck got "stuck" during the field demonstration and "had to be extricated by other equipment."¹⁰⁶ The EA neither provides details on the location of the field demonstration within the proposed action area, nor identifies which of

⁹⁵ Proposed 9B rule revisions at 204.

⁹⁶ Sjoerd Duiker, Avoiding and Mitigating Soil Compaction Associated with Natural Gas Development (2004), http://extension.psu.edu/natural-resources/natural-gas/issues/environmental/avoiding-and-mitigating-soil-compaction-associated-with-natural-gas-development/extension_publication_file; Pennsylvania State University, Effects of Soils Compaction (2009), http://extension.psu.edu/plants/crops/soil-management/soil-compaction/effects-of-soil-compaction/extension_publication_file.

⁹⁷ D.J. Archibald, *et al.*, Forest management guidelines for the protection of the physical environment (1997), <http://www.ontario.ca/document/forest-management-guidelines-protection-physical-environment>.

⁹⁸ Proposed 9B rule revisions at 204.

⁹⁹ Environmental Assessment, Appendix B at 14.

¹⁰⁰ *Id.*, Appendix B at 13.

¹⁰¹ *Id.*

¹⁰² Environmental Assessment at 88.

¹⁰³ DEP Environmental Resource Permit number 11-0323836-002 issued to Burnett Oil Co., Inc. on July 15, 2015, which can be viewed at: http://www.dep.state.fl.us/south/SD_Projects.htm.

¹⁰⁴ *Id.*

¹⁰⁵ Environmental Assessment at 88.

¹⁰⁶ *Id.*

the thirteen types of soils were present in the demonstration area. It also fails to describe any soil impacts resulting from the vibroseis truck extrication. NPS then summarily concludes that “much of the wetland habitat traversed by the ‘buggy’ was minimally impacted and showed signs of recovery six months later.”¹⁰⁷ The only information provided by NPS to support this conclusion is two “before” photos and “after” photos that do not depict or describe the soils in the field demonstration area.¹⁰⁸ There is no accompanying scientific or technical report that describes the conditions of the soils before and after the impacts of the vibroseis trucks, or that indicates whether soil profiles were examined both before and after the tests were performed. There is no evidence that such an incident could be avoided during implementation of the POP.

The ORV Plan is instructive on the impacts of ORV use on soils in the Preserve, and counters NPS’ conclusion that soil impacts from off-road vehicle use would be temporary in nature. Soil disturbance is the most direct, visible, and lasting impact of ORV use in the Preserve. ORV use causes soil rutting, displacement, and compaction. This causes soil loss or reduced productivity.¹⁰⁹ The persistence of disturbed soils suggests that ORV impacts are occurring at a faster rate than soils are naturally recovering, and that impacts are accumulating over time. There are no known processes that restore the soils once disturbed. Farm field furrows that existed prior to the Preserve’s establishment are still clearly visible from the air and on the ground decades later. Soil impacts from ORVs appear to be having similar persistence over time, with associated hydrological and biological impacts.¹¹⁰ The networks of tire ruts from dispersed use of ORVs influence the hydrological, vegetative, and wildlife conditions of the Preserve. ORV use may displace soils in such a way so that natural mechanisms are unable to restore the natural topography over periods of years or even decades.¹¹¹ This could change water flow patterns and directions. Soil displacement can produce topographic changes in and adjacent to ORV trails. Soil displacement and associated mixing can change soil hydrology and chemistry, which could alter the soil’s ability to sustain plants or the type of plant community the soil can support.¹¹² NPS acknowledges that once soils have been displaced, there are few natural mechanisms of restoring ground contour, and the ruts remain indefinitely. Therefore, it is likely that soil impacts are cumulative and worsen over time.¹¹³

Although NPS notes in several places in the EA that the proposed action would employ a “one pass” design whereby the heavy vibroseis trucks will only pass through an area one time, the EA also acknowledges that there may be exceptions in the field where it may be necessary to drive a heavy vibroseis truck over the same area more than once,¹¹⁴ but fails to include an analysis of the impacts of multiple vibroseis truck passes. NPS also fails to evaluate the impacts to soils from the newly created pathways or trails from the heavy vibroseis trucks, and any impacts associated with any subsequent recreational ORV use. The creation of new trails in undisturbed areas in the

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at Appendix A (Vibroseis Field Demonstration Photos).

¹⁰⁹ ORV Plan at 19.

¹¹⁰ *Id.* at 4.

¹¹¹ M.J. Duever, *et al.*, Long Term Recovery of Experimental Off-Road Vehicle Impacts and Abandoned Old Trails in the Big Cypress National Preserve (1986).

¹¹² ORV Plan at 40.

¹¹³ *Id.* at 90.

¹¹⁴ Environmental Assessment at 23.

Preserve could lead to new recreation ORV routes that have the potential to significantly impact the character of the Preserve.

NPS itself acknowledges in its proposed 9B rule revisions that several adverse impacts to soils and geology result from geophysical exploration, including adverse impacts on geology and soils from vegetation clearing, which increases the potential for soil erosion by exposing the soil surface to water and wind.¹¹⁵ Surface disturbance from survey crews traversing the area during geophysical exploration could also cause soil compaction, reducing the soil's water-holding and infiltration capacities. Compacted soils increase runoff of surface waters and accelerate soil erosion.¹¹⁶ Ground vibrations from seismic survey technologies used during exploration to obtain images of target formations could adversely impact sensitive geologic features (such as arches) by creating soil movement or settling or ground vibrations. Therefore, the impacts associated with the proposed action would not be limited in extent and severity due to the use of heavy 61,700 pound vibroseis trucks¹¹⁷, ORVs, and heavy foot traffic, and the seismic technology proposed. Therefore, the EA fails to take a "hard look" at the impacts to soils.

D. No hard look at impacts to limestone beneath the Preserve.

The Big Cypress Swamp is a western extension of the Everglades hydrologic system. The Big Cypress basin provides approximately 42% of the water flowing into Everglades National Park and is a vast hydrologic network—among the least altered remaining in South Florida.¹¹⁸ Water flows on the surface in marshes and sloughs and below ground through porous substrate in aquifers. Big Cypress Swamp is a significant aquifer recharge area.¹¹⁹

A hard limestone substrate, commonly called cap rock, is typically located 10 inches to 40 inches below the soil surface in the Preserve. The limestone also outcrops at the land surface, particularly within hardwood hammocks. The shallow limestone rock is typically pitted with solution holes of all sizes. In some areas, ORV use has displaced overlying soils and the limestone cap rock is exposed.¹²⁰

The EA downplays the impacts that the vibroseis vehicles will cause as they crisscross the proposed action area. To start, the EA refers to the 61,700 pound heavy trucks that will undertake these operations as "buggies."¹²¹ However, these heavy industrial vehicles have the

¹¹⁵ Proposed 9B rule revisions at 153.

¹¹⁶ Sjoerd Duiker, [Avoiding and Mitigating Soil Compaction Associated with Natural Gas Development](http://extension.psu.edu/natural-resources/natural-gas/issues/environmental/avoiding-and-mitigating-soil-compaction-associated-with-natural-gas-development/extension_publication_file) (2004), http://extension.psu.edu/natural-resources/natural-gas/issues/environmental/avoiding-and-mitigating-soil-compaction-associated-with-natural-gas-development/extension_publication_file; Pennsylvania State University, [Effects of Soils Compaction](http://extension.psu.edu/plants/crops/soil-management/soil-compaction/effects-of-soil-compaction/extension_publication_file) (2009), http://extension.psu.edu/plants/crops/soil-management/soil-compaction/effects-of-soil-compaction/extension_publication_file.

¹¹⁷ Burnett Plan of Operations, Exhibit 8 (Field Testing of Vibroseis Buggy), Exhibit B (Vibroseis Buggy Specifications) at page 5 (specification sheet with heading "AHV4-PLS 362 Vibrator Buggy W/Frame Rollover Protection).

¹¹⁸ BICY Geologic Resource Evaluation Report at 1.

¹¹⁹ *Id.*

¹²⁰ ORV Plan at 89.

¹²¹ *See, generally*, Environmental Assessment; *see also* See Burnett Plan of Operations, Exhibit 8 (Field Testing of Vibroseis Buggy), Exhibit B (Vibroseis Buggy Specifications) at page 5 (specification sheet with heading "AHV4-PLS 362 Vibrator Buggy W/Frame Rollover Protection).

potential to cause significant changes to local geology and hydrology.¹²² For instance, the use of these heavy vehicles could crack or fracture shallow limestone formations, which in turn could lead to sinkhole formation or the drainage of perched hydrologic environments.¹²³ Given the very flat topography of south Florida, even minor disruptions in surface elevation can permanently alter hydrology.¹²⁴ This may have far reaching adverse environmental impacts as the Preserve’s hydrology maintains hydroperiod regimes for wetlands and serves as an important potable water source for the Big Cypress Basin.¹²⁵

Burnett’s “field testing” of the impacts of vibroseis trucks provides little useful information. Burnett’s POP states that “[v]ibrations perceived between 250 and 300 feet from the buggy during the vibration period seemed to be substantially less pronounced. This implicates that buggy induced vibrations should be nearly, if not fully, attenuated at a distance of approximately 600 feet.”¹²⁶ Burnett then goes on to rely on this wholly unsupported assumption throughout the POP. While the POP notes that the vibroseis vehicles will travel in groups of three for a total of three passes,¹²⁷ the field testing appears to have tested the impacts of a single pass of only one vehicle.¹²⁸ Moreover, the field testing appears to have been conducted under near-ideal conditions. Despite this, impacts were clearly visible from the single pass of the truck in the wetland habitat six months after it occurred. The passage of three trucks along the same corridor would almost certainly cause far more significant impacts, but these impacts have not been evaluated. Additionally, the second site visit included only visual observation and photographs of the impacted area’s condition.¹²⁹ Burnett fails to indicate whether a professional licensed geologist or hydrogeologist performed an evaluation of the impacts of the vehicle testing to the limestone underneath the Preserve. NPS fails to include any scientific or technical reports to determine whether the off-site field testing of vibroseis trucks had any adverse impacts on geology or hydrology.

E. No hard look at impacts on water resources.

1. Impacts to surface waters and wetlands.

The extreme southern tip of the Florida peninsula is an extensive subtropical wetland that includes the Everglades, the Big Cypress Swamp, and the coastal mangrove forests.¹³⁰ The

¹²²Noah Kugler, Opinion and Recommendation: Nobles Grade 3-D Seismic Survey Application (May 16, 2014) at 2 (hereinafter, “Kugler Opinion”) (noting that survey activities could “lead to permanent disruption, alteration and degradation of the shallow hydrology” in the area). The Kugler Opinion is attached hereto and incorporated herein as Exhibit C.

¹²³ *Id.* at 2.

¹²⁴ *Id.* at 1.

¹²⁵ Ananta Nath, P.E, D.WRE, F.EWRI letter to Timothy Schwan, State of Florida Department of Environmental Protection re: Application for 3-D Seismic Survey for Geophysical Exploration at Noble Grade, Big Cypress National Preserve (#11-0323836-001) dated May 16, 2014, which is attached hereto and incorporated herein as Exhibit D.

¹²⁶ Plan of Operations, Exhibit 8 (Field Testing of Vibroseis Buggy), at 5.

¹²⁷ *Id.* at 77.

¹²⁸ *Id.* at Exhibit 8, 1 and 3.

¹²⁹ See Burnett Plan of Operations, Exhibit 8 (Field Testing of Vibroseis Buggy).

¹³⁰ Ronald L. Miller, *et al.*, Water Quality in Big Cypress National Preserve and Everglades National Park—Trends and Spatial Characteristics of Selected Constituents (2004) at 2.

Everglades is a wide, flat expanse of grassland and tree islands that historically served as the primary drainage path for runoff from water overflowing the southern bank of Lake Okeechobee, as well as from direct rainfall. Water drains south and southwest toward Florida Bay and the Gulf of Mexico. The Big Cypress Swamp, located west of the Everglades, is characterized by cypress domes, elongated bands of cypress trees called strands, and meandering marshy areas called sloughs. Water in the Big Cypress Swamp generally drains southwest towards the coast.¹³¹ Everglades National Park (established in 1947) and Big Cypress National Preserve (established in 1974) were both established by Congress to preserve and protect large areas of the south Florida ecosystem that had remained relatively intact and free of agricultural and urban development.¹³² Waters in the Everglades National Park and the Preserve are designated by the State of Florida as Outstanding Florida Waters (OFW) and Outstanding Natural Resource Waters (ONRW), respectively.¹³³ Water flow and water quality in Everglades National Park are most affected because the Park receives surface water from canals that drain nutrient-enriched upstream agricultural lands. Conversely, water quality in the Preserve has remained relatively unaffected by upstream land use because the original Preserve boundary encompassed a predominantly self-contained, rain-driven watershed, in which headwater flows were diverted into bypass canals around and downstream of the Preserve.¹³⁴ However, water quality in both Everglades National Park and the Preserve will become increasingly vulnerable to degradation as land development along upstream boundaries is coupled with Everglades restoration activities that increase surface-water flows into Everglades National Park and the Preserve.¹³⁵

Networks of hydrologic monitoring stations are maintained in Everglades National Park and the Preserve to measure the surface-water level (stage) and monitor water-quality conditions.¹³⁶ Data has been collected at these sites since 1984, providing a historical baseline for assessing hydrologic conditions and making a wide range of management decisions. NPS collects water samples in the field and the South Florida Water Management District provides sampling equipment and laboratory analysis.¹³⁷ Interestingly, despite the existence of this data, the EA fails to evaluate the direct, indirect, and cumulative impacts of the proposed action and subsequent phases of exploration on the water resources and water quality in the Preserve, and in the neighboring Florida Everglades. This is especially concerning since at least \$3.1 billion of taxpayers' money has already been invested in Everglades restoration.¹³⁸

The Preserve consists almost entirely of wetlands.¹³⁹ Notably, 83% of the proposed action area (approximately 58,740 acres) is comprised of wetland habitats.¹⁴⁰ Eleven major land use types are located in the proposed action area, including cypress stands, mixed-hardwood swamps, sloughs and cypress domes, marshes, hardwood hammocks, old-growth pinelands, and mangrove

¹³¹ *Id.*

¹³² *Id.* at 3.

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *Id.* at 4.

¹³⁷ *Id.*

¹³⁸ Andy Reid, [Foreign plants threatening to sabotage Everglades restoration](http://www.sun-sentinel.com/local/palm-beach/fl-everglades-plants-fight-20150918-story.html), Sun Sentinel, September 21, 2015, <http://www.sun-sentinel.com/local/palm-beach/fl-everglades-plants-fight-20150918-story.html>.

¹³⁹ Environmental Assessment, Appendix B at 4.

¹⁴⁰ *Id.*

forests.¹⁴¹ The freshwaters of the Big Cypress Swamp are essential to the health of the neighboring Florida Everglades, which support the rich marine estuaries along Florida's southwest coast.¹⁴² In addition to the Everglades, the Preserve supports the estuarine fisheries of south Florida,¹⁴³ upon which approximately 90% of commercially harvested fish in Florida depend.¹⁴⁴

NPS has acknowledged that ORV use may increase turbidity or result in some discharges, leaks, or spills of petroleum products in localized areas. Construction of ORV access points could affect water flow and quality.¹⁴⁵ The loss of vegetation and change in the topography has been shown to increase the rate of water movement.¹⁴⁶ The use of ORVs could result in the changes in water quality by increasing turbidity, re-suspending nutrients and metals from soils, or discharging petroleum products.¹⁴⁷ However, the EA fails to evaluate the cumulative impacts of the proposed action on the wetlands and surface waters in the Preserve, and in the adjacent Everglades.

NPS also summarily concludes that “no discharge of dredged or fill material into wetlands is proposed” without any explanation or study.¹⁴⁸ The very nature of the project would lead to dredging or filling of wetlands in the Preserve.¹⁴⁹ Nonetheless, NPS does not list the U.S. Army Corps of Engineers (“Corps”) as an agency that was provided the opportunity to review and comment on the EA.¹⁵⁰ We understand that the Corps has not yet finally determined whether to issue a Section 404 permit under the Clean Water Act for the proposed action. Therefore, the EA fails to evaluate the cumulative impacts of any dredging or filling in wetlands resulting from the proposed action.

2. Impacts to groundwater.

There are at least three aquifers (including the surficial aquifer) divided by three aquitards in the upper geologic units below the Preserve.¹⁵¹ The Preserve also ensures a fresh water supply for surrounding communities by providing clean water recharge of the surficial Aquifer, which, according to the 1992 GMP/EIS is “the prime source of freshwater for human use in Collier County and adjoining parts of Lee and Hendry counties.”¹⁵² According to NPS, the Preserve is located above portions of the Biscayne Aquifer—“the only designated sole source aquifer

¹⁴¹ *Id.* at 12.

¹⁴² *See*, U.S. Department of the Interior, National Park Service, Big Cypress National Preserve (December 18, 2015), <http://www.nps.gov/bicy/index.htm>.

¹⁴³ GMP/EIS at 15.

¹⁴⁴ U.S. Department of Interior, National Park Service, Big Cypress National Preserve Red Mangrove (December 22, 2015), <http://www.nps.gov/bicy/learn/nature/red-mangrove.htm>.

¹⁴⁵ ORV Plan at 19.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ Environmental Assessment at 28.

¹⁴⁹ *See* Letter to the U.S. Army Corps of Engineers from NRDC, et al., regarding the Nobles Grade 3-D Seismic Survey/Plan of Operations in Big Cypress National Preserve (October 14, 2015), a copy of which is attached hereto and incorporated herein as Composite Exhibit E.

¹⁵⁰ Environmental Assessment at 102.

¹⁵¹ BICY Geologic Resource Evaluation Report at 17.

¹⁵² GMP/EIS at 156.

associated with a category 1 or 2 park unit.”¹⁵³ The Biscayne aquifer provides most of the fresh water for public water supply and agriculture in southeast Florida.¹⁵⁴ Due to its regional importance, it has been designated as a sole source aquifer by the U.S. Environmental Protection Agency (EPA) under the Safe Drinking Water Act and is, therefore, afforded stringent protection.¹⁵⁵ A “sole-source aquifer” is defined by the EPA as an aquifer that supplies at least 50 percent of the drinking water for its service area and where there are no reasonably available alternative drinking water sources should the aquifer become contaminated.¹⁵⁶

The unconfined Biscayne aquifer is one of the most permeable aquifers in the world and has transmissivities in excess of 7 million gallons per day, per foot of drawdown.¹⁵⁷ Transmissivity refers to the rate at which water travels through a specified area of an aquifer and approximates the speed pollutants can move through an aquifer. A high transmissivity surface aquifer provides an avenue for various contaminants associated with oil and gas operations to migrate significant distances in a relatively short time period. Unconfined aquifers are open to meteoric water filtering through the soil and subsurface and are thus susceptible to pollution.¹⁵⁸

While NPS has stated that “seismic operations generally have slight impacts on groundwater quantity or quality,”¹⁵⁹ it is well documented that there are significant risks to groundwater from subsequent exploration and production activities, including “leaching of surface leaks and spills into shallow groundwaters, and groundwater contamination from poorly cased or cemented wells,”¹⁶⁰ as well as the threats to groundwater from drilling and hydraulic fracturing.¹⁶¹ Despite the regional significance and permeability of the Biscayne Bay aquifer, it is not mentioned even once in the EA. Therefore, NPS must evaluate all of the impacts associated with all phases of exploration and subsequent production on the Biscayne Bay aquifer in an EIS.

3. Impacts to water quality.

NPS acknowledges in its proposed 9B rule revisions that “during the geophysical exploration phase, the loss or modification of vegetation and ORV use...could result in increased sedimentation and turbidity and degrade water quality in nearby surface waters.”¹⁶² Vegetation clearing would increase the potential for runoff into nearby surface waters by exposing the surface to water and wind, and survey crews traversing the area could also cause soil

¹⁵³ Proposed 9B rule revisions at 90.

¹⁵⁴ South Florida Water Management District (SFWMD), Minimum Flows and Levels for Lake Okeechobee, the Everglades, and the Biscayne Aquifer, Executive Summary (February 29, 2009) at 1, http://sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/lok_ever_bisaqu_2000.pdf (hereinafter, “SFWMD Minimum Flows and Levels”).

¹⁵⁵ *Id.* at 38.

¹⁵⁶ U.S. Environmental Protection Agency, Overview of the Drinking Water Sole Source Aquifer Program, Sole Source Aquifers for Drinking Water (December 22, 2015), http://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#What_Is_SSA.

¹⁵⁷ SFWMD Minimum Flows and Levels at 38.

¹⁵⁸ BICY Geologic Resource Evaluation Report at 16.

¹⁵⁹ Proposed 9B rule revisions at 186.

¹⁶⁰ *Id.*

¹⁶¹ Natural Resources Defense Council, Hydraulic Fracturing Can Potentially Contaminate Drinking Water Sources, July, 2012, <http://www.nrdc.org/water/files/fracking-drinking-water-fs.pdf>.

¹⁶² Proposed 9B rule revisions at 185.

compaction, reducing the soil's water-holding and infiltration capacities. Cleared areas with compacted soils would be more subject to runoff of surface waters and accelerated erosion. This could lead to an increase in sediment load to nearby receiving surface waters. Also, the use of overland vehicles to transport equipment and personnel could increase the potential for turbidity if vehicles need to cross surface waters to access survey locations and stir up bottom sediments.¹⁶³

Water quality is an important management issue at the Preserve.¹⁶⁴ The EA acknowledges that the proposed action could cause impacts to surface water quality, including turbidity and oxygen depletion due to both vehicle and foot traffic and leaks and spills of vehicle fluids.¹⁶⁵ However, the EA fails to provide any information specific to the prevention or mitigation of these impacts, except to assert that “plan design and/or mitigation measures” would address them.¹⁶⁶ The EA only provides general descriptions of preventive actions related to spill containment at “refueling, parking and fuel tank/storage” sites.¹⁶⁷ There are no measures to address water quality impacts that are specifically tailored to the proposed action.

The EA states that, “cleanup and restoration activities would be conducted in compliance with applicable MMP operation stipulations.”¹⁶⁸ However, such activities do not constitute mitigation or include monitoring, both of which are critical to preventing long-term impacts to surface water and groundwater resources. The MMP stipulates that during geophysical operations, requirements must be met pertaining to the extent of turbidity from vehicle traverse corridors, collection of background water samples, suspension of operations if turbidity exceeds certain levels, and adherence to Florida water quality standards.¹⁶⁹ The EA neither acknowledges these requirements nor includes an evaluation on how these aspects of the MMP would be adhered to during the proposed action.

The EA also acknowledges that currently, the water in Big Cypress is relatively unpolluted. Concentrations of nitrogen, phosphorus, total organic carbon, and persistent pesticides, which often serve as indicators of pollution, are generally similar to concentrations in nearby, relatively uninhabited areas, and concentrations are considerably less than those of nearby urbanized areas.¹⁷⁰ The EA identifies several impacts to water quality, hydrology, and subsurface geologic resources as a result of the proposed action, but summarily concludes that the impacts would be “short term,” and would be addressed by the plan design and/or mitigation measures.¹⁷¹ However, the EA fails to base this conclusion on any scientific or technical studies, and therefore, fails to fully evaluate the water quality impacts of the proposed action on the Preserve.

The lack of such analysis is unacceptable given the inherent complexities of hydrological systems, challenges of monitoring both surface and sub-surface water quality, and ongoing

¹⁶³ *Id.*

¹⁶⁴ BICY Geologic Resource Evaluation Report at 6.

¹⁶⁵ Environmental Assessment at 94.

¹⁶⁶ *Id.*

¹⁶⁷ Environmental Assessment at 34.

¹⁶⁸ *Id.*

¹⁶⁹ GMP/EIS at 362.

¹⁷⁰ Environmental Assessment at 73.

¹⁷¹ *Id.* at 94.

threats to water quality in the Preserve. It is notable that all but one of the seventeen water bodies included in the EPA's watershed quality assessment report for the Big Cypress Swamp region are already considered impaired, implying the potential for worsening water quality in the Preserve over time.¹⁷² Because the waters of the Preserve are designated as Outstanding Florida Waters and Outstanding Natural Resource Waters, there is a greater need to prevent the damaging effects of pollution discharges and to conduct stringent monitoring and protection.¹⁷³

Water quality monitoring has indicated that pollutant loads in the waters of the Preserve are higher during dry periods, which is when the proposed action would occur.¹⁷⁴ Yet the EA fails to demonstrate that the proposed action would not increase pollutant loads to the point at which water quality is degraded. Nor does the EA any mitigation measures specifically designed to avoid the impacts of the proposed action on water quality and hydrology in the Preserve.

The EA states that oxygen depletion could "stress both plants and animals," but neglects to evaluate any mitigation measures that would ensure that such stress does not compromise the viability of specific species or ecosystems in the long-term.¹⁷⁵ This is necessary because stress is a predisposing factor to disease or death in fish and a common element in all fish kill events.¹⁷⁶ Based on the foregoing, NPS fails to take a "hard look" at the water quality impacts of the proposed action in the Preserve.

F. Impacts to wildlife, including imperiled species.

There are eight federally listed and one candidate species recognized under the Endangered Species Act that are known to occur or could occur within the proposed action area, including: the Florida panther (*Puma concolor coryi*), Florida bonneted bat (*Eumops floridanus*), wood stork (*Mycteria Americana*), red-cockaded woodpecker (*Picoides borealis*), Audubon's crested caracara (*Polyborus plancus audubonii*), Everglade snail kite (*Rostrhamus sociabilis*), Eastern indigo snake (*Drymarchon corais couperi*), the gopher tortoise (*Gopherus polyphemus*), and the American alligator (*Alligator mississippiensis*).¹⁷⁷ Other federally listed species that are known to occur in the Preserve include the American crocodile (*Crocodylus acutus*), West Indian manatee (*Trichechus manatus*), and the Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*).¹⁷⁸ NPS acknowledges in the EA that the proposed action could potentially have impacts on these species.¹⁷⁹

There are thirteen state-listed wildlife species that also occur or have the potential to occur in the proposed action area, including the Florida black bear (*Ursus americanus floridanus*),

¹⁷² U.S. Environmental Protection Agency, Florida Water Quality Assessment Report, Big Cypress Swamp watershed table, http://ofmpub.epa.gov/waters10/attains_state.control?p_state=FL.

¹⁷³ State of Florida Department of Environmental Protection, Outstanding Florida Waters, <http://www.dep.state.fl.us/water/wqssp/ofwfs.htm>.

¹⁷⁴ US Geological Survey, Water Quality in Big Cypress National Preserve and Everglades National Park, 1960-2000, <http://pubs.usgs.gov/fs/2003/fs-097-03/>.

¹⁷⁵ Environmental Assessment at 94.

¹⁷⁶ University of Florida, Understanding Fish Kills in Florida Freshwater Systems, Florida Lake Watch educational series, 2003.

¹⁷⁷ Environmental Assessment at 14.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

Everglades mink (*Mustela vison evergladensis*), Big Cypress fox squirrel (*Sciurus niger avicennia*), Florida tree snail (*Liguus fasciatus*), the Florida burrowing owl (*Athene cunicularia*), and several species of wading birds.¹⁸⁰ While the U.S. Fish and Wildlife Service (“FWS”) wrote that the proposed action is not likely to adversely affect listed species or their habitats,¹⁸¹ the undersigned organizations have expressed concerns that the proposed action would likely adversely affect listed species.¹⁸² Neither NPS nor the FWS have taken a hard look at the direct, indirect, cumulative, and future impacts of the proposed action on protected species and other important wildlife in the Preserve, or their habitats.

NPS acknowledges in its proposed 9B rule revisions that during the geophysical exploration phase, adverse impacts on special-status species and their habitats could occur.¹⁸³ Localized trampling of vegetation for surveying and increased vehicular traffic associated with nearby seismic investigations could lead to injury or destruction of sensitive species and their habitats. These operations would be required to avoid impacting species of special concern and their habitats, which would be identified through consulting park biologists or through biological surveys, if determined necessary by NPS through consultation with federal or state agency biologists. When species of special concern and their habitat are found to be within the project area, application of mitigation measures, including sufficient setbacks and/or timing restrictions for sensitive periods in a given species’ life cycle, would result in avoiding or minimizing potential adverse effects.¹⁸⁴ Potential effects from exploration operations could include increased displacement, increased risk of mortality, decreased reproductive succession, and increased stress levels from the noise and disturbance associated with nearby seismic survey activities.¹⁸⁵ These effects could be caused by seismic crews traveling to access the area to be surveyed and by pedestrian travel along receiver lines, as well as the vibrations from the seismic operations, trimming vegetation, and using vehicles on existing roads. Surface disturbance from vehicles could also cause localized soil compaction which can increase runoff of surface waters and accelerate soil erosion¹⁸⁶, ultimately degrading sensitive habitats. Types of species that could be affected by these activities include a variety of mammals, birds, mammals, fish, and invertebrate species. Listed species could be particularly impacted by the noise associated with seismic survey work, especially vehicle noise.¹⁸⁷ Onshore seismic operations are also known to impact wildlife by disrupting mating, nesting, spawning and migration routes, and creating new and long-term use travel corridors for predators.¹⁸⁸

¹⁸⁰ *Id.* at 57.

¹⁸¹ Environmental Assessment at Appendix C (Letter of U.S. Fish and Wildlife Service to Big Cypress National Preserve re: Burnett Oil Co. Inc., Nobles Grade 3-D Seismic Survey (Feb. 25, 2015) (hereinafter, “concurrence letter”).

¹⁸² Letter from the Conservancy, et al. to Larry Williams, U.S. Fish and Wildlife Service dated December 22, 2014 re: Nobles Grade 3-D Seismic Survey, which is attached hereto and incorporated herein as Exhibit F.

¹⁸³ Proposed 9B rule revisions at 262.

¹⁸⁴ *Id.*

¹⁸⁵ Hall Sawyer, et al., Potential Effects of Oil and Gas Development on Mule Deer and Pronghorn Populations in Western Wyoming (2002), <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1004&context=usblmpub>.

¹⁸⁶ Sjoerd Duiker, Avoiding and Mitigating Soil Compaction Associated with Natural Gas Development (2004), http://extension.psu.edu/natural-resources/natural-gas/issues/environmental/avoiding-and-mitigating-soil-compaction-associated-with-natural-gas-development/extension_publication_file; Pennsylvania State University, Effects of Soils Compaction (2009), http://extension.psu.edu/plants/crops/soil-management/soil-compaction/effects-of-soil-compaction/extension_publication_file.

¹⁸⁷ Proposed 9B rule revisions at 262.

¹⁸⁸ Onshore Seismic Exploration Best Practice and Model Permit Requirements at 7.

The EA states that, “[w]ildlife could display avoidance behaviors as a result of the seismic survey activities. Some species could be subjected to short-term stress during their breeding season...Although not anticipated, mortality/injury to wildlife could also occur.”¹⁸⁹ This statement contradicts the conclusion in the EA that the proposed action would cause only short-term, temporary impacts on wildlife. Disruption of breeding activities and mortality or injury is not “short-term” for the individual, or potentially for the population of the entire species in the Preserve. For example, given the limited number of Florida panthers and the ongoing challenges of maintaining genetic variability of the species, each individual panther can contribute to maintaining the viability of the species.¹⁹⁰ Also, noise can change avian species composition because of reduced nesting success among noise-intolerant species, with cascading effects for bird communities.¹⁹¹ For example, the EA suggests that the red-cockaded woodpecker could be adversely affected by novel noise of the type generated by the proposed action.¹⁹²

In order to fully determine the effects of the proposed action on listed species, NPS and FWS should obtain species surveys from Burnett prior to conclusion of Section 7 consultation under the Endangered Species Act (“ESA”).¹⁹³ Wildlife surveys are needed to provide adequate consultation on the proposed action. An understanding of the proposed technology being utilized to conduct the seismic surveys is also critical, including an understanding of the distance at which vibrations and noise from the proposed seismic surveying activities would be felt and heard by wildlife. Wildlife surveys are absolutely necessary prior to commencement of the proposed action to fully evaluate the indirect impacts from the disturbance caused by the proposed action and to establish species-appropriate buffer zones. Therefore, Burnett’s stated intent to “conduct a GIS analysis of available protected species location information” is insufficient.¹⁹⁴ This information must be ground-truthed so that any established buffer zones account for the distance at which vibrations and noise from the proposed seismic surveying activities would be felt and heard by wildlife, to ensure that neither vibrations nor other disturbance is experienced by wildlife within the buffer zone. To ensure this, buffer zones may need to be larger than the distance from the species of concern to the vehicle or geophone.¹⁹⁵

The FWS appears to rely on promises and assumptions made by Burnett that important nesting and denning areas would be avoided by field crew, but only if they are documented once the proposed action is already underway. The FWS concurrence letter states that daily scouting to identify potential sensitive resources would be performed, at least for some species.¹⁹⁶ However,

¹⁸⁹ Environmental Assessment at 89.

¹⁹⁰ Stephen E. Davis, III, et al., Everglades Foundation, Oil and Gas Impacts in the Big Cypress Ecosystem: An analysis of impacts associated with proposed activities in the Nobles Grade area (2010) at 41, <http://www.evergladesfoundation.org/wp-content/uploads/2012/04/Report-Oil-Gas-Impacts.pdf>.

¹⁹¹ Clinton D. Francis, et al., Noise pollution changes avian communities and species interactions, *Current Biology* 19, August 25, 2009.

¹⁹² Environmental Assessment at 63.

¹⁹³ 16 U.S.C. §1536.

¹⁹⁴ Environmental Assessment at 35.

¹⁹⁵ Tammy L. Wilson, Effects of Seismic Exploration on Pygmy Rabbits, *Nat. Resources and Envntl. Issues* 17(7) (2011) (“If the intent of applying a mitigation buffer is to insure that there will be at least 50 m between active burrows and the nearest disturbance, then the typical width of vibroseis activity beyond the geophone line should be taken into account when applying mitigation buffers”).

¹⁹⁶ Concurrence Letter at 3.

the EA fails to make adequate provisions for this daily scouting. The EA states that a “qualified ecologist” will perform scouting of the survey lines, but this person and his or her credentials should be identified in the EA to ensure that this person is properly qualified and has sufficient experience with protected species in South Florida.¹⁹⁷ It is also unclear whether the “qualified ecologist” would accompany field crew each day during the proposed action, or whether it would be left to unqualified field crew to make crucial species identifications and accommodations for those species during daily survey activities.¹⁹⁸ The EA fails to specify whether survey operations would immediately stop once a protected species, or a den, nest, or burrow is observed, and whether a FWS biologist would be immediately contacted and required to go out to the survey location to verify species identifications and habitats, and to approve the steps taken by field crew to avoid any further disturbance. Additionally, the EA fails to provide specific information of required speed limits for vibroseis trucks, which is necessary to evaluate whether any wildlife, particularly burrowing or invertebrate species, would be impacted or injured by the trucks or the vibrating plates attached to the trucks.

Burnett’s assertion—which appears to have been accepted by NPS and FWS—that no long-term impacts to wildlife would occur as a result of the proposed action is based on statements of intent to avoid doing harm, rather than on scientific analysis, or specific and enforceable written plans to avoid harm to species and habitats that have been reviewed and approved by NPS and FWS in advance of commencement of the proposed action. Most glaring is Burnett’s assertion that “[t]he primary anticipated response by [protected mammals and reptiles]... would be avoidance.”¹⁹⁹ Yet the EA lacks any scientific or technical information to support this assumption. More importantly, Burnett incorrectly asserts that avoidance would not have longer-term impacts on an individual animal or population. However, long-term impacts could occur if “avoidance” translates to species not using breeding, nesting, denning, and foraging areas. FWS has recognized that wildlife avoidance behaviors during oil and gas activities, including seismic exploration, could ultimately result in lower feeding and reproductive success.²⁰⁰ The Florida Fish and Wildlife Conservation Commission (“FFWCC”) defines avoidance by wildlife as a response to human activity that “can lead to changes in important wildlife behaviors including resting, foraging and nesting.”²⁰¹ Studies have shown variability in disturbance-avoidance patterns among species, but with clear effects on some populations and communities.²⁰²

The EA also fails to explain why NPS or FWS are not requiring wildlife surveys in advance of the commencement of the proposed action in order to identify protected species and their dens, nests, and burrows. This is essential in order to fully evaluate the true impacts of the proposed action, and to establish avoidance buffers and polygons before any surveying commences on the landscape. This is extremely important to avoid human intrusion into sensitive areas, and is

¹⁹⁷ Environmental Assessment at 35.

¹⁹⁸ *Id.* at 34.

¹⁹⁹ *Id.* at 92.

²⁰⁰ U.S. Department of Interior, Fish & Wildlife Service, Kodiak National Wildlife Refuge draft comprehensive conservation plan, wilderness review, and environmental impact statement (1985) at 436.

²⁰¹ Florida Fish and Wildlife Conservation Commission, Wildlife Disturbance Issues and Conditions for Non-motorized Boaters at 6, <http://myfwc.com/media/1092538/FWCWildlifeDisturbancePresentation.pdf> (last visited December 23, 2015).

²⁰² Alejandro Frid and Lawrence Dill, Human-caused disturbance stimuli as a form of predation risk, *Conservation Ecology* 6(1): 11 (2002), http://www.mmc.gov/drakes_estero/pdfs/conservationecology_02.pdf.

particularly important for species with large buffer areas since the buffers may already be violated by nearby operations by the time a daily survey identifies their existence. Wildlife surveys are also essential so that FWS can accurately determine, in advance of survey commencement, whether a “take”²⁰³ of a protected species is likely to occur as a result of the proposed action. Additionally, current wildlife survey information is necessary in order for FWS to accurately evaluate whether Burnett’s proposed mitigation measures would truly avoid or minimize the adverse effects of the proposed action on protected wildlife and the habitats that they depend on. Notably, the period of activity for the proposed action stated in the EA (December through May), is not the “dry season” in the Preserve. In the 1992 GMP/EIS, NPS defines the dry season as November through April.²⁰⁴ The reason for this discrepancy is unclear, but it could have a bearing on the proposed action’s impacts on denning, nesting, and burrowing patterns (as well as in periods of high fire danger, when the GMP/EIS mandates avoidance of geophysical exploration).²⁰⁵

The EA states that “flexibility would be built into the operations plan” so that survey work could be relocated or re-routed once wildlife have been found.²⁰⁶ However, by the time this is even contemplated by a survey crew (let alone accomplished), the potential disturbance and impact to wildlife may already have occurred. Wildlife disturbance could also occur in the areas where the proposed action activities are relocated—particularly since no wildlife surveys would have been conducted ahead of time in order to determine areas that should be avoided by survey crews and to establish appropriate buffers.

The EA also fails to evaluate the impacts that will result from the off-road use of vibroseis trucks, helicopters, and other ORVs, and the effect of the added vehicle trips on roadways adjacent to the Preserve. It does not provide details necessary to assess the severity and intensity of the impact from the use of helicopters, or to determine how many additional vehicles would contribute to traffic on roadways in and around the Preserve. Moreover, avoidance measures only seem to be directed at nesting, roosting, and denning locations, the locations of which would not be determined until the seismic surveying grid is being laid in the field by Burnett field crew. The EA fails to evaluate the effects of the proposed action, including the distance from which human activities, vibrations, noise, and other disturbance factors would be felt. This information is essential to determine whether the proposed action will truly have adverse effects on species’ foraging, nesting, and breeding activities, or other essential behavioral patterns.

In addition to an evaluation of the direct and disturbance-related indirect effects of the proposed action to wildlife, NPS and FWS must also fully evaluate all of the indirect effects, such as vehicular mortality due to increased traffic, and the alterations of listed species’ habitats due to the impacts to vegetation and the hydrology, as described herein. All of the cumulative impacts resulting from the proposed action must be fully evaluated and include an evaluation of future exploration phases, and the effects of the neighboring Tocala, LLC seismic survey. Notably, neither the EA nor the FWC concurrence letter evaluate the adverse cumulative impacts of all

²⁰³ 50 C.F.R. § 17.3.

²⁰⁴ GMP/EIS, Appendix C at 363; *see also* U.S. Department of the Interior, National Park Service, Big Cypress National Preserve: Weather (Dec. 18, 2015), <http://www.nps.gov/bicy/planyourvisit/weather.htm>.

²⁰⁵ GMP/EIS, Appendix C at 360.

²⁰⁶ Environmental Assessment at 35.

phases of planned oil exploration in the Preserve, or the surveying that will occur directly adjacent to the Preserve, on protected wildlife.

The failure to evaluate all of the cumulative impacts of oil exploration in and adjacent to the Preserve could be catastrophic for protected wildlife in the area. Habitat destruction and fragmentation is the leading cause of species extinction worldwide.²⁰⁷ Habitat loss and fragmentation can lead to increased mortality;²⁰⁸ reduced abundance;²⁰⁹ altered movement patterns;²¹⁰ disruption of the social structure of populations;²¹¹ reduced population viability;²¹² isolated populations with reduced population sizes and decreased genetic variation.²¹³ Loss of genetic variation may reduce the ability of individuals to adapt to a changing environment; cause inbreeding depression;²¹⁴ reduce survival and reproduction;²¹⁵ and increase the probability of extinction.²¹⁶ The EA fails to take a hard look at all of the foregoing adverse effects of habitat loss and fragmentation on wildlife from the proposed action and adjacent and future oil exploration.

Section 7 of the ESA requires each federal agency, in consultation with FWS, to “insure that any action authorized, funded, or carried out by the agency... is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification” of the critical habitat of such species. 16 U.S.C. § 1536(a)(2). Consultation under the ESA must consider and analyze the effects of the entire agency action, and “agency action” is broadly defined. *See Conner v. Burford*, 848 F.2d 1441 (9th Cir. 1988). For each proposed agency action, the action agency must request from FWS whether any threatened, endangered or proposed species may be present in the area of the proposed action. 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12. If threatened, endangered, or proposed species may be present, the action agency must prepare a “biological assessment” to determine whether the listed species may be affected by the proposed action. *Id.* If the action agency determines that its proposed action may

²⁰⁷Larry D. Harris, The fragmented forest: Island biogeography theory and the preservation of biotic diversity (1984); *See also*, Gary K. Meffe and C. Ronald Carroll, Principles of Conservation Biology (1997).

²⁰⁸Erik S. Jules, Habitat fragmentation and demographic change for a common plant trillium in old-growth forest, *Ecology* 79:1645-56 (1998).

²⁰⁹Curtis H. Flather and Michael Bevers, Patchy Reaction-Diffusion and Population Abundance: The Relative Importance of Habitat Amount and Arrangement, *Am. Nat.* 159:40-56 (2002).

²¹⁰Lesley Brooker & Michael Brooker, Dispersal and population dynamics of the blue-breasted fairy-wren, *Malurus pulcherrimus*, in fragmented habitat in the Western Australian wheatbelt, *Wildlife Res* 29:225-33 (2002).

²¹¹Rolf Anker Ims & Harry P Andreassen, Effects of experimental habitat fragmentation and connectivity on root cole demography, *J. Anim Ecol* 68:839-52 (1999). *See also*, Peter G. Cale, The influence of social behavior, dispersal and landscape fragmentation on population structure in a sedentary bird, *Biol Conserv* 109:237-48 (2003).

²¹²Susan Harrison and Emilio Bruna, Habitat fragmentation and large-scale conservation: what do we know for sure?, *Ecography* 22:225-32 (1999). *See also*, Kendi F. Davies, Claude Gascon & Chris R. Margules, Habitat fragmentation: consequences, management, and future research priorities, *Conservation biology: research priorities for the next decade 81-97* (Michael E. Soule and Kathryn A. Kohm eds., 2001).

²¹³Richard Frankham, Relationship of genetic variation to population size in wildlife, *Conserv Biol* 10:1500-08 (1996).

²¹⁴Dieter Ebert, et al., A selective advantage to immigrant genes in a *Daphnia* metapopulation, *Science* 295:485-88 (2002).

²¹⁵Richard Frankham, Inbreeding and extinction a threshold effect, *Conserv Biol* 9:792-99 (1995). *See also*, David H Reed & Richard Frankham, Correlation between fitness and genetic diversity, *Conserv Biol* 17:230-37 (2003).

²¹⁶Ilik J Saccheri, et al., Inbreeding and extinction in a butterfly metapopulation, *Nature* 392:491-94 (1998). *See also*, Ronald L Westemeier, et al., Tracking the long-term decline and recovery of an isolated population, *Science* 282:1695-98 (1998).

affect any listed species or critical habitat, it must engage in “formal consultation” with FWS. 50 C.F.R. § 402.14.

To complete formal consultation, FWS must provide the action agency with a “biological opinion” explaining how the proposed action will affect the listed species or habitat. 16 U.S.C. § 1536(b); 50 C.F.R. §402.14. The biological opinion “is required to address both the ‘no jeopardy’ and ‘no adverse modification’ prongs of Section 7” of the ESA. *Center for Biological Diversity v. Bureau of Land Management*, 422 F. Supp. 2d 1115, 1127 (N.D. Cal. 2006) (citing 50 C.F.R. § 402.14(g)(4)). If FWS concludes in the biological opinion that the proposed action will jeopardize the continued existence of a listed species, or will result in the destruction or adverse modification of critical habitat, FWS must outline “reasonable and prudent alternatives” to the proposed action that FWS believes would not jeopardize listed species or result in the destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(b)(3)(A).

If the biological opinion concludes that the proposed action is not likely to jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of critical habitat, FWS must provide an “incidental take statement,” specifying the amount or extent of such incidental taking on the species, any “reasonable and prudent measures” that FWS considers necessary or appropriate to minimize such impact, and setting forth the “terms and conditions” that must be complied with by the agency to implement those measures. 16 U.S.C. § 1536(b)(4); 50 C.F.R. §402.14(i). In order to monitor the impacts of incidental take, the agency must report the impact of its action on the listed species to FWS. 50 C.F.R. § 402.14(i)(3). If during the course of the action the amount or extent of incidental taking is exceeded, the agency must reinitiate consultation immediately. 50 C.F.R. § 401.14(i)(4); *see also* 50 C.F.R. § 402.16.

Here, the biological assessment fails to fully evaluate the potential impacts of the proposed action on threatened and endangered species, in violation of the ESA. 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12. NPS may not rely on a document that is purported to be a biological assessment that was prepared by a private contractor under the direction of the private permit applicant. *See* 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.02 (defining a “biological assessment” as “information prepared by or under the direction of the Federal agency . . .”); *Sierra Club v. Flowers*, 423 F.Supp. 2d 1273, 1372 n. 273 (S.D. Fla. 2006) (noting that the preparation of a biological assessment by a private applicant’s agent “does not seem consistent with the language of the statute or the regulations”).

FWS’ concurrence letter for the proposed action does not comply with the ESA for a number of reasons including failures to: (1) evaluate the entire scope of the proposed action, including the effects of the vibrations from the vibroseis trucks and plates, significant increase in vehicular and foot traffic, impacts from helicopters, and noise and light impact on species; (2) evaluate the effects on determination keys for the affected listed species; (3) consider the best available science, including but not limited to the August 4, 2010 report entitled “Oil and Gas Impacts in the Big Cypress Ecosystem: An analysis of impacts associated with proposed activities in the Nobles Grade area;” (4) articulate a rational connection between the facts found and the decisions made for a number of listed species; (5) sufficiently support their findings and conclusions, especially where they directly conflict with the effects determination keys for affected species; (6) rely on proven, specific mitigation measures; (7) consider or address the potential impacts of the proposed action on the recovery of the affected listed species; (8) base

their decision on a biological assessment prepared by the action agency (here, the biological assessment was prepared by a private consultant hired by Burnett); and (9) provide the benefit of doubt to listed species. Similarly, the failure to prepare a biological opinion concerning the potential impacts of the proposed action on the numerous threatened and endangered species that are acknowledged by both the NPS and FWS to occur within the proposed action area violates Section 7 of the ESA. 16 U.S.C. § 1536(b); 50 C.F.R. § 402.14; *see Sierra Club*, 423 F.Supp.2d at 1373.

NPS has an independent, substantive duty under Section 7 of the ESA to ensure that its actions are not likely to jeopardize listed species or adversely modify critical habitats. 16 U.S.C. §1536(a)(2). Because FWS' concurrence letter for the proposed action violates the ESA and is unlawful, NPS' reliance on FWS' letter of concurrence to fulfill its Section 7 procedural and substantive obligations is arbitrary, capricious, and in violation of the ESA. *Id*; *See, e.g., Center for Biological Diversity v. Salazar*, 804 F.Supp. 2d 987, 1010 (D. Az. 2011) (an action agency's reliance on a legally flawed biological opinion is arbitrary and capricious). NPS fails to ensure that the proposed action is not likely to jeopardize the continued existence of any of the affected listed species, or result in the destruction or adverse modification of the species' critical habitat, as required by the ESA. 16 U.S.C. § 1536(a)(2); *Center for Biological Diversity*, 804 F.Supp. 2d at 1010. Moreover, because lawful and proper consultation on the proposed action has not yet been completed, NPS would violate Section 7(d) of the ESA, if it were to approve the proposed action and allow it to proceed. 16 U.S.C. § 1536(d). Therefore, NPS must re-initiate Section 7 consultation with FWS so that FWS can issue its own biological opinion that fully evaluates the impacts of the proposed action on protected species, which are described below.

1. Florida Panther

NPS concludes in the EA that the proposed action could potentially have an effect on Florida panther behavior or denning.²¹⁷ The Florida Panther Habitat Preservation Plan identifies about 926,000 acres of habitat considered essential to maintaining a minimum viable population of panthers in south Florida.²¹⁸ About 582,000 of these acres are located within the Preserve, representing approximately 63 percent of the essential habitat.²¹⁹ FWS originally listed the Florida panther as an endangered species in 1967.²²⁰ This listing occurred "in recognition of the panther's small population size and geographic isolation."²²¹ To this day, the Florida panther remains the most endangered mammal in the eastern United States with only 100-160 individuals

²¹⁷ Environmental Assessment at 91.

²¹⁸ Todd Logan, et al., Florida Panther Habitat Preservation Plan: South Florida Population (1993) at iii, <http://www.mountainlion.org/us/fl/FL-A-USFWS-Logan-et-al-1993-Florida-Panther-Habitat-Preservation-Plan-South-Florida-Population.pdf>.

²¹⁹ ORV Plan at 104.

²²⁰ U.S. Department of the Interior, Fish & Wildlife Service, Florida panther (Puma (=felis) concolor coryi), ECOS: Environmental Conservation online System, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A008> (last visited Dec. 24, 2015).

²²¹ Florida Fish and Wildlife Conservation Commission, Determining the Size of the Florida Panther Population (Aug. 2014), http://www.floridapanther.net.org/images/uploads/Statement_on_Estimating_Panther_Population_Size_-_revised_19_Aug_2014.pdf.

remaining, all in South Florida.²²² However, this is just an estimate, and the true number of remaining panthers is unknown.

One reason that the actual number of Florida panthers remaining and their daily whereabouts are unknown is that very few panthers have been fitted with radio collars. In addition, the number of live panthers with functioning collars fluctuates quite a bit during any year, due to collar battery failure or mortality. According to the FFWCC, as of December 9, 2015, there were only 16 functioning collars on Florida panthers.²²³ Since the current estimated population range of the Florida panther is between 100 and 160 individuals, only a small percentage of panthers have functional collars on any given day.

Another reason that the actual number of panthers remaining is unknown is because it is difficult, if not impossible, to survey all lands that contain potential panther habitat. About one-quarter of occupied panther range exists on private lands, which may not be readily accessible.²²⁴ NPS acknowledges in the EA that panthers exist on privately-owned lands north of the Preserve in Collier and Hendry counties.²²⁵ Florida panthers also utilize the private and state lands located directly to the north of the Preserve that have been approved for seismic exploration by Tocala, LLC.²²⁶ The EA fails to evaluate the cumulative impacts of the seismic surveying on the panther population collectively from both the proposed action within the Preserve, future survey phases within the Preserve, and the approved seismic surveying on adjacent lands by Tocala, LLC. Between these seismic surveys, existing roadways, and development, Florida panther habitat is being further fragmented and reduced. This sort of habitat loss could lead to devastating impacts on the imperiled panther population.

Despite the relative success of a genetic restoration project, only “a single wild population in south Florida of 100-160 adult panthers” is “all that remains of [the] species.”²²⁷ Development in south Florida has significantly decreased the area of suitable panther habitat and has led to increased panther mortalities from vehicle collisions, inbreeding, increased competition for food, and territorial disputes.²²⁸ For example, it is estimated that male panthers travel and patrol a territory of several hundred square miles.²²⁹ The panther’s large territory needs and limited

²²²U.S. Department of the Interior, Fish & Wildlife Service, Florida Panther: National Wildlife Refuge, Florida, Home (Sep. 1, 2015), http://www.fws.gov/refuge/Florida_Panther/.

²²³ Telephone conversation between Amy Mall, NRDC Senior Policy Analyst, and David Onorato, Associate Research Scientist, Florida Panther Project, Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission (December 9, 2015).

²²⁴ Florida Fish and Wildlife Conservation Commission, Determining the Size of the Florida Panther Population at 2.

²²⁵ Environmental Assessment at 73.

²²⁶ See State of Florida Department of Environmental Protection, Environmental Resource Permit number 26-0320889-001, issued to Tocala, LLC, on January 24, 2014, which can be viewed on the following website: <http://www.dep.state.fl.us/Water/wetlands/erp/find-permit.htm>.

²²⁷ U.S. Department of the Interior, Fish & Wildlife Service, Florida Panther: National Wildlife Refuge, Florida, Home (Sep. 1, 2015), http://www.fws.gov/refuge/Florida_Panther/.

²²⁸ *Id.*; See also Jenny Staletovich, Panther deaths in Florida hit record high in 2014, Miami Herald, Dec. 23, 2014, <http://www.miamiherald.com/news/local/environment/article4857063.html>.

²²⁹ Kim Tingley, Plight of the Panther: What happens when preserving a species makes it unpopular?, On Earth, July 30, 2015, <http://www.onearth.org/earthwire/florida-panther-conservation-controversy>.

habitat led to intraspecific aggression becoming the leading cause of panther mortality between 1990 and 2004 (responsible for approximately 42% of panther mortalities).²³⁰

Notably, the proposed action area is located in the FWS' Panther Focus Area, specifically the Primary Zone.²³¹ NPS estimates that 73 panthers utilize the proposed action area; however, NPS acknowledges that uncollared panthers are also known to inhabit the proposed action area.²³² Consequently, NPS and FWS must fully evaluate and provide assurances that the proposed action will not harm the panther or jeopardize its existence, as this activity will impact habitat essential to the panther's recovery and survival. Panthers have faced an uphill battle after their numbers declined to as few as 20-30 individuals.²³³ The biggest threat to the panther's existence is habitat destruction, thus the proposed action must be consistent with the panther's recovery plan to ensure that the proposed action does not undermine the chances for the species to recover. The recovery plan sets forth a goal to, "maintain, restore, and expand the panther population and its habitat in south Florida and expand the breeding...population in south Florida."²³⁴

Although a wide-ranging species, disturbance is also a factor in assessing impacts to the federally endangered Florida panther, which utilize habitat within the proposed action area. Panthers have shown, in studies conducted in the Preserve itself, some alterations in their normal behavior and use of habitat areas due to concentrated human activity.²³⁵ Panther prey species, such as white-tailed deer, may be affected by the human presence and loud activities associated with seismic surveying and regular helicopter operations. The EA fails to evaluate how the proposed action would affect the continued use of landscape corridors in these areas by the Florida panther and other wildlife. As the panther is territorial in nature, NPS must evaluate how the proposed action would impact the panther's behavior, movements, and the potential for increased intraspecific aggression.

Additionally, any traffic related to the proposed action, adjacent oil exploration by Tocala, LLC, and any future exploration phases in the Preserve, could occur on rural roads that are already dangerous for the Florida panther. There have been 36 panther deaths this year alone, with 25 of those being road kills – which ties a state record.²³⁶ For example, two young male panthers died on November 23, 2015. The first panther was recovered at the intersection of Everglades Boulevard and Immokalee Road in Collier County. The second panther was recovered the following day along State Road 29 in Glades County.²³⁷ The EA mentions that access points to the proposed action area would be kept secure to prevent panthers from breaching I-75 wildlife

²³⁰ U.S. Department of the Interior, Fish & Wildlife Service, Florida Panther Recovery Plan, Third Revision (2008) at 17 (hereinafter, "Panther Recovery Plan").

²³¹ Environmental Assessment at 75.

²³² *Id.* at 76.

²³³ U.S. Department of the Interior, Fish & Wildlife Service, Florida Panther: National Wildlife Refuge, Florida, Home (Sep. 1, 2015), http://www.fws.gov/refuge/Florida_Panther/.

²³⁴ Panther Recovery Plan at 101; Tingley, *supra*, note 26.

²³⁵ Panther Recovery Plan at 53.

²³⁶ Chad Gillis, Florida breaks overall panther death record, ties road kill mark, Fort Myers News-Press, Nov. 27, 2015, <http://www.news-press.com/story/news/2015/11/25/two-collier-county-panther-deaths-reported/76376722/>.

²³⁷ *Id.*

fencing.²³⁸ However, the EA fails to provide an evaluation of the increased motor vehicle and off-road vehicle traffic induced by the oil exploration within and adjacent to the Preserve. The EA also fails to evaluate any additional measures that could be taken in order to prevent panthers from crossing roads other than I-75, which are also located adjacent to or within the Preserve, such as US-41 (Tamiami Trail), State Road 29, and internal roads in the Preserve, when panthers are forced to relocate to avoid disturbance related to the proposed action.

The proposed action's adverse impacts on the shallow hydrology and geology of wetlands in the Preserve²³⁹ could also adversely affect Florida panther habitat. The FWC concurrence letter summarily concludes that "...[t]he project will result in limited impacts to vegetation during the establishment of transect line and buggy access paths, and it will not result in permanent habitat loss for the panther."²⁴⁰ As further described herein, the impacts to vegetation from this unprecedented type and scale of off-road vibroseis survey is unknown. Since NPS has not required a detailed restoration plan in the EA, it is unclear whether the proposed action area would be adequately restored so not to result in permanent impacts to the vegetation necessary for Florida panther habitat.

Despite the foregoing threats to the panther, the EA fails to evaluate alternatives to the proposed action that would avoid or minimize all of the aforementioned adverse effects on this imperiled species. For example, there is no evaluation of an alternative that the proposed action be located exclusively outside of the primary zone of the FWS' Panther Focus Area. The EA also fails to evaluate a proposed action that considers a reduced amount of surveying acreage within known panther habitat. There is also no evaluation of an alternative that prohibits the proposed action during the panther's known denning period. NPS acknowledges that the proposed action overlaps with the panther's denning period,²⁴¹ but fails to evaluate any alternative to conducting the proposed action within this timeframe. NPS merely assumes that "since the survey activities would not take place within impenetrable vegetation, Florida panther dens would not be expected to be directly impacted."²⁴² However, this is an unsupported assumption since NPS does not know the locations of all panther dens in the proposed action area because not all of the panthers in the Preserve wear radio collars,²⁴³ and because NPS is not requiring pre-seismic exploration wildlife surveys. The EA acknowledges that meetings would be held with FFWCC panther experts to determine potential denning areas within the vicinity of the proposed action area during survey operations.²⁴⁴ It is unacceptable to start survey operations until all panther dens are located. Clearly, NPS does not currently know the locations of all of the panther dens in the proposed action area and, therefore, has no basis for concluding in the EA that panther dens would not be directly impacted by the proposed action.

Additionally, the EA fails to evaluate the impacts of the seismic surveying noise and vibrations on the panther, or the potential for mother panthers abandoning dens. The EA summarily concludes that female panthers have not been observed to abandon dens after visits from

²³⁸ Environmental Assessment at 91.

²³⁹ Kugler Opinion at 1.

²⁴⁰ Concurrence Letter at 6.

²⁴¹ Environmental Assessment at 91.

²⁴² *Id.*

²⁴³ *Id.* at 76.

²⁴⁴ *Id.* at 91.

researchers,²⁴⁵ but makes no mention of whether this theory also applies to large scale disturbances involving vibroseis trucks, ORVs, and helicopter operations, and associated vibrations and noise, as is the case here. Panthers are less likely to be active during daylight hours because they are most active at night.²⁴⁶ The EA states that since operations would occur during the day, seismic operations would not disturb panthers.²⁴⁷ However, the EA provides no scientific or technical analysis regarding the distances at which panthers would be able to hear the noise from the vibroseis trucks and helicopters, or feel the vibrations from the seismic surveying from their dens. Additionally, NPS fails to establish an adequate buffer around panther dens that Burnett must adhere to during seismic operations. An appropriate buffer of approximately 0.6 mile or 1 kilometer should be established for known denning areas and other areas known to be actively occupied by panthers.²⁴⁸

Because the Florida panther is the most endangered mammal in the eastern United States, NPS should not allow experimentation of this magnitude within known panther habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration within and adjacent to the Preserve on the Florida panther. This requires NPS to re-initiate consultation with the FWS to fully evaluate these impacts since the FWS concurrence letter fails to evaluate the cumulative impacts of Tocala, LLC’s seismic survey, and subsequent exploration in the Preserve, on the Florida panther.

2. Other mammals

a. Florida Bonneted Bat

NPS acknowledges that the presence of the Florida bonneted bat (*Eumops floridanus*), is anticipated within the proposed action area.²⁴⁹ NPS also acknowledges that survey field operations in the proposed action area could potentially have an impact on the bat’s behavior.²⁵⁰ FWS listed the Florida bonneted bat as a federally endangered species under the ESA in 2013.²⁵¹ There is still much to be learned about the long-term habitat needs, life cycle, and general ecology of this endangered species, but based on the needs of other similar bat species, FWS posits that the bonneted bat would find prime foraging habitat near “open, fresh water wetlands,” and that the species, “will forage over ponds, streams, and wetlands.”²⁵² The bonneted bat is dependent on forested areas for roosting. It has historically been found in longleaf pine trees; however, the species has also been found roosting in palm trees.²⁵³

²⁴⁵ *Id.*

²⁴⁶ *Id.*

²⁴⁷ *Id.*

²⁴⁸ Stephen E. Davis III, et al., Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area (2010) at 157.

²⁴⁹ Environmental Assessment at 68.

²⁵⁰ *Id.* at 92.

²⁵¹ *Id.* at 68; *See also*, United States Department of the Interior, National Park Service, Florida Bonneted Bat, Everglades National Park (last visited Dec. 28, 2015), <http://www.nps.gov/ever/learn/nature/flbonnetedbat.htm>.

²⁵² Endangered and Threatened Wildlife and Plants; Endangered Species Status for the Florida Bonneted Bat; Final Rule, 78 Fed. Reg. 61003, 61007 (Dep’t of Interior Oct. 2, 2013) (to be codified at 50 C.F.R part 17).

²⁵³ *Id.* at 61007.

The greatest threats to the survival of the bonneted bat are mainly anthropogenic threats, such as habitat destruction, fragmentation, and degradation closely linked to various types of development.²⁵⁴ It is anticipated that climate change and sea level rise will both negatively impact the species, which is already suffering from limited suitable habitat.²⁵⁵

The proposed action area includes lands that have been identified as the federally endangered Florida bonneted bat (FBB) Focal Area.²⁵⁶ The FBB Guidelines states that projects within these focal areas “may affect” the bat.²⁵⁷ Burnett asserts that no nest or cavity tree removal will occur as a result of the proposed action²⁵⁸; however, NPS has not required Burnett to complete surveys of cavities, snags, and other potential roost site, in order to verify whether this assertion is correct. NPS summarily concludes that if potential bat cavities are identified, they would be avoided, and that no nest or cavity tree removal would occur as a result of survey activities.²⁵⁹ However, the EA fails to establish buffer zones around potential roost sites, or to evaluate specific types of avoidance and mitigation measures that would be taken if such resources are found during seismic activities.

NPS fails to evaluate any alternatives to the proposed action that would eliminate or minimize all of the aforementioned adverse effects on this imperiled species. For example, there is no evaluation of an alternative that the proposed action be located exclusively outside of the known FBB Focal Area. The EA also fails to evaluate a proposed action that considers a reduced amount of surveying acreage within the FBB Focal Area. Because the bonneted bat is an endangered species, NPS should not allow experimentation of this magnitude within known bat habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and on adjacent lands on the bat and its habitat. This requires NPS to re-initiate consultation with the FWS since their concurrence letter also fails to address the cumulative impacts of all phases of oil exploration in the Preserve and on adjacent lands.

b. Florida Black Bear

NPS acknowledges that the presence of the Florida black bear (*Ursus americanus floridanus*), is anticipated within the proposed action area.²⁶⁰ The Florida black bear was removed from Florida’s Endangered and Threatened Species List in 2012. However, Florida black bears remain protected by the Bear Conservation provisions in Rule 68A-4.009, Florida Administrative Code.²⁶¹ Additionally, the South Bear Management Unit (“BMU”) of the FWS’ Florida Black Bear Management Plan (“Plan”) includes Broward, Collier, Hendry, Lee, Miami-Dade, Monroe, and Palm Beach counties and contains the Big Cypress subpopulation, named after the Big

²⁵⁴ United States Department of the Interior, National Park Service, Florida Bonneted Bat, Everglades National Park at 152.

²⁵⁵ *Id.*

²⁵⁶ Environmental Assessment at 68.

²⁵⁷ United States Department of the Interior, Fish & Wildlife Service, Florida Bonneted Bat Guidelines (Dec. 2013), http://www.saj.usace.army.mil/Portals/44/docs/regulatory/sourcebook/endangered_species/Florida%20Bonneted%20Bat/2013%20FBB%20Effect%20Determination%20Guidelines.pdf.

²⁵⁸ Plan of Operations at 207.

²⁵⁹ Environmental Assessment at 92.

²⁶⁰ *Id.* at 57.

²⁶¹ *Id.*

Cypress National Preserve.²⁶² The Plan's objectives for the South BMU are to maintain or increase the current bear subpopulation with the necessary habitat to support them, create forested connections with the South Central BMU, and to reduce human-bear conflicts and habitat fragmentation. In 2002, the FWC estimated 516 to 878 bears lived in the Big Cypress subpopulation.²⁶³ Large parcels of public land with habitats as diverse as the seasonally inundated pine flatwoods, tropical hammocks and hardwood swamps within the Big Cypress National Preserve support large and healthy subpopulations of bears.²⁶⁴ In highly fragmented habitat, bears have more frequent interactions with humans and human-related sources of mortality can be significant.²⁶⁵ Like the Florida panther, vehicle collisions are responsible for the majority of known bear death. It is estimated that such collisions have caused 90% of the known bear deaths.²⁶⁶

“Bears are particularly vulnerable to habitat loss and fragmentation because of their low numbers, low densities, large home ranges, low productivity, poor colonization abilities, and increased interactions with humans brought about habitat alterations. Habitat fragmentation and degradation in Florida reduced what was once a single large population of bears that roamed virtually the entire state, into several smaller, largely isolated subpopulations. Habitat fragmentation can lead to isolation of subpopulations and reduction of subpopulation size which may cause a decrease in genetic variation. Loss of genetic variation may reduce the ability of individuals to adapt to changes in the environment, cause inbreeding depression, and increase the probability of extinction.”²⁶⁷ Black bears are also recognized as an umbrella species, which is “a species whose habitat requirements encompass those of many other species. Given the large area requirements of bears and the diversity of habitats they use, many species are protected under the umbrella of bear conservation.”²⁶⁸

As further described herein, seismic exploration will cause habitat fragmentation by disturbing the landscape, vegetation, soils, and hydrology, within the Preserve. The EA fails to evaluate how habitat fragmentation will affect the Florida black bear population in the Preserve. The EA makes no mention of the Florida Black Bear Management Plan, or whether the proposed action has been evaluated to determine whether it conflicts with this Plan in the South BMU, which includes the Preserve. The EA acknowledges that encounters of Florida black bears during the proposed action are probable.²⁶⁹ However, the EA fails to evaluate specific types of avoidance and mitigation measures that would be taken if bears or their dens are encountered during seismic activities. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve, and on adjacent lands, on the bear and its habitat.

²⁶² Florida Fish and Wildlife Conservation Commission, Florida Black Bear Management Plan (June 27, 2012) at 122, <http://myfwc.com/media/2612908/bear-management-plan.pdf> (hereinafter, “Black Bear Management Plan”).

²⁶³ *Id.* at 8.

²⁶⁴ *Id.*

²⁶⁵ *Id.* at 11.

²⁶⁶ Florida Fish and Wildlife Conservation Commission, Bears and Roads (last visited December 28, 2015), <http://myfwc.com/conservation/you-conserve/wildlife/black-bears/roads/>.

²⁶⁷ Black Bear Management Plan at 15.

²⁶⁸ *Id.* at 17.

²⁶⁹ Environmental Assessment at 92.

c. Everglades Mink

In Florida, the Everglades mink (*Neovison vison evergladensis*) is listed as Threatened.²⁷⁰ The Everglades mink has been observed in Big Cypress.²⁷¹ The EA acknowledges that the Everglades mink may be present in the proposed action area.²⁷² Considerations in need of further analysis include the sensitivity of the mink to wetland loss and water pollution, as well as disturbance of denning areas close to water.²⁷³ Breeding may occur in winter, perhaps February²⁷⁴, which would conflict with the proposed action timeframe. During the dry season, the Everglades mink relocate to freshwater depressions and swamp forests with longer hydroperiods.²⁷⁵ Minks may travel to and rely on these areas during late spring when young are not yet weaned.²⁷⁶ The Everglades mink relies on multiple wetland habitats and appear to vary their use of different habitats.²⁷⁷ Therefore, actions that degrade water quality, change hydrology, or result in loss or fragmentation of suitable natural wetlands can cause significant impairment of essential behavioral patterns. Actions that change the timing, quantity, or quality of water in suitable natural wetlands should be expected to result in significant impairment of essential behavioral patterns.²⁷⁸

The EA acknowledges that limited information is available about the Everglades mink, and that survey field operations could potentially have an impact on this mammal's behavior.²⁷⁹ However, the EA fails to provide a complete evaluation on what those impacts consist of, and what alternatives or mitigation should be considered in order to eliminate or minimize the effects of the proposed action on this species. Without such an evaluation, it is impossible to determine the degree of potential impact of the proposed action on the Everglades mink. NPS must take a "hard look" at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve, and on adjacent lands, on this state threatened species and its habitat.

d. Big Cypress fox squirrel

In Florida, the Big Cypress fox squirrel (*Sciurus niger avicennia*) is listed as Threatened.²⁸⁰ Big Cypress fox squirrels face considerable threats to their population as their habitat is destroyed and fragmented by increased development.²⁸¹ The EA acknowledges that the Big Cypress fox

²⁷⁰ Florida Fish and Wildlife Conservation Commission, Draft Species Conservation Measures and Permitting Guidelines: Everglades Mink (*Neovison vison evergladensis*) at 1, http://www.floridahba.org/wp-content/uploads/2015/10/DRAFT-Everglades-Mink-Species-Guidelines_10-27-15.pdf.

²⁷¹ *Id.* at 2.

²⁷² Environmental Assessment at 57.

²⁷³ Stephen E. Davis III, et al., Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area (2010) at 43.

²⁷⁴ Florida Fish and Wildlife Conservation Commission, Draft Species Conservation Measures and Permitting Guidelines: Everglades Mink (*Neovison vison evergladensis*) at 2, http://www.floridahba.org/wp-content/uploads/2015/10/DRAFT-Everglades-Mink-Species-Guidelines_10-27-15.pdf.

²⁷⁵ *Id.* at 3.

²⁷⁶ *Id.*

²⁷⁷ *Id.* at 4.

²⁷⁸ *Id.*

²⁷⁹ Environmental Assessment at 92.

²⁸⁰ Florida Fish and Wildlife Conservation Commission, Wildlife & Habitats: Big Cypress Fox Squirrel, <http://myfwc.com/wildlifehabitats/imperiled/profiles/mammals/big-cypress-fox-squirrel/>.

²⁸¹ *Id.*

squirrel may be present in the proposed action area.²⁸² The EA also acknowledges that survey field operations could potentially have an impact on this mammal's behavior.²⁸³ NPS summarily states that if Big Cypress fox squirrel nests are identified, they would be avoided.²⁸⁴ However, the EA fails to provide a complete evaluation on what the impacts to the fox squirrel consist of, and fails to evaluate any alternatives or mitigation measures to avoid or minimize the effects of the proposed action on this species. Such analysis is particularly critical because the species is diurnal and would be active when seismic exploration is underway; in addition, population declines mean that only a few hundred individuals may still exist.²⁸⁵ Therefore, NPS must take a "hard look" at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve, and on adjacent lands, on this state threatened species and its habitat.

3. Reptiles

a. Gopher Tortoise

The EA acknowledges that the gopher tortoise (*Gopherus polyphemus*) could potentially occur within the proposed action area.²⁸⁶ The EA also acknowledges that mortality and injury to protected reptiles could also occur as a result of the proposed action.²⁸⁷ The gopher tortoise is a candidate species for listing under the ESA.²⁸⁸ In Florida, the gopher tortoise is listed as Threatened. This means that both the tortoise and its burrow are protected under Florida state law. Gopher tortoises must be relocated before any land clearing or development takes place, and property owners must obtain permits from the FWC before capturing and relocating tortoises.²⁸⁹

Gopher tortoises, in addition to being listed as a candidate species under the ESA, are a highly ecologically valuable "keystone species," because it benefits and helps to ensure the survival of other species located within the same ecosystem.²⁹⁰ The tortoise is known to benefit over 300 different species in its ecosystem, including the indigo snake, "foxes, skunks, and lizards," which use gopher tortoise burrows for shelter and for various parts of their lifecycles.²⁹¹ The tortoise is generally found in longleaf pine or oak sandhill ecosystem but they may also be found in other dry, upland habitats within its historic range.²⁹²

²⁸² Environmental Assessment at 57.

²⁸³ *Id.* at 92.

²⁸⁴ *Id.*

²⁸⁵ Stephen E. Davis III, et al., Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area (2010) at 42.

²⁸⁶ Environmental Assessment at 14.

²⁸⁷ *Id.* at 92.

²⁸⁸ *Id.* at 57.

²⁸⁹ Florida Fish and Wildlife Conservation Commission, Gopher Tortoise (last visited Dec. 28, 2015), <http://myfwc.com/wildlifehabitats/managed/gopher-tortoise>.

²⁹⁰ United States Department of the Interior, Fish & Wildlife Service, Range-Wide Conservation Strategy for the Gopher Tortoise 4 (June 2013),

<https://www.fws.gov/southeast/candidateconservation/pdf/FinalGopherTortoiseStrategy.pdf> (hereinafter, "Conservation Strategy for the Gopher Tortoise").

²⁹¹ *Id.*

²⁹² United States Department of the Interior, Fish & Wildlife Service, Gopher Tortoise (*Gopherus polyphemus*) Fact Sheet 1 (May 2015), http://www.fws.gov/northflorida/gophertortoise/Gopher_Tortoise_Fact_Sheet_web.pdf.

The greatest threat to the tortoise is habitat destruction, including habitat fragmentation and degradation.²⁹³ Habitat fragmentation, for example, may lead to such issues as reproductive isolation, increased predation due to exposed habitat edges, and tortoise deaths resulting from vehicular collisions.²⁹⁴

NPS acknowledges that gopher tortoise burrows have been found in the Addition lands part of the Preserve, but states that the population within the proposed action area is unknown.²⁹⁵ NPS acknowledges that specific location data for gopher tortoise burrows or inhabited areas within the survey area are unavailable.²⁹⁶ It is critical for surveys to be completed prior to commencement of the proposed action to determine the presence and location of gopher tortoises and burrows, and to establish appropriate buffers to protect burrows from collapse and minimize the effects of seismic exploration.²⁹⁷ For development projects, a 25-foot buffer is utilized to protect gopher tortoise burrow structures from take due to surface activities; however, a wider buffer may be needed in this case to address the combined effects of underground seismic shockwaves. These measures are essential to protect gopher tortoises as well as their commensal species, such as the eastern indigo snake.²⁹⁸

The FWC concurrence letter states that the Programmatic Key was utilized to determine that the project is “not likely to adversely affect” the indigo snake.²⁹⁹ However, a review of this Programmatic Key indicates that if there are “gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities” and 25 acres of xeric habitat with gopher tortoise burrows are to be impacted, then the resulting determination is “may affect.”³⁰⁰

Given the appropriate “may affect” determination, NPS should re-initiate consultation with the FWS in order to fully evaluate the impacts of the proposed action on the tortoise. If surveying for gopher tortoise does not occur until after the proposed action has already begun, NPS and the FWS would be unable to properly evaluate the proposed action’s impacts and effects on both the gopher tortoise and the indigo snake, which is further discussed below. Without prior surveys, NPS would be unable to determine whether Gopher tortoises must be relocated in compliance with state law, before land clearing and seismic surveying commence. The EA also fails to evaluate the impacts of habitat fragmentation as a result of the proposed action on the gopher tortoise population in the Preserve.

²⁹³ Conservation Strategy for the Gopher Tortoise, *supra*, at 9.

²⁹⁴ *Id.*

²⁹⁵ Environmental Assessment at 92.

²⁹⁶ *Id.* at 59.

²⁹⁷ Tammy L. Wilson, Effects of Seismic Exploration on Pygmy Rabbits, Nat. Resources and Env'tl. Issues 17 (2011).

²⁹⁸ Florida Fish and Wildlife Conservation Commission, Gopher Tortoise Permitting Guidelines (Feb. 2015) at 3, <http://myfwc.com/media/2984206/GT-Permitting-Guidelines-FINAL-Feb2015.pdf> (hereinafter, “Gopher Tortoise Permitting Guidelines”).

²⁹⁹ Concurrence Letter at 3.

³⁰⁰ United States Department of the Interior, Fish & Wildlife Service, Eastern Indigo Snake Programmatic Effect Determination Key (Jan. 25, 2010) at 5, <http://www.fws.gov/verobeach/ReptilesPDFs/20100125LetterServicetoCorpsFA0642ProgrammaticIndigoSnakeKey.pdf>.

b. Eastern Indigo Snake

NPS acknowledges that the eastern indigo snake (*Drymarchon corais couperi*) could potentially occur within the proposed action area.³⁰¹ The EA acknowledges that mortality and injury to protected reptiles could also occur as a result of the proposed action.³⁰² The indigo snake is listed as threatened under the ESA.³⁰³ Historically, this species was found throughout Florida, Alabama, and Mississippi; however, the species is now only found within Georgia and Florida.³⁰⁴ These snakes are found in pinelands, tropical hardwood hammocks, and mangrove forests.³⁰⁵ The most frequent types of habitat where the snake is found includes “pine flatwoods, scrubby flatwoods, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitat;” however, the species needs a variety of these habitats to complete its life cycle.³⁰⁶ The species shares a special relationship with the gopher tortoise, as the snake will take refuge in the tortoises’ burrows.³⁰⁷ Although these snakes are not necessarily dependent on gopher tortoises for their survival in south Florida, the snakes are still known to use the underground burrows of these tortoises and other species in this region.³⁰⁸ Thus, the survival of the indigo snake is tied to the health and survival of the gopher tortoise.

The indigo snake was initially listed as threatened as the result of several activities including, habitat destruction and fragmentation, as well as “over-collecting for the pet trade and mortality from gassing gopher tortoise burrows to collect rattlesnakes.”³⁰⁹ Presently, the species is particularly vulnerable to habitat destruction and fragmentation, the primary culprits of which include destruction for “residential and commercial construction, agriculture, and timbering.”³¹⁰ The species will continue to be impacted by human development as an influx of people equates to an increased risk of snake mortality resulting from contact with “property owners, domestic animals,” and vehicular collisions.³¹¹

The EA fails to evaluate how habitat fragmentation resulting from the proposed action would affect the indigo snake population in the Preserve. NPS acknowledges that the eastern indigo snake has been observed in the Addition portion of the Preserve, but that documented occurrence data for the eastern indigo snake in the proposed action area is not available.³¹² However, the

³⁰¹ Environmental Assessment at 14.

³⁰² *Id.* at 92.

³⁰³ *Id.* at 57.

³⁰⁴ U.S. Department of the Interior, Fish & Wildlife Service, Multi-Species Recovery Plan for South Florida: Eastern Indigo Snake, *Drymarchon corais couperi* (1999), at 4-568,

<http://www.fws.gov/verobeach/MSRPPDFs/EasternIndigoSnake.pdf> (hereinafter, “Indigo Recovery Plan”).

³⁰⁵ *Id.*

³⁰⁶ *Id.* at 4-568–4-569.

³⁰⁷ U.S. Department of the Interior, National Park Service, Eastern Indigo Snake: Species Profile, Everglades National Park (last visited Dec. 29, 2015), <http://www.nps.gov/ever/learn/nature/easternindigosnake.htm> (hereinafter, “Species Profile”).

³⁰⁸ The use of gopher tortoise and other species’ burrows by indigos is often considered taking “refuge.” Indigo Recovery Plan, *supra* note 127, at 4-572.

³⁰⁹ *Id.*

³¹⁰ *Id.*

³¹¹ *Id.*

³¹² Environmental Assessment at 59.

Status of the Eastern Indigo Snake in Southern Florida National Parks and Vicinity Report³¹³ suggests that eastern indigo snakes are diurnal and have been observed more frequently in the dry season than the wet season.³¹⁴ This is problematic because the proposed action would take place during the dry season,³¹⁵ which is when indigo snakes are most often observed. As previously mentioned in relation to the gopher tortoise, NPS should reinitiate consultation with the FWS in order to fully evaluate the effects of the proposed action, subsequent phases of exploration in the Preserve, and adjacent exploration, on the indigo snake. If surveying for gopher tortoises and indigo snakes does not occur until after the proposed action has already begun, NPS and the FWS would be unable to properly evaluate the proposed action's impacts and effects on both species.

NPS acknowledges that manmade noise and vibrations may adversely affect reptiles, yet it summarily concludes that the noise exposure would be brief and short-term, and as such, no lasting impacts would be expected to occur.³¹⁶ The EA fails to provide any scientific or technical evaluation of the actual impacts that the noise and vibrations would have on indigo snakes and the burrows they inhabit. In fact, there is no conclusion made in the EA about the effects of the seismic vibrations at all.

The EA states that if a protected reptile is observed during the seismic survey, the survey would temporarily cease to allow sufficient time for the reptile to move away from the activity before resuming activities, and that survey crews would be trained to identify the protected reptiles and their potential burrows or nests.³¹⁷ NPS also summarily concludes that due to these protection measures, "it would not be likely that burrows or nests would be destroyed or damaged as a result of the seismic surveying activities."³¹⁸ However, the EA fails to explain what the field crew training would entail, and fails to require field crew to ensure that a wildlife biologist would be present during daily operations or "on-call" to verify field crew identifications.

The EA also fails to evaluate the appropriate size of a buffer around gopher tortoise and indigo snake burrows and nests. A minimum 25-foot buffer must be utilized to protect gopher tortoise burrow structures from take due to surface activities;³¹⁹ however, a wider buffer may be needed in this case to address the combined effects of underground seismic shockwaves. The appropriate size of this buffer must be fully evaluated in an EIS. These measures are essential to protect gopher tortoises as well as their commensal species, such as the eastern indigo snake.

4. Florida Tree Snail

Tree snails are varieties of the species *Liguus fasciatus*, listed as a species of special concern by the state of Florida. There are eight subspecies and about 60 varieties. The great diversity of snails is caused by genetic isolation of each population on tree islands or in clusters of tree

³¹³ Todd M. Steiner, *et al.*, Status of the Eastern Indigo Snake in Southern Florida National Parks and Vicinity Report SFRC-83/01 (1983).

³¹⁴ Environmental Assessment at 92.

³¹⁵ *Id.* at 89.

³¹⁶ *Id.* at 92.

³¹⁷ *Id.* at 92-93.

³¹⁸ *Id.*

³¹⁹ Gopher Tortoise Permitting Guidelines at 3.

islands.³²⁰ The 1992 GMP/EIS acknowledges that the primary threat to tree snails is habitat destruction.³²¹ Despite this acknowledgment, the EA summarily concludes that it does not discuss the Florida tree snail in detail because “no permanent habitat loss is expected to occur as a result of the survey alternatives.”³²² This is clearly not the case due to the extensive nature of impacts to vegetation from the proposed action as discussed further herein. The 1992 GMP/EIS also expressly states that vehicular access for geophysical activities would be prohibited in snail habitats.³²³ However, the EA fails to address the proposed action’s conflict with the GMP/EIS. Therefore, the EA fails to take a hard look at impacts to this species of special concern.

5. Federal and state listed birds.

a. Red-Cockaded Woodpecker

NPS acknowledges that the Red-cockaded woodpecker (*Picoides borealis*) (hereinafter, “RCW”) occurs within the proposed action area and could be impacted.³²⁴ The proposed action area is partially located within the FWS Consultation Area for the RCW.³²⁵ FWS listed the RCW as a federally endangered species under the ESA for protection in 1973.³²⁶ The RCW nests exclusively in mature or old growth pine forests and prefers longleaf pine trees but will also nest in other southern pines.³²⁷ Habitats in the Preserve that may be utilized by the RCW include hydric pine flatwoods and mesic pine flatwoods.³²⁸ The RCW is the only type of woodpecker that carves cavities exclusively in living pine trees, whereas other species seek out dead trees to make their nests.³²⁹ Generally the RCW seeks out mature pine trees, those 80 years old or older.³³⁰ Often, older pines such as those preferred by the RCW suffer from red heart disease, which causes the inner wood of the tree to soften.³³¹ The species often nests in clusters of trees, in family units known as “groups.”³³² A cluster of cavity trees used by the RCW may include 20 or more trees over an area of up to 60 acres.³³³

Due to their unique status as the only species of woodpecker to create cavities in live pine trees, the species is “considered a ‘keystone’ species because use of their cavities by” secondary nesters.³³⁴ Secondary nesting species benefit from RCW excavation efforts once the RCW no

³²⁰ GMP/EIS at 183.

³²¹ *Id.*

³²² Environmental Assessment at 57.

³²³ GMP/EIS at 237.

³²⁴ Environmental Assessment at 14.

³²⁵ *Id.* at 63.

³²⁶ U.S. Department of the Interior, Fish & Wildlife Service, Recovery Plan for the Red-cockaded Woodpecker (*Picoides borealis*) Second Revision (2003) at ix, http://ecos.fws.gov/docs/recovery_plan/030320_2.pdf (hereinafter, “RCW Recovery Plan”).

³²⁷ United States Department of the Interior, Fish & Wildlife Service, Red-Cockaded woodpecker (*Picoides borealis*), Red-cockaded Woodpecker Recovery (Nov. 17, 2015), <http://www.fws.gov/rcwrecovery/rcw.html>.

³²⁸ Environmental Assessment at 63.

³²⁹ United States Department of the Interior, Fish & Wildlife Service, Red-Cockaded woodpecker (*Picoides borealis*), Red-cockaded Woodpecker Recovery (Nov. 17, 2015), <http://www.fws.gov/rcwrecovery/rcw.html>.

³³⁰ *Id.*

³³¹ *Id.*

³³² *Id.*

³³³ *Id.*

³³⁴ *Id.*

longer uses the cavity and in turn, the RCW's work contributes to the biodiversity of the pine forests where it is found.³³⁵

The principal threat to the RCW is a "lack of suitable habitat," largely because of its dependency on mature pine forests.³³⁶ Among the precipitating threats, which stem from habitat loss, the RCW suffers from a lack of suitable habitat for foraging and too few trees to excavate for nesting.³³⁷ The RCW is a particularly important species because of the benefits it provides to other species within the ecosystem and it is protected throughout its range.³³⁸ RCWs rely on foraging habitat within one half mile from their cavities.³³⁹ Disturbance of foraging RCWs and potential abandonment of active nests is impossible to predict, and sensitivity to novel sounds is possible in this case.³⁴⁰ NPS acknowledges that there appears to be a limit, on the duration or types of activities that woodpeckers will tolerate. In other parts of the South, nesting failures have been attributed to noise from loud radio music and house construction, continuous chainsaw operation, and heavy interstate traffic.³⁴¹ Despite this acknowledgement, the EA fails to fully evaluate the effects of noise from the vibroseis trucks, helicopters, and ORV vehicles associated with the proposed action on the RCW.

NPS acknowledges that the survey field operations could potentially have an adverse effect on RCW nesting and reproduction. Typical nesting season for the RCW is April 15 through June 15, which coincides with the proposed seismic survey timeframe (December – May). The survey would occur during the time when RCWs typically court, lay and incubate their eggs, and raise their nestlings.³⁴²

The 1992 GMP/ EIS states that oil and gas activity is prohibited near a RCW colony in order to provide an undisturbed forage area around the colony.³⁴³ The Preserve MMP stipulates that no geophysical vehicles are permitted within 0.5 miles of RCW cavity trees during the nesting season,³⁴⁴ and helicopters may not be operated within 0.75 miles of cavity trees at any time.³⁴⁵ The EA acknowledges that "[t]he specific locations of documented red-cockaded woodpecker clusters and cavity trees would be shared with Burnett so that these areas could be avoided and appropriate setbacks could be maintained."³⁴⁶ This implies that NPS does not currently know where all of the RCW clusters and cavity trees are located within the proposed action area. The

³³⁵ *Id.*

³³⁶ RCW Recovery Plan at 5.

³³⁷ *Id.*

³³⁸ United States Department of the Interior, Fish & Wildlife Service, Species Profile for Red-Cockaded woodpecker (*Picoides borealis*), ECOS: Environmental Conservation Online System (last visited Dec. 29, 2015), http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B04F; GMP/EIS at Appendix C.

³³⁹ U.S. Department of the Interior, Fish & Wildlife Service, Red-Cockaded Woodpecker Programmatic Biological Opinion: Eglin Air Force Base, NE Gulf of Mexico, Walton, Okaloosa, Santa Rosa Counties, Florida (Aug. 14, 2013), at 10, <http://grasieis.leidoseemg.com/documents/Red-cockaded%20Woodpecker%20Programmatic%20BO.pdf>.

³⁴⁰ Davis, et al., Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area (2010) at 115.

³⁴¹ Environmental Assessment at 63; GMP/ EIS at 182.

³⁴² Environmental Assessment at 89.

³⁴³ GMP/EIS at 182.

³⁴⁴ *Id.* at 227-228.

³⁴⁵ *Id.* at 360.

³⁴⁶ Environmental Assessment at 35.

EA also fails to evaluate whether and how the buffers identified in the Preserve MMP will be met. Notably, the EA acknowledges that helicopters would be “used to deliver equipment to otherwise inaccessible source locations without constructing new roadways or trails.”³⁴⁷ This implies that helicopters could violate the 0.5 and 0.75 mile buffers around RCW cavity trees during take-off and landing. This is why it is essential for NPS to identify RCW clusters and cavity trees in advance of any survey commencement, and to evaluate alternatives and mitigation measures to avoid disturbance of RCWs and cavity trees.

NPS also proposes a buffer of continuous forest 61 meters (200 feet) in width, generally established around the minimum convex polygon containing an RCW group’s active and inactive cavity trees. However, a 0.5 mile buffer should be maintained from cavity trees during all times of the year, not just during nesting season. This buffer should be maintained even if the cavity tree is located outside of the proposed action area, as survey activities may still disturb or impact a tree used by an RCW within the buffer area. Consequently, NPS should require RCW surveys prior to the commencement of any vegetation clearing or seismic surveying in order to ensure that the survey crew is avoiding these areas and adhering to required buffer zones. Without this information in advance of commencement of the proposed action, survey crews will have already entered the buffer zone areas before any RCWs or cavity trees are identified.

Further, the EA fails to evaluate how the habitat fragmentation resulting from the proposed action will affect the RCW population in the Preserve. The EA does not adequately address the conservation needs of the RCW, nor does it incorporate any of the measures outlined in the RCW Recovery Plan. NPS fails to evaluate alternatives to the proposed action that would eliminate or minimize all of the aforementioned adverse effects on this imperiled species. For example, there is no evaluation of an alternative that locates the proposed action exclusively outside of the RCW consultation area, or appropriately sized buffer areas around the consultation area. The EA also fails to evaluate an alternative to the proposed action that occurs outside of RCW nesting and reproduction season, or an alternative that considers a reduced survey area.

Because the RCW is an endangered species, NPS should not allow experimentation of this magnitude within known RCW habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve, and exploration adjacent to the Preserve, on the RCW and its habitat. Therefore, NPS should re-initiate consultation with the FWS to fully evaluate these impacts since the FWC concurrence letter also fails to address the cumulative impacts of all phases of exploration in the Preserve, and exploration adjacent to the Preserve, on the RCW and its habitat.

b. Wood Stork

NPS acknowledges that the wood stork (*Mycteria americana*) occurs in the proposed action area.³⁴⁸ FWS listed the wood stork under the ESA as an endangered species in 1984, and it is the only species of stork “regularly occurring in the United States.”³⁴⁹ Although wood storks have

³⁴⁷ *Id.* at 28.

³⁴⁸ *Id.* at 14.

³⁴⁹ United States Department of the Interior, Fish & Wildlife Service, Revised Recovery Plan for the U.S. Breeding Population of the Wood Stork (1996) at 1, http://ecos.fws.gov/docs/recovery_plan/970127.pdf (hereinafter, “Wood Stork Recovery Plan”).

seen some improvements in their numbers overall, the species is still in decline, as evidenced by its dramatically declining numbers in Corkscrew Swamp – from an average of 5,450 chicks a year between 1958-1967 to 540 a year between 2003-2012 – which is considered the species’ “most productive colony in the nation.”³⁵⁰ Wood storks are currently found primarily in Florida, Georgia, and parts of South Carolina, however, there have been occasional sightings in North Carolina and as far west as Mississippi.³⁵¹ Scientists believe that the species migrates and spends its winters in south Florida, as there is an influx of storks during winter months.³⁵² The central and northern Everglades are among the areas where this population surge is most evident. Some years the Everglades system has been documented to support approximately 55% of the entire U.S. population of the species.³⁵³

Both freshwater and estuarine wetland ecosystems may serve as suitable wood stork habitat.³⁵⁴ Storks tend to nest in a variety of different trees depending on what is available within the habitat, including: cypress, black gum, southern willow, red mangroves, prickly pear cactus, Brazilian pepper, and Australian pine.³⁵⁵ Hydrology is critical to the species. What is critical to wood stork habitat is that the nesting site is located in standing water throughout the nesting season to protect the nest from predators.³⁵⁶ For foraging, it is critical that the storks have access to shallow, open water.³⁵⁷ It forages by using tactilocation, during which storks wade through the water with their beaks and upon making contact with the prey, usually small fish, the bird clamps down on its target.³⁵⁸ Storks require shallow waters so they may wade and there must be fairly dense stocks of fish to support a colony’s feeding habits.³⁵⁹ Storks’ needs are somewhat less specific when it comes to roosting trees; although they look for similar sites as to those used for nesting, they will roost in a greater variety of trees depending on the availability of food.³⁶⁰

The greatest threats to the wood stork’s existence are the loss of adequate habitat for feeding, changes in water levels and hydrology of habitat (habitat modification), lack of nesting habitat, “human disturbance,” and loss resulting from the adverse effects of pesticide and chemical contamination.³⁶¹ As wetlands are drained and filled—primarily for development and agriculture, the stork’s habitats are destroyed. Because of the stork’s specific needs for foraging and nesting, changes in hydrology resulting from developmental impacts both direct and indirect, can have a major effect on the species’ ability to survive in a given area. Wetlands and other surface waters within an 18.6 mile radius around all known wood stork colonies in South Florida are considered to be the Core Foraging Area (“CFA”). The FWS opines that “loss of suitable

³⁵⁰National Audubon Society, Inc., *Wood Storks (Mycteria americana)*, Corkscrew Swamp Sanctuary (last visited Dec. 29, 2015), <http://corkscrew.audubon.org/wood-storks-mycteria-americana> (hereinafter, “Corkscrew Swamp”).

³⁵¹ Wood Stork Recovery Plan at 2.

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ *Id.* at 3.

³⁵⁵ *Id.*

³⁵⁶ *Id.*

³⁵⁷ *Id.*

³⁵⁸ *Id.* at 5.

³⁵⁹ *Id.*

³⁶⁰ *Id.* at 4.

³⁶¹ *Id.* at 10-12.

wetlands within these CFAs may reduce foraging opportunities for the wood stork.”³⁶² Consequently, any changes to wetland hydroperiods due to the proposed action would have adverse impacts for the wood stork and its habitat.

NPS recommends a buffer of 328 feet (100 meters) in width that would be maintained between active wood stork colonies.³⁶³ However, an increased buffer may be needed if no vegetative screen is present to fully capture noise, light, vibration, or other disturbance factors.³⁶⁴ The wood stork recovery plan indicates specific, affirmative actions that should be taken, such as taking action to restore and enhance habitat, providing protection to nesting sites, and enhancing nesting sites and foraging habitat, among other affirmative and proactive measures.³⁶⁵ Any activities within the proposed action area, particularly within the wood stork’s primary zone, are of concern. The wood stork primary zone is described by the FWS as “the most critical area,” and that “any removal of vegetation”, reduction of “the area, depth, or length of flooding wetlands...,” “increase in human activity,” or “aircraft operation” within this area is of concern.³⁶⁶ Therefore, the proposed action should not be permitted within 0.5 miles of wood stork colonies.³⁶⁷

Additionally, best available science shows that foraging wetlands within 18.6 miles of a colony site are considered part of the wood stork’s Core Foraging Area.³⁶⁸ Wetland impacts on this area may reduce foraging opportunities for the wood stork and thus have an adverse effect on the population.³⁶⁹ Wood storks follow quality foraging habitat as these lands dry out.³⁷⁰ Locations of these high quality areas may not be predictable from year to year, given changes in rainfall locations.³⁷¹ Because the proposed action will occur during winter months, this timing may also expose wood storks to disturbance during times important foraging times, and when winter migration to south Florida is at its highest levels.³⁷²

The Preserve is critical to wood storks in south Florida, as it contains foraging habitats for five colonies, including one colony centrally located on the Preserve, only about one mile away from the proposed action area.³⁷³ Because these lands provide habitat for a large number of wood storks, the proposed action may have impacts not only at a colony level, but also at a population

³⁶² United States Department of the Interior, Fish & Wildlife Service, Wood Stork: South Florida Programmatic Concurrence (May 18, 2010), at 3,

<https://www.fws.gov/verobeach/BirdsPDFs/20100518LetterServicetoCorpsFLProgrammaticStorkRevised1.pdf> (hereinafter, “2010 Wood Stork Concurrence”).

³⁶³ Environmental Assessment at 36.

³⁶⁴ U.S. Department of the Interior, Fish & Wildlife Service, Habitat Management Guidelines for the Wood Stork in the Southeast Region (1990) at B-6, http://www.fws.gov/northflorida/woodstorks/Documents/19900100_gd_Woodstork-habitat-guidelines-1990.pdf.

³⁶⁵ Wood Stork Recovery Plan at 19-22.

³⁶⁶ U.S. Department of the Interior, Fish & Wildlife Service, Habitat Management Guidelines for the Wood Stork in the Southeast Region (1990) at B-7-B-9.

³⁶⁷ *Id.*

³⁶⁸ 2010 Wood Stork Concurrence at 3.

³⁶⁹ *Id.*

³⁷⁰ Davis, et al. (2010). Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area at 32.

³⁷¹ *Id.*

³⁷² *Id.* at 34, 78.

³⁷³ *Id.* at 33, 80-81.

level.³⁷⁴ Therefore, it is critical that no activities be permitted to occur in areas important to wood storks for feeding, roosting, and nesting. Areas of importance to wood storks must be identified and evaluated in an EIS prior to the commencement of any vegetation clearing and seismic surveying, so that a 18.6-mile buffer can be established. Impacts to even a small number of foraging sites can have a large cumulative impact on the wood stork population.³⁷⁵

Further, the EA fails to evaluate how the habitat fragmentation resulting from the proposed action will affect the wood stork population in the Preserve. NPS fails to evaluate alternatives to the proposed action that would eliminate or minimize all of the aforementioned adverse effects on this imperiled species. For example, there is no evaluation of an alternative that the proposed action be located exclusively outside of the wood stork's Core Foraging Area. The EA also fails to evaluate an alternative to the proposed action that occurs outside of wood stork migration and foraging season. The EA also fails to evaluate a proposed action that considers a reduced amount of surveying acreage.

Because the wood stork is an endangered species, NPS should not allow experimentation of this magnitude within known wood stork habitat. NPS must take a "hard look" at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and exploration on adjacent lands, on the wood stork and its habitat. NPS should re-initiate consultation with the FWS to fully evaluate these impacts since the FWC concurrence letter also fails to address the cumulative impacts of all phases of exploration in the Preserve, and adjacent to the Preserve, on the wood stork and its habitat.

c. Bald Eagle

NPS acknowledges that bald eagles could occur in the proposed action area.³⁷⁶ The bald eagle is not a state or federally listed species; however, it is still protected under the Bald and Golden Eagle Protection Act³⁷⁷ and the Migratory Bird Treaty Act.³⁷⁸ Any unauthorized take of an eagle, which includes disturbance in the form of interfering with normal breeding or causing nest abandonment, is a violation of the Bald and Golden Eagle Protection Act.³⁷⁹ NPS acknowledges that the proposed action could potentially have an adverse impact on bald eagle nesting and reproduction. FWS identifies the primary bald eagle nesting season to be October 1 through May 15, which coincides with the proposed seismic survey timeframe (December – May). The proposed action would occur during the time when most bald eagles would be incubating their eggs and brooding their eaglets.³⁸⁰

The 1992 GMP/EIS states that geophysical operations are not allowed within 1.25 miles of a bald eagle nest during the nesting season.³⁸¹ If an active bald eagle nest is discovered within 1.25

³⁷⁴ *Id.* at 34.

³⁷⁵ *Id.* at 33.

³⁷⁶ Environmental Assessment at 36.

³⁷⁷ 16 U.S.C. § 668.

³⁷⁸ 16 U.S.C. § 703, *et seq.*; Environmental Assessment at 50.

³⁷⁹ U.S. Department of the Interior, Fish & Wildlife Service, The Bald and Golden Eagle Protection Act, Eagle Permits (December 19, 2012), <http://www.fws.gov/midwest/midwestbird/eaglepermits/bagepa.html>.

³⁸⁰ Environmental Assessment at 90.

³⁸¹ GMP/EIS at 360.

miles of a seismic operation, the activity will be halted during the nesting season within a 1.25-mile radius of the nest.³⁸² The EA states that if nests are found during seismic activities that adherence to a 660-foot buffer protection zone would be required.³⁸³ However, this proposed protection zone is inadequate because it falls short of the buffer of 6,600ft (1.25 miles), required by the 1992 GMP/EIS.

NPS fails to require bald eagle nest surveys in advance of any vegetation clearing and seismic surveying. As with all of the other bird species described herein, it is necessary for nest identification to occur prior to the start of seismic activities. It is also necessary that the nest surveys occur during the same nesting season that coincides with the proposed action, to ensure that the nest survey is based on the most current information, and to determine whether new nests have been established in the proposed action area. It is important to note that bald eagle nests are protected even if not active for at least five nesting seasons.³⁸⁴ The EA also fails to consider any alternative actions that would avoid bald eagle habitat altogether. The EA fails to include any evaluation of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve. Therefore, NPS fails to take a hard look at the impacts of the proposed action on the bald eagle.

d. Other protected birds

The EA lumps its evaluation of several other protected bird species together in one analysis, such as: Audubon's crested caracara, Everglade snail kite, Florida burrowing owl, Florida sandhill crane, and limpkin.³⁸⁵ NPS acknowledges that the proposed action "could potentially have an impact on the foraging and nesting of these other protected birds because the seismic survey timeframe (December – May) coincides with the nesting seasons of these species."³⁸⁶ Nonetheless, NPS summarily concludes that these species are not anticipated to be affected by the proposed action in a "lasting manner."³⁸⁷ For the reasons stated below, NPS fails to take a "hard look" at the impacts to these protected birds from the proposed action.

1. Audubon's Crested Caracara

The FWS listed the Audubon's crested caracara (*Polyborus plancus audubonii*) as a threatened species under the ESA in 1987.³⁸⁸ The species historically was found throughout peninsular south Florida, specifically in both wet and dry prairie habitats featuring interspersed cabbage palm trees.³⁸⁹ Caracaras nest almost exclusively in cabbage palms and ideal habitat conditions

³⁸² *Id.*

³⁸³ Environmental Assessment at 36.

³⁸⁴ Florida Fish and Wildlife Conservation Commission, Bald Eagle Management Plan (Apr. 9, 2008) at 22, http://myfwc.com/media/427567/Eagle_Plan_April_2008.pdf.

³⁸⁵ Environmental Assessment at 90.

³⁸⁶ *Id.*

³⁸⁷ *Id.*

³⁸⁸ U.S. Department of the Interior, Fish & Wildlife Service, Multi-Species Recovery Plan for South Florida: Audubon's Crested Caracara, *Polyborus plancus audubonii* (1999) at 4-219, <http://www.fws.gov/southeast/vbpdfs/species/birds/acca.pdf> (hereinafter, "Caracara Recovery Plan").

³⁸⁹ *Id.* at 4-221-4-222.

for the species consists of cabbage palms “surrounded by open habitats with low ground cover and low density of tall or shrubby vegetation.”³⁹⁰

The primary threat to this species is habitat loss.³⁹¹ The majority of the caracara’s habitat loss is attributable to agricultural and residential development.³⁹² In addition to habitat destruction, the species has suffered from direct human impacts, including mortalities from vehicular collisions, traps, and killings.³⁹³ The species’ Recovery Plan outlines specific measures that should be taken to protect the caracara including, efforts to “create, restore, or expand occupied habitat wherever possible.”³⁹⁴ The Recovery Plan also includes strategies by which this goal can be met through the expansion of habitat in areas with individuals present and the restoration of habitat in vacant areas.³⁹⁵

While NPS proposes to limit foot or ORV traffic within the FWS designated “Primary Zone (i.e., radius of 300 meters (985 feet)) of an active Audubon’s crested caracara nest, if observed,”³⁹⁶ NPS only proposes a 152-meter (500-foot) vertical buffer to helicopter activity above any documented Audubon’s crested caracara nest.³⁹⁷ FWS acknowledges that “caracaras are most sensitive to human disturbance during the nesting season between November and April...and therefore, unnecessary human entry and aircraft flyovers should be avoided within the primary zone and flyovers should be prohibited during this period.”³⁹⁸ Given the fact that the proposed action is scheduled to occur within nesting season, NPS should prohibit the use of helicopters within the entirety of the Primary Zone. Further, NPS and FWS should require full implementation of the caracara conservation measures, including maintaining foraging habitat in the secondary zone, which can extend 4,920 feet from a nest.³⁹⁹

The EA fails to evaluate how the habitat fragmentation resulting from the proposed action will affect the caracara population in the Preserve. NPS fails to evaluate alternatives to the proposed action that would eliminate or minimize all of the aforementioned adverse effects on this imperiled species. For example, there is no evaluation of an alternative that the proposed action be located exclusively outside of the caracara Primary Zone. Currently, the EA only provides that foot traffic and ORV use would be prohibited within the caracara Primary Zone, “if observed.”⁴⁰⁰ If surveying for the caracara does not occur until after the proposed action has already begun, NPS and the FWS would be unable to properly evaluate the proposed action’s effects on caracara foraging and nesting, and to ensure that proper buffer zones are established around each nest. The EA also fails to evaluate how habitat fragmentation will affect the caracara population in the Preserve. The EA fails to evaluate an alternative to the proposed action that

³⁹⁰ *Id.* at 4-222.

³⁹¹ *Id.* at 4-225.

³⁹² *Id.*

³⁹³ *Id.*

³⁹⁴ *Id.* at 4-234.

³⁹⁵ *Id.*

³⁹⁶ Environmental Assessment at 90.

³⁹⁷ *Id.*

³⁹⁸ U.S. Department of the Interior, Fish & Wildlife Service, Species Conservation Guidelines South Florida: Audubon’s Crested Caracara (Apr. 20, 2004) at 6,

<https://www.fws.gov/verobeach/BirdsPDFs/2004SpeciesConservationGuidelinesCaracaraALLINCLUSIVE.pdf>

³⁹⁹ *Id.* at 4.

⁴⁰⁰ Environmental Assessment at 90.

occurs outside of the caracara's foraging and nesting season, or to evaluate an alternative that considers a reduced amount of surveying acreage. Because the caracara is a protected species, NPS should not allow experimentation of this magnitude within its known habitat. NPS must take a "hard look" at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve on the caracara and its habitat. NPS should re-initiate consultation with the FWS to fully evaluate these impacts since the FWC concurrence letter also fails to address the cumulative impacts of all phases of exploration, and adjacent exploration, on the caracara and its habitat.

2. Everglade snail kite

The Everglade snail kite (*Rostrhamus sociabilis*) was first listed as federally endangered under the Endangered Species Conservation Act (which preceded the ESA) in 1967.⁴⁰¹ Today, the population is considered to be stable, but extremely vulnerable to the stresses of habitat loss.⁴⁰² FWS recommends a reconsideration of the critical habitat boundaries for the Everglade snail kite as a "species-level recovery action" and identifies the Preserve as a potential area of inclusion in the critical habitat area.⁴⁰³ There is one documented nest located approximately one mile east of the proposed action area, and NPS acknowledges that the snail kite is anticipated within the proposed action area.⁴⁰⁴ NPS also acknowledges that the proposed action could potentially have an impact on the foraging and nesting of the snail kite because the seismic survey timeframe (December – May) coincides with its nesting season.⁴⁰⁵ Despite this acknowledgement, NPS fails to conduct a species-specific evaluation of the impacts of the proposed action on the snail kite; but rather, lumps this analysis together with an analysis of other protected birds,⁴⁰⁶ and summarily concludes that the snail kite is not anticipated to be affected by the proposed action in a "lasting manner" without reference to any species-specific scientific analysis."⁴⁰⁷

The EA also fails to evaluate how habitat fragmentation will affect the caracara population in the Preserve. The EA fails to evaluate an alternative to the proposed action that occurs outside of the snail kite's foraging and nesting season, or to evaluate an alternative that considers a reduced amount of surveying acreage. Because the snail kite is a protected species, NPS should not allow experimentation of this magnitude within its known habitat. NPS must take a "hard look" at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve on the snail kite and its habitat. NPS should re-initiate consultation with the FWS to fully evaluate these impacts since the FWC concurrence letter also fails to address the cumulative impacts of all phases of exploration, and adjacent exploration, on the snail kite and its habitat.

⁴⁰¹ Environmental Assessment at 60.

⁴⁰² Florida Fish and Wildlife Conservation Commission, *Florida Snail Kite: *Rostrhamus sociabilis**, Wildlife & Habitats (last visited Dec. 30, 2015), <http://myfwc.com/wildlifehabitats/profiles/birds/raptors-and-vultures/florida-snail-kite/>.

⁴⁰³ Environmental Assessment at 60.

⁴⁰⁴ *Id.*

⁴⁰⁵ *Id.* at 90.

⁴⁰⁶ *Id.*

⁴⁰⁷ *Id.*

3. Florida burrowing owl

The Florida burrowing owl (*Athene cunicularia*) is a species of special concern in Florida.⁴⁰⁸ This means that burrows, owls, and their eggs are protected from harassment and/or disturbance by Florida state law. Burrowing owls are also protected by the federal Migratory Bird Treaty Act.⁴⁰⁹ Recently, the burrowing owl population has decreased because of disappearing habitat.⁴¹⁰ The Florida burrowing owl could potentially occur within the proposed action area.⁴¹¹ Burrowing owls use burrows year-round; for roosting during the winter and for raising young during the breeding season (Feb – July). They typically dig their own burrows but will use gopher tortoise or armadillo burrows.⁴¹² NPS acknowledges that the proposed action could potentially have an impact on the foraging and nesting of the burrowing owl because the seismic survey timeframe (December – May) coincides with its nesting season.⁴¹³ Despite this acknowledgement, NPS fails to conduct a species-specific evaluation of the impacts of the proposed action on the burrowing owl; but rather, lumps this analysis together with an analysis of other birds,⁴¹⁴ and summarily concludes that the burrowing owl is not anticipated to be affected by the proposed action in a “lasting manner” without reference to any species-specific scientific analysis.”⁴¹⁵

The EA fails to evaluate an alternative to the proposed action that occurs outside of the burrowing owl’s foraging and nesting season, or to evaluate an alternative that considers a reduced amount of surveying acreage. Because the burrowing owl is a species of special concern, NPS should not allow experimentation of this magnitude within its known habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve on the burrowing owl and its habitat.

4. Florida sandhill crane

The Florida sandhill crane (*Grus canadensis pratensis*) is protected by the U.S. Migratory Bird Treaty Act and has been designated as a threatened species by the state of Florida.⁴¹⁶ Degradation or direct loss of habitat due to wetland drainage or conversion of prairie for development is the primary threat facing Florida sandhill cranes.⁴¹⁷ NPS acknowledges that the proposed action could potentially have an impact on the foraging and nesting of the sandhill crane because the seismic survey timeframe (December – May) coincides with its nesting season.⁴¹⁸ Despite this acknowledgement, NPS fails to conduct a species-specific evaluation of

⁴⁰⁸ Florida Fish and Wildlife Conservation Commission, Burrowing Owl: *Athene cunicularia*, Wildlife & Habitats (last visited Dec. 30, 2015), <http://myfwc.com/wildlifehabitats/profiles/birds/owls/burrowing-owl/>.

⁴⁰⁹ *Id.*

⁴¹⁰ *Id.*

⁴¹¹ Environmental Assessment at 91.

⁴¹² Florida Fish and Wildlife Conservation Commission, Burrowing Owl: *Athene cunicularia*, *supra*.

⁴¹³ Environmental Assessment at 90.

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ Florida Fish and Wildlife Conservation Commission, Florida sandhill crane: *Grus canadensis pratensis*, Wildlife & Habitats (last visited Dec. 30, 2015), <http://m.myfwc.com/wildlifehabitats/imperiled/profiles/birds/florida-sandhill-crane/>.

⁴¹⁷ *Id.*

⁴¹⁸ Environmental Assessment at 90.

the impacts of the proposed action on the Florida sandhill crane; but rather, lumps this analysis together with an analysis of other birds,⁴¹⁹ and summarily concludes that the sandhill crane is not anticipated to be affected by the proposed action in a “lasting manner” without reference to any species-specific scientific analysis.”⁴²⁰ Because the Florida sandhill crane is a protected species in Florida, NPS should not allow experimentation of this magnitude within its known habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve on the Florida sandhill crane and its habitat.

5. Limpkin

The Limpkin (*Aramus guarauna*) is listed by the FFWCC as a Species of Special Concern.⁴²¹ The main threats to the population are wetland drainage and anything that diminishes apple snail abundance. In some areas, thick mats of nonnative plants, such as water hyacinths, prevent limpkins from finding snails and other food. Dense cattail stands along the shorelines of lakes and rivers receiving nutrient-enriched runoff, can similarly degrade foraging habitat and access to mollusks.⁴²² NPS acknowledges that the proposed action could potentially have an impact on the foraging and nesting of the Limpkin because the seismic survey timeframe (December – May) coincides with its nesting season.⁴²³ Despite this acknowledgement, NPS fails to conduct a species-specific evaluation of the impacts of the proposed action on the Limpkin; but rather, lumps this analysis together with an analysis of other protected birds⁴²⁴, and summarily concludes that the Limpkin is not anticipated to be affected by the proposed action in a “lasting manner” without reference to any species-specific scientific analysis.” Because the Limpkin is a species of special concern, NPS should not allow experimentation of this magnitude within its known habitat. NPS must take a “hard look” at all of the direct, indirect, and cumulative impacts of all phases of oil exploration in the Preserve and adjacent to the Preserve on the Limpkin and its habitat.

VIII. The EA fails to Take a “Hard Look” at the Proposed Action’s Adverse impacts on Recreation and Tourism.

The Preserve is extremely important to recreation and tourism in South Florida. In 2014, the Preserve hosted almost 1.2 million recreational guests.⁴²⁵ These visitors brought in \$91,111,200 and 1,323 jobs to the local economy.⁴²⁶ Fodor’s Travel describes the Preserve as follows:

⁴¹⁹ *Id.*

⁴²⁰ *Id.*

⁴²¹ Florida Fish and Wildlife Conservation Commission, Limpkin: *Aramus guarauna*, Wildlife & Habitats (last visited Dec. 30, 2015), <http://myfwc.com/wildlifehabitats/profiles/birds/waterbirds/limpkin/>.

⁴²² *Id.*

⁴²³ Environmental Assessment at 90.

⁴²⁴ *Id.*

⁴²⁵ U.S. Department of the Interior, National Park Service, Annual Park Recreation Visitation (1904 - Last Calendar Year): Big Cypress NPRES, Integrated Resource Management Applications (IRMA) Portal (Dec. 10, 2015), [https://irma.nps.gov/Stats/SSRSReports/Park Specific Reports/Annual Park Recreation Visitation \(1904 - Last Calendar Year\)?Park=BICY](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=BICY).

⁴²⁶ U.S. Department of the Interior, National Park Service, 2014 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation (Apr. 2015) at 16, https://www.nature.nps.gov/socialscience/docs/VSE2014_Final.pdf.

The preserve allows – in limited areas – hiking, hunting, and off-road vehicle use (airboat, swamp buggy, four-wheel drive) by permit. Compared with Everglades National Park, the preserve is less developed and has fewer visitors. That makes it ideal for naturalists, birders, and hikers preferring to see more wildlife than people.⁴²⁷

NPS acknowledges in its proposed 9B rule revisions that during the geophysical exploration phase, “adverse impacts on visitor use and experience could result, primarily from the presence of seismic survey crews and equipment in and around the park unit.”⁴²⁸ Seismic operations may preclude use of the proposed action areas by visitors while survey crews are working, including internal Preserve roads. Access limitations could last up to a few months. For example, visitor access and seismic activity creates a use conflict during hunting seasons or times of prime bird watching.⁴²⁹ Here, the proposed action will overlap prime birding and wildlife viewing during the winter months (Nov – Feb),⁴³⁰ and the hunting season for various species.⁴³¹

The EA acknowledges that some of the staging areas would be constructed on former well pads, and some would utilize existing roads or trails for access.⁴³² This implies that some of the staging areas could require new clearing of land for construction and new roads for access. Such activity would contravene the requirement in the GMP/EIS that, “[a]ll operation support vehicles...and all vehicles used during surveying and staking operations are restricted to existing roads and designated trails.”⁴³³ The proposed staging areas are located near existing rest areas and recreational parking area service roads, including the main staging area located just south of Interstate 75 (MM 63-S).⁴³⁴ The main staging area would be sized to accommodate crew assemblies, support equipment, material storage, vibroseis and support equipment, receiver/GSR/battery truck trailers, receiver support equipment, receiver drop bag assembly for helicopter transport and a helicopter landing zone with support trailers and refueling capability.⁴³⁵ These staging areas would clearly be visible from the existing rest areas and recreational parking areas.

According to the Addition Lands Agreement, no operations may occur within a one-half mile buffer zone of campgrounds, interpretive sites, research sites, or other publicly funded facilities, unless the Regional Director agrees that such operations will not adversely affect these facilities,

⁴²⁷ Fodor’s Travel, Big Cypress National Preserve, The Everglades Travel Guide (last visited Dec. 30, 2015), <http://www.fodors.com/world/north-america/usa/florida/the-everglades/places/big-cypress-national-preserve>.

⁴²⁸ Proposed 9B rule revisions at 280.

⁴²⁹ *Id.*

⁴³⁰ Florida Fish and Wildlife Conservation Commission, Winter Wonderland! Ducks Galore! “On the Trail” with FWC (Oct. 25, 2012), <http://onthetrailmyfwc.blogspot.com/2012/10/winter-wonderland-ducks-galore.html>.

⁴³¹ *See, generally*, Florida Fish and Wildlife Conservation Commission, 2015-2016 Florida Hunting Season Dates and Bag Limits, <http://myfwc.com/media/2147435/seasondates.pdf>.

⁴³² Environmental Assessment at 23.

⁴³³ GMP/EIS, Appendix C at 361.

⁴³⁴ Environmental Assessment at 23-24.

⁴³⁵ *Id.* at 24.

or the visitor experience.⁴³⁶ The proposed action encompasses a section of the Florida National Scenic Trail within the Addition Lands, and proposes to locate the MM 63-N and MM 63-S staging areas within the vicinity of the trail. However, the EA fails to explain how these operations comply with the one half mile buffer requirement in the Addition Lands Agreement.

A. Reduced Access in the Preserve, including the Florida National Scenic Trail

The proposed action area crosses a large portion of the Florida National Scenic Trail that runs through the Preserve⁴³⁷, so hikers' trail experiences could be affected if they happen to be in the vicinity of seismic survey activities while they are taking place.⁴³⁸ The proposed action area also includes two campsites, the 13-Mile Camp and Oak Hill Campsite, which are located along the Florida National Scenic Trail.⁴³⁹ Therefore, it appears that a large section of the Florida National Scenic Trail would be severed and inaccessible to hikers between the road that runs along the Big Cypress Swamp Welcome Center and I-75. Also, the dry season field operations could affect hunters and ORV users recreating in the Preserve during this timeframe.⁴⁴⁰ Nonetheless, the EA fails to evaluate any alternatives that would avoid or minimize impacts to the Florida National Scenic Trail, campsites, and other recreational areas.

B. Noise

NPS acknowledges in its proposed 9B rule revisions that seismic surveys can introduce increased vehicular traffic,⁴⁴¹ and that noise associated with seismic surveys would occur from the use of vehicles, crews, and vibroseis trucks. Chainsaws are often used to clear a survey line of sight, and helicopters may be used to transport equipment. Noise generated by these seismic survey activities could occur for several months. Helicopters, when used, are the primary noise source in seismic operations. In these cases, the noise would be continuous during daytime operations.⁴⁴² Therefore, the proposed action would degrade the solitude or primitive and unconfined recreation quality, as areas currently remote from sounds of human activity would be exposed to survey operations.⁴⁴³ The EA indicates that the noise during vibroseis surveys could be significant,⁴⁴⁴ at levels twice as high as that from ORVs. Despite this acknowledgement, the EA fails to evaluate any alternatives or mitigation measures that could be taken to minimize noise in the Preserve for the benefit of wildlife, birds, and visitors.

Notably, the EA fails to provide an estimate of noise levels from the vibroseis trucks and plates themselves, in contrast to decibel estimates provided for helicopters.⁴⁴⁵ Since noise from the vibroseis trucks would be spread over several square miles per day, NPS must evaluate the

⁴³⁶ Agreement Governing The Exercise Of Reserved Oil And Gas Rights Of Collier Enterprises And Barron Collier Company, Appendix 6 to the Agreement Among the United States of America, Collier Enterprises, Collier Development Corporation, and Barron Collier Company (May 12, 1988), at 30.

⁴³⁷ Environmental Assessment at 81; *see also* Map of Trails in Big Cypress National Preserve (Exhibit B).

⁴³⁸ Environmental Assessment at 81.

⁴³⁹ *Id.*

⁴⁴⁰ *Id.* at 98.

⁴⁴¹ Proposed 9B rule revisions at 281.

⁴⁴² *Id.*

⁴⁴³ Environmental Assessment at 100.

⁴⁴⁴ *Id.* at 77 and 97.

⁴⁴⁵ *Id.* at 97.

average and peak noise levels, as well as total noise levels due to the simultaneous use of vibroseis trucks, ORVs, helicopters, and other support equipment. NPS needs this information in order to fully evaluate the impacts of the noise associated with the proposed action on important wildlife, reptiles, and birds, and recreation in the area, and to allow the public to fully comment on the proposed action.

C. Visual Impairment

The EA acknowledges that because the Preserve lands are virtually flat throughout the proposed action area with areas of both dense vegetation and areas of sparse vegetation, the survey activities could potentially be viewed by Preserve visitors.⁴⁴⁶ The presence of vehicles and workers could be noticeable as visitors enter recreational parking areas, traverse locked fencing, and travel access pathways to staging areas off of I-75.⁴⁴⁷ Visitors to the backcountry could encounter some operational elements in natural settings and view some short-term disruption of surface vegetation and soils.⁴⁴⁸ The natural quality of the Preserve would be degraded by the presence of visible soil ruts, matting of vegetation, and damage to trees and shrubs from vehicle passage and trimming.⁴⁴⁹ It is clear that the proposed action would degrade the solitude or primitive and unconfined recreation quality, as areas currently remote from sights of human activity would be exposed to survey operations.⁴⁵⁰ NPS fails to fully evaluate the full impact of the proposed action on recreation and tourism in the area, and fails to evaluate any alternatives or mitigation measures that could be taken to minimize the visual impairment for the benefit of wildlife, birds, and visitors.

D. Air quality and human health and the environment

NPS itself acknowledges in its proposed 9B rule revisions that “during the geophysical exploration phase, adverse impacts on air quality would result from increased vehicle use to transport seismic work crews.”⁴⁵¹ Combustion engine emissions include volatile organic compounds (VOCs), NOx, CO, and SO₂. The primary pollutants of concern are NOx which are formed in the high temperature, pressure, and excess-air environment of combustion in diesel engines. Lesser amounts of CO and hydrocarbons are also emitted. Some SO₂ is emitted due to the burning of gasoline and diesel (which can contain minor amounts of sulfur). The amount of engine emissions depends on the number and type of gasoline or diesel-fueled vehicles and the length of use.⁴⁵² For large-size particulates and CO emissions, impacts would be localized during this period and would not adversely impact the attainment status of an airshed. However, for other pollutants, like VOCs and NOx (or even SO₂ which transforms to SO₄ fine particles downwind), these impacts may be localized, as well as contribute to regional air quality impacts due to the regional nature of air quality analyses, but would not be expected to trigger a prevention of significant deterioration (PSD) analysis or impact the class I status of an airshed. In

⁴⁴⁶ *Id.* at 98-99.

⁴⁴⁷ *Id.* at 99.

⁴⁴⁸ *Id.*

⁴⁴⁹ *Id.* at 100.

⁴⁵⁰ *Id.*

⁴⁵¹ Proposed 9B rule revisions at 172.

⁴⁵² *Id.*

general, emissions impacting air quality are not contained to one specific location, but disperse regionally in an area classified as an airshed.⁴⁵³

Decreased air quality could also have adverse impacts on natural resources in the Preserve. “Atmospheric nitrogen deposition acts as fertilizer, favoring some plants, including invasive species, and leaving others at a competitive disadvantage. This creates an imbalance in natural ecosystems, and over time may lead to shifts in the types of plant and animal species present, increases in insect and disease outbreaks, disruption of ecosystem processes (such as nutrient cycling), and changes in fire frequency. Arid grasslands and shrublands are particularly vulnerable to changes caused by nitrogen deposition. Nitrogen deposition may disrupt soil nutrient cycling and alter plant communities. Invasive grasses thrive in areas with high nitrogen deposition, displacing native vegetation adapted to low nitrogen conditions. The fire risk subsequently increases due to extensive areas of weedy grasses.”⁴⁵⁴ The EA fails to evaluate the cumulative impacts of all phases of oil exploration in the Preserve, and adjacent to the Preserve, on air quality, human health, and the health of the natural environment.

IX. The Proposed Mitigation Fails to Justify the Finding of No Significant Impact

A. The proposed restoration of impacted vegetation is insufficient.

Where, as here, an agency relies on mitigation methods to avoid significant impacts and a full EIS analysis, there must be a firm commitment to that mitigation and a full analysis of its efficacy. *See Jones v. Gordon*, 792 F.2d 821, 829 (9th Cir. 1986) (where the effectiveness of mitigation measures depends upon how they are subsequently applied and enforced and the latter is uncertain, the measures are suspect); *see also National Audubon Soc’y v. Hoffman*, 132 F.3d 7, 17 (2d Cir. 1997) (“Absent substantial evidence to support the efficacy of a [mitigation measure, we] are left with the firm conviction that the Forest Service could not have adequately considered the significance of its proposed action’s impacts on the environment”).

The EA relies heavily on purported mitigation methods to avoid the appearance of significant impacts on the Preserve. The mitigation proposed in the EA is wholly insufficient for wetland ecosystems in South Florida. First, the EA fails to evaluate whether sensitive vegetation within Important Resource Areas could be avoided or minimized altogether. This is an important consideration since larger plant material can be more problematic to work around.⁴⁵⁵ Many trees are intolerant of changes in elevations resulting from site construction or impacts to their mature root systems.⁴⁵⁶ NPS summarily concludes that impacts to vegetation will be “partially mitigated” by conducting the proposed action in the dry season “when soils are not saturated and are more resilient to vehicular activity.”⁴⁵⁷ However, the EA fails to evaluate the impacts of the proposed action on unsaturated or partially saturated hydric soils, and fails to explain how

⁴⁵³ *Id.*

⁴⁵⁴ *Id.* at 174.

⁴⁵⁵ South Florida Water Management District, Wetland Planting Specifications Guidance Document (January 27, 2011) at 25 (hereinafter, “SFWMD Planting Specifications”), http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/01_27_2011_wetland_planting_specs.pdf.

⁴⁵⁶ *Id.*

⁴⁵⁷ Environmental Assessment at 88.

operation in unsaturated soils would “partially mitigate” impacts to vegetation from trimming of vegetation.

Second, the mitigation proposed in the EA only contemplates natural recruitment of disturbed vegetation within one growing season.⁴⁵⁸ Proposing natural recruitment within impacted areas as a stand-alone mitigation strategy, while often discussed, can be problematic and unpredictable.⁴⁵⁹ In disturbed systems, invasive exotic plants can quickly out-compete any desirable native plants that naturally recruit. Invasive seeds from adjacent construction sites can also migrate into mitigation areas, compounding the problem of any existing exotic seed banks within Preserve areas. Measures to control such exotics can also significantly undermine gains made by natural recruitment. In addition, the efficacy of natural recruitment can be altered by seasonality of mitigation construction, historical events such as changes in regional hydrology, weather events, and forest fires. While natural recruitment from both local and adjacent desirable seed banks can play a role in mitigation success, appropriate consideration must also be given to the unpredictable biological variables that drive this process and often considerable time lag involved.⁴⁶⁰ The EA fails to evaluate these important measures.

Since the proposed action would clearly result in a large-scale disturbance to wetland vegetation, natural recruitment of impacted vegetation is inadequate and re-planting of impacted vegetation must be required. The EA neither acknowledges that re-planting is required, nor specifies the planting methodology that shall be utilized. The EA also fails to evaluate whether long-term maintenance and monitoring of the impacted areas is necessary to ensure that the impacted vegetation is fully restored, and to ensure that exotic and nuisance vegetation do not move into previously undisturbed areas of the Preserve.

It is a fundamental concept in South Florida that impacted wetland functions must be replaced.⁴⁶¹ In general, if even just a few plants of a species are planted, it is possible that they will reseed and multiply in the future. Small initial investments can yield significant ecological results through this strategy, which is particularly critical for extensively degraded sites.⁴⁶² Habitat functions that are impacted must generally be offset through a mitigation plan that restores similar functions. NPS must evaluate a detailed reclamation or restoration plan in an EIS in advance of initiation of the proposed action that identifies the type of wetland communities that must be restored with proposed planting acreages, plant species, and planting elevations, spacing, size, and quantity of plants within each wetland community.⁴⁶³ Conditions favorable for the success of wetland plants, wetland soils and wetland hydrology must all be addressed in the restoration or reclamation plan.⁴⁶⁴ The EA should require restoration areas to be free of invasive exotics and garbage prior to planting efforts.⁴⁶⁵ The planting substrate should also be free of construction, vegetative, or other debris or contamination.

⁴⁵⁸ *Id.* at 84.

⁴⁵⁹ SFWMD Planting Specifications at 26.

⁴⁶⁰ *Id.*

⁴⁶¹ *Id.* at 9.

⁴⁶² *Id.* at 6.

⁴⁶³ *Id.* at 9.

⁴⁶⁴ *Id.* at 2.

⁴⁶⁵ *Id.* at 19.

Design specifications for the restoration are necessary to mandate in an unambiguous manner plant materials and installation methods to provide assurances of restoration success.⁴⁶⁶ A standardized format for restoration plan design is essential so that NPS staff can easily verify that restoration has been performed correctly to ensure that all conditions critical to ensure the health of the wetland vegetation have been addressed.⁴⁶⁷ Verification is essential because revisions to the restoration plan could change the fundamental nature of the resulting wetland.⁴⁶⁸

NPS must also require the replanting of any impacted trees since tree height has been directly correlated to perching and nesting by many bird species, who serve as a primary dispersal vector for many native plant species.⁴⁶⁹ Larger size plant material also serves to provide “mother” trees to smaller understory plants, creating a more favorable microclimate for their establishment. Larger plants are also reproductively mature; often dispersing seed within the first year of planting that will continue to grow throughout the monitoring period.⁴⁷⁰ Ground cover plants that have been impacted should also be replanted because they often provide a large degree of diversity to the planting plan and provide many subtle wetland functions. In particular, they serve to suppress noxious weed growth.⁴⁷¹ Research indicates direct seeding of native plants can also be an economically viable and biologically effective means of restoring large disturbed sites.⁴⁷² The EA does not require Burnett to undertake any of these science-based restoration actions.

B. The proposed vegetation restoration is incompatible with state of Florida restoration guidelines, and prior restoration plans utilized by NPS in the Preserve.

NPS summarily concludes, without any explanation or scientific support, that the vegetation impacted by the proposed action area would fully revegetate in one growing season.⁴⁷³ There is no scientific data cited to support this assertion. A review of a South Florida Water Management District (“District” or “SFWMD”) guidance document,⁴⁷⁴ as well as restoration plans approved in Consent Orders issued by the District to resolve enforcement actions involving wetland impacts, prove that NPS’ proposed mitigation plan is inconsistent with typical wetland restoration and maintenance and monitoring in Florida.⁴⁷⁵

Generally, once wetland vegetation is impacted, it is re-planted within a specified period of time. In Florida, completion of re-planting is followed by a standard maintenance and monitoring period that generally lasts for five years, or until the agency determines the “success of the

⁴⁶⁶ *Id.*

⁴⁶⁷ *Id.* at 11.

⁴⁶⁸ *Id.* at 17.

⁴⁶⁹ *Id.* at 19.

⁴⁷⁰ *Id.* at 19.

⁴⁷¹ *Id.* at 21.

⁴⁷² *Id.* at 24.

⁴⁷³ Environmental Assessment at 84.

⁴⁷⁴ See, generally, SFWMD Planting Specifications, *supra*.

⁴⁷⁵ See, e.g. *SFWMD v. Peeples*, Order No. 2008-063-CO-ERP (February 27, 2008); *SFWMD v. Latt Maxcy Co.*, Order No. SFWMD-2010-132-CO-ERP (July 19, 2010); *SFWMD v. Century Homebuilders, LLC*, SFWMD Order No. 2011-018-CO-ERP (February 25, 2011); *SFWMD v. Hendren*, SFWMD, Order No. 2013-091-CO-ERP (October 22, 2013); *SFWMD v. Hyatt Farms, LLC*, Order No. SFWMD-2014-102-CO-ERP (December 1, 2014), which can be viewed at: <http://www.sfwmd.gov/ePermitting/EnfSearch.do>.

restoration.” Success of the restoration means that at the end of the five-year monitoring schedule, the following success criteria has been continuously met for a period of at least five consecutive years: a minimum of 80% of the total vegetation coverage in the impacted areas consists of desirable native vegetation; and the coverage of exotic and nuisance species in the impacted wetland areas are 5% of the total vegetation or less. If the success criteria are not met after five years, the maintenance and monitoring period restarts until the success criteria is achieved.⁴⁷⁶ Therefore, restoration and maintenance and monitoring of impacted areas could take more than five years.⁴⁷⁷

This methodology also applies to post-seismic exploration data collection and actual impact assessment where it is recommended that written annual reports and photographs of mitigation areas are submitted for five years from the date of completion of the restoration, to demonstrate that the restoration plan is underway and successful.⁴⁷⁸ NPS also acknowledges this approach in the MMP for the Preserve, where it states that the control of exotic species must be considered throughout the reclamation of disturbed sites, and must “[p]revent or control exotic species colonization during operations and for a period of not less than five (5) years following reclamation of the operation site.”⁴⁷⁹ Consequently, the proposed mitigation in the EA is inconsistent with the wetland restoration guidance utilized by the State of Florida, and is contrary to the GMP/EIS for the Preserve.

The information cited by NPS in the EA itself also fails to support NPS’ conclusion that the impacted vegetation will be restored within one growing season. Appendix A to the EA consists of “vibroseis field demonstration photos” from a field demonstration conducted in an unspecified location within the proposed action area.⁴⁸⁰ The first photograph dated April 24, 2015, depicts visible tire tracks, presumably from vibroseis trucks, in what appears to be an herbaceous wetland. The second photograph taken a few months later on October 10, 2015, again depicts visible tire tracks within the herbaceous wetland vegetation. The EA fails to include any corresponding monitoring reports that identify the type of vegetation noted before and after the demonstration. There is no description of the “success” criteria utilized, or the total percent coverage of native wetland vegetation or exotic and nuisance vegetation observed in the proposed action area before or after the demonstration. Additionally, there is no documentation whatsoever in the EA that supports NPS’ conclusion that other types of wetland vegetation within the proposed action area, such as cypress trees, shrubby understory vegetation, and mangroves, would naturally recruit within one growing season following the impacts.

Further, a 3-D seismic survey of a much smaller scale (14 square miles) was conducted in the Preserve around the existing Raccoon Point oil field from January through April in 1999.⁴⁸¹ Although the seismic technology used at Raccoon Point was different (shot-hole method), the

⁴⁷⁶ *Id.*

⁴⁷⁷ Onshore Seismic Exploration Best Practice and Model Permit Requirements at 25 (“The state can . . . extend the remediation and rehabilitation implementation and reporting timing beyond this 5 year period if needed.”).

⁴⁷⁸ *Id.* (“Annually, for the next five years, from the date of completion, a written report along with photos must be submitted to the state to demonstrate that the remediation and rehabilitation plan is underway and successful.”).

⁴⁷⁹ GMP/EIS, Appendix C at 368.

⁴⁸⁰ Environmental Assessment at 88.

⁴⁸¹ *WilsonMiller, Inc., Raccoon Point 3-D Seismic Survey Third Annual Monitoring Report for FDEP Permit # 113006055* (April 29, 2002), which is attached hereto and incorporated herein as Exhibit G.

reclamation or restoration that occurred after this survey is instructive for evaluating the proposed action. Vegetation included within the Raccoon Point seismic survey area was similar to the vegetation in the proposed action area, including cypress domes, hardwood hammocks, and hydric pine flatwoods. In Raccoon Point, unlike here, no damage to any cypress trees was allowed.⁴⁸² Also, a minimum of three consecutive years of post-survey monitoring to track the progression of natural vegetation recruitment in disturbed areas was required.⁴⁸³ Restoration areas were considered successful when there was 80% coverage of native herbaceous species in the disturbed areas relative to adjacent undisturbed conditions, and less than 5% coverage by exotic species.⁴⁸⁴ Qualitative vegetative sampling was performed at established permanent monitoring stations.⁴⁸⁵ Natural recruitment of vegetation ranged from 55 to 80% three years after the survey.⁴⁸⁶ This information contradicts NPS' assertion that the vegetation will naturally recruit within one growing season, and demonstrates that NPS needs to perform a more detailed evaluation of the proposed action in order to determine whether the impacted vegetation would truly naturally revegetate within such a limited timeframe.

NPS must also take a "hard look" at the proposed action to determine whether its large-scale disturbances would introduce new or exacerbate existing exotic and nuisance vegetation in the Preserve. While the POP mentions that the vibroseis trucks would be cleaned prior to initially entering the Preserve, to reduce or avoid the spread of non-native plant species⁴⁸⁷, this limited procedure is inadequate. The vibroseis trucks will traverse through 110 square miles of the Preserve. There is no evaluation in the EA identifying whether the proposed action areas currently contain exotic and nuisance vegetation. The potential exists for the vibroseis equipment to spread exotic and nuisance vegetation seeds from one area of the Preserve that is currently impacted with exotic and nuisance vegetation, to a currently undisturbed area in the Preserve. Invasive plant species are already present within the Preserve, particularly within the MM-63N staging area.⁴⁸⁸ This issue was identified in the ORV Plan for the Preserve, which states that, "ORVs transport seed in their tire treads and vehicle beds, and distribute it in currently unaffected areas of the preserve as they travel. Evidence of the spread of invasive plants along ORV trails has particularly been documented around the Monroe Station trailhead."⁴⁸⁹

Exotic and nuisance vegetation control is a significant issue and must be fully evaluated in an EIS prior to commencement of the proposed action. In 2014, the U.S. Department of the Interior spent \$3,674,073.00 on invasive species prevention, eradication, containment, and management across south Florida.⁴⁹⁰ Burnett proposes to post a \$200,000 bond,⁴⁹¹ and to address post-operational restoration and monitoring within 30 days of the operation.⁴⁹² However, Burnett has

⁴⁸² *Id.*

⁴⁸³ *Id.* at 4.

⁴⁸⁴ *Id.*

⁴⁸⁵ *Id.*

⁴⁸⁶ *Id.* at 8.

⁴⁸⁷ Plan of Operations at 101.

⁴⁸⁸ Environmental Assessment at 43.

⁴⁸⁹ ORV Plan at 90 (internal citation omitted).

⁴⁹⁰ South Florida Ecosystem Restoration Task Force, Invasive Exotic Species Cross-Cut Budget (June 22, 2015) at 3, http://www.evergladesrestoration.gov/content/ies/docs/Cross_Cut_Budget.pdf.

⁴⁹¹ Plan of Operations at 121.

⁴⁹² *Id.* at 18.

failed to provide NPS with estimated costs for reclamation, as required by 36 C.F.R. § 9.36.⁴⁹³ As described above, post-survey restoration and maintenance and monitoring of at least five years is necessary to ensure that exotic and invasive plants do not spread and establish throughout the proposed action area and surrounding areas within the Preserve.

It is unclear from a reading of the EA whether NPS evaluated the success of the restoration of the prior seismic survey in Raccoon Point to determine whether the restoration plan identified in the proposed action is adequate. The EA fails to evaluate whether maintenance and monitoring is necessary following restoration to ensure that wetland vegetation and other wetland functions have been fully restored. Monitoring reports typically require vegetation sampling, hydrology and water quality monitoring, and fish and wildlife observation information, and photographic documentation.⁴⁹⁴ This information seems to contradict NPS' unsupported conclusion that the impacted vegetation would naturally recruit within one growing season. Due to the large scale and nature of the unprecedented off-road vibroseis truck usage in previously undisturbed wetland communities, a full restoration plan that includes re-planting, wetland elevation restoration, wetland maintenance and monitoring, must be fully evaluated in an EIS. Restoration of soils and wetland hydrology should also be required in order to ensure that vegetation has an adequate foundation in which to support regrowth and survival. Soils and hydrology are further addressed below.

The ORV Plan for the Preserve is also instructive for evaluating the impacts of ORV use on vegetation in the Preserve, and does not support NPS' conclusion that vegetation impacts from off-road vehicle use are "temporary" or "short-term" in nature. ORVs can directly impact vegetation by crushing plants, scarring trees, and exposing roots. Sites disturbed by ORVs may be susceptible to invasive plants. ORV ruts may act as firebreaks, which could alter fire behavior affecting vegetation. All of these impacts could result in changes in plant composition. In addition, the construction of ORV access points would cause the loss of vegetation.⁴⁹⁵ There are indications that ORVs have resulted in the spread of invasive plants, such as *Schinus terebinthifolius* (Brazilian pepper), *Melaleuca quinquenervia* (melaleuca), *Typha spp.* (cattail), and *Lygodium microphyllum* (old world climbing fern) within Big Cypress. ORVs can collect seed in their tire tread and beds and distribute it in currently unaffected areas of the preserve as they travel.⁴⁹⁶

The ORV plan is also instructive for evaluating the proposed restoration of impacts from the proposed action, including the utilization of vibroseis trucks and other ORVs in wetland communities. The ORV plan acknowledges that to begin to set goals for restoration, a definition of "restoration" must be established.⁴⁹⁷ "The National Research Council defines restoration as

⁴⁹³ *Id.* at 120.

⁴⁹⁴ *See generally*, South Florida Water Management District, Environmental Monitoring Report Guidelines, Environmental Resource Regulation Department, Second edition (December, 2007) (hereinafter, "SFWMD Monitoring Guidelines"), http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/environmental_monitoring.pdf; *see also* WilsonMiller, Inc., Raccoon Point 3-D Seismic Survey Third Annual Monitoring Report for FDEP Permit # 113006055 (April 29, 2002).

⁴⁹⁵ ORV Plan at 19.

⁴⁹⁶ *Id.* at 40 (internal citation omitted).

⁴⁹⁷ *Id.* at 55.

the “return of an ecosystem to a close approximation of its condition prior to disturbance.”⁴⁹⁸ The ORV Plan also suggests that restoration is by nature holistic and that recreating the form of an ecosystem without restoring the functions of that system is not restoration. Applying this definition to the Preserve, restoration is not necessarily achieved when ORV use has been removed from an area for a period of time and the area “turns green” again.⁴⁹⁹ Therefore, NPS must evaluate whether the impacted areas would naturally recruit with desirable native vegetation, and in the same proportions as previously existed, and whether the habitat that was once (before disturbance) supported by the impacted areas of the Preserve is again available.⁵⁰⁰

“Restoration can include one or more of the following: reconstruction of physical conditions such as topography or grade; chemical changes to the soils and water; and biological components such as the re-introduction of native plant species.”⁵⁰¹ “Long-range goals for restoring ORV disturbed sites in the Preserve are to: remove the scars caused by vehicles and recover a sustainable, self-regulating, self-organizing ecosystem, by restoring to the extent possible the biological, physical, and chemical characteristic of the system,” and “meet biological, physical, and chemical targets defined by performance measures.”⁵⁰² “To provide a gauge against which to measure restoration success there must be a baseline or reference condition. Specific restoration project goals should state which impacted condition, such as vegetation, is chosen for improvement. As restoration efforts proceed, the existing resource condition should begin to more closely resemble the reference condition. Restoration objectives defined in measurable ecosystem conditions (for example, vegetative community composition and richness) would define the basis for tracking restoration success.”⁵⁰³

“The restoration plans for identified areas would provide specific guidance for the earthwork, revegetation methods, invasive plant control, monitoring, and restoration at each site. As part of each reclamation plan, [NPS] would develop a planting plan based on the desired plant community to be established, site elevations, water table elevations, and soil conditions. The planting plan would recognize which native plant species from nearby reference sites could live and reproduce within the range of environmental conditions that exist at each restoration site and could be used for revegetation.”⁵⁰⁴ The EA fails to evaluate any of this information.

The ORV Plan is also instructive on the maintenance and monitoring of the impacted areas that would be necessary after completion of the proposed action. “The goal of resource recovery monitoring would be to determine the effectiveness of both active and passive restoration efforts, and to use this information to make adjustments to the restoration program as needed.”⁵⁰⁵ “The impacts of ORVs are most apparent on soils and plant communities. Therefore, these would be the most obvious choices for monitoring recovery of areas where ORV use had been restricted.”⁵⁰⁶ “Measures of plant communities in affected areas may be conducted as

⁴⁹⁸ *Id.* (internal citation omitted).

⁴⁹⁹ *Id.*

⁵⁰⁰ *See, Id.*

⁵⁰¹ *Id.*

⁵⁰² *Id.*

⁵⁰³ *Id.*

⁵⁰⁴ *Id.* at 56.

⁵⁰⁵ *Id.* at 57.

⁵⁰⁶ *Id.* at 58.

comparisons with areas with little or no human-caused alteration.”⁵⁰⁷ Maintenance and monitoring activities should include: topographic measurements in order to re-establish the natural grade of any impact areas that have been extensively rutted by ORV traffic; measurements of the vegetation to ensure re-establishment of the native plant community; and the use of aerial photography and on-the-ground measurements to monitor resource recovery.⁵⁰⁸ “Reference sites should be selected to compare targeted recovery areas with areas undisturbed by ORV traffic. Areas for comparison would be selected based on such features as community type, soil type, and hydrology.”⁵⁰⁹ “Acceptable alterations to natural areas (and habitat recovery programs) should be derived from standards applied to other national area, and refined to reflect the resources at Big Cypress. If these standards are not available, or clearly are not applicable to this area, standards derived from opinions of experts, public input, or preserve management and staff would be required.”⁵¹⁰ The EA fails to evaluate any of this information.

NPS acknowledges that a restoration plan for ORV use could take up to ten years.⁵¹¹ Despite NPS’ failure to evaluate the use of current and established wetland restoration and maintenance and monitoring practices used by Florida state agencies, as well as the wetland restoration and maintenance and monitoring required in conjunction with past seismic surveying and ORV use in the Preserve, it summarily concludes in the cumulative impacts section of the EA that past, present, and reasonably foreseeable future impacts on vegetation from the proposed action would be the same as for the “no action” alternative.⁵¹² Due to the extensive use of heavy vibroseis equipment in wetlands, it is not possible for NPS to conclude that the impacts on vegetation would be the same in both the proposed action and “no action” alternatives. Particularly since NPS has previously acknowledged the potential adverse impacts of ORV use on natural resources in the Preserve.

C. The proposed restoration of impacted soils is insufficient.

The EA fails to evaluate any potential methods for soil restoration following the proposed action. Soil restoration is a technique that can be used to restore and enhance compacted soils by physical treatment or mixture with additives such as compost.⁵¹³ One option for soil amendment is compost, which improves the soil structure, creating and enhancing passageways for soil for air and water that have been lost due to compaction in order to create a better environment for plant growth. Compost supplies a slow release of nutrients to plants, such as nitrogen, phosphorus, potassium, and sulfur.⁵¹⁴ Tilling is another method that can be used to address soil compaction, and involves digging, scraping, mixing, and ripping of soil with the intent of circulating air into the soil mangle in various layers.⁵¹⁵ Tilling exposes compacted soil devoid of

⁵⁰⁷ *Id.*

⁵⁰⁸ *See, Id.*

⁵⁰⁹ *Id.*

⁵¹⁰ *Id.* at 59.

⁵¹¹ *See Id.*

⁵¹² Environmental Assessment at 88.

⁵¹³ Pennsylvania Department of Environmental Protection, Pennsylvania Stormwater Best Management Practices Manual (Dec. 30, 2006), at 6-223, <http://pecpa.org/wp-content/uploads/Stormwater-BMP-Manual.pdf> (page 413 of the pdf).

⁵¹⁴ *Id.*

⁵¹⁵ *Id.*

oxygen to air and recreates temporary air space.⁵¹⁶ Another soil reclamation method includes the stockpiling of native wetland soils for use as a top dressing during reclamation efforts. However, stockpiling can result in regeneration of often underrepresented wetland plants.⁵¹⁷ Ideally, stockpiling of native soils is most appropriate if they are not held longer than thirty days.⁵¹⁸

Here, NPS fails to evaluate any specific soil reclamation methodologies in the EA. The EA states that NPS would identify any soil impacts and that field reclamation of impacts would begin immediately as the survey continues.⁵¹⁹ NPS asserts that soils would be decompacted and graded to match the original grade.⁵²⁰ However, there have been no baseline soil or topographic studies conducted in order to establish the original grade elevations of the proposed action areas. Therefore, it is impossible for NPS to know whether any restoration work will restore the natural grade elevations within the proposed action area. As further described above, it is imperative that the original grade elevations are restored in order to support the natural recruitment of native wetland vegetation, and to control the invasion of non-native invasive plant species. The EA also states that final field reclamation would be completed within 30 days following the completion of field operations except in inclement weather conditions. However, there is no indication that there would be any further long-term maintenance and monitoring of the impacted soils required to ensure the success of the restoration.

X. NPS violated NEPA by failing to analyze a range of reasonable alternatives.

A. NPS Must Analyze A Range Of Reasonable Alternatives.

NEPA requires federal agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternate uses of available resources.” 42 U.S.C. § 4332(2)(E); *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1245 (9th Cir. 2005); 40 C.F.R. § 1508.9(b) (an EA “[s]hall include brief discussions ... of alternatives”). This alternatives analysis is characterized as “the heart” of the NEPA process, and is operative even if the agency finds no significant environmental impact. *Colorado Env'tl. Coalition v. Dombeck*, 185 F.3d 1162, 1174 (10th Cir. 1999) (citing 40 C.F.R. § 1502.14); *Diné Citizens Against Ruining Our Env't v. Klein*, 747 F. Supp. 2d 1234, 1254 (D. Colo. 2010) (quoting *Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1277 (10th Cir. 2004)), *appeal dismissed*. Accordingly, “[i]nformed and meaningful consideration of alternatives” is “an integral part of [NEPA’s] statutory scheme.” *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988).

When an agency prepares an EA, “all reasonable alternatives” must be considered and an alternative is generally reasonable if it advances the purpose of the proposed project. *Native Ecosystems Council*, 428 F.3d at 1245-46 (emphasis added); *see also Davis v. Mineta*, 302 F.3d 1104, 1122 (10th Cir. 2002) (rejecting an EA that only discussed the proposed alternative and a no action alternative); *Bob Marshall Alliance*, 852 F.2d at 1229 (agency must analyze a range of reasonable alternatives “whether or not an EIS is also required”); *Wilderness Soc’y v. Wisely*,

⁵¹⁶ *Id.*

⁵¹⁷ SFWMD Plant Specifications at 26.

⁵¹⁸ *Id.*

⁵¹⁹ Environmental Assessment at 34.

⁵²⁰ *Id.*

524 F. Supp. 2d 1285, 1309 (D. Colo. 2007) (NEPA’s alternative analysis requirement “ensures that [BLM] has considered all possible approaches to, and potential environmental impacts of, a particular project”) (emphasis added). When eliminating an alternative from consideration in an EA, an agency must provide an “appropriate” explanation “as to why an alternative was eliminated.” *Native Ecosystems Council*, 428 F.3d at 1245-46; *see also Wilderness Soc’y*, 524 F. Supp. 2d at 1309. Further, despite the latitude afforded agencies to identify the purpose and scope of the NEPA evaluation and, therefore, the range of reasonable alternatives considered in an EA or EIS, courts are reluctant to reduce the NEPA analysis to a “binary choice between granting or denying an application.” *Save Our Cumberland Mountains v. Kempthorne*, 453 F.3d 334, 345 (6th Cir. 2006).

Agencies are prohibited from relying on unsupported, self-serving allegations. *See Seattle Audubon Soc’y v. Mosely*, 798 F. Supp. 1473, 1479 (W.D. Wa. 1992), *aff’d* 998 F.2d 699 (9th Cir. 1993), citing *Silvia v. Lynn*, 482 F.2d 1282, 1285 (1st Cir. 1973) (“A conclusory statement unsupported by empirical or experimental data, scientific authorities, or explanatory information of any kind not only fails to crystalize the issues, but affords no basis for comparison of the problems involved with the proposed project and the difficulties involved in the alternatives.”) Many of the statements made by NPS throughout the EA are conclusory and unsupported by any scientific or technical data.

In addition, the alternatives that a federal agency analyzes in an EA should include an alternative with the potential to reduce or eliminate adverse impacts. *See, e.g., Davis*, 302 F.3d at 1122. In a mineral leasing case, the district court rejected a “binary” EA — i.e. the EA considered in detail only the proposed action and a no-action alternative — because the agency failed to evaluate a “middle-ground compromise” recognizing the competing “energy development and conservation characteristics” of the lands at issue:

The Court cannot say that the failure to consider a ‘no surface occupancy’ alternative was harmless. Given its plausibility (at least on the instant record), and its mix of energy development and conservation characteristics, the ‘no surface occupancy’ alternative presented a potentially appealing middle-ground compromise between the absolutism of the outright leasing and no action alternatives.

Wilderness Society, 524 Supp. 2d at 1312.

B. The EA violates NEPA by failing to consider any alternatives that involve the purchase of the private mineral rights beneath the Preserve.

NPS must consider the alternative of buying out, or trading out, privately owned mineral rights beneath the Preserve as part of its obligation to protect Preserve resources to the greatest extent practicable. This is required by NEPA’s mandate to analyze all reasonable alternatives to the proposed action. Trading or buying the mineral rights is entirely consistent with, and fully satisfies, the dual purpose of recognizing and honoring mineral rights while protecting the values for which the Preserve was created. The GMP/EIS for the Preserve expressly states that a plan of operations can be denied, and if a denial of a plan of operations were viewed as a potential for

the taking of property, funds would be sought from Congress to acquire the affected mineral estate.⁵²¹

A federal court enjoined FWS from taking or approving any action that would upset the status quo in the Baca National Wildlife Refuge where an operator sought to use and occupy the refuge for purposes of developing the mineral estate. *See, San Luis Valley Ecosystem Council v. United States Fish & Wildlife Serv.*, 657 F. Supp. 2d 1233 (D. Colo. 2009). The court specifically faulted the FWS for its alternatives analysis, finding that an alternative prohibiting all drilling was not addressed in any meaningful way because the government took the position that it could not prohibit drilling; however, it was unclear whether FWS meaningfully investigated the option of acquiring the mineral rights. *Id.* at 1247. Therefore, NPS must evaluate an alternative involving the purchase of the mineral rights beneath the Preserve. Such analysis educates both the public and policy makers about more protective alternatives available to the proposed action.

C. The EA violates NEPA by failing to evaluate an alternative that utilizes previous seismic data collected in the Preserve.

Generally, “new data must be collected where previous seismic data has not been collected, or where the seismic data collected was of poor quality, or in 2D and a higher quality 3D data set is needed.”⁵²² The EA fails to evaluate an alternative that utilizes previous seismic data collected to determine whether new seismic data is truly needed. NPS acknowledges that oil and gas activities have occurred within the Preserve since the 1940s, and that multiple 2-D geophysical operations have already been conducted in the Preserve as of 1992.⁵²³ More recently, Calumet Florida, Inc. conducted a 3-D geophysical survey within the Preserve.⁵²⁴ The EA fails to evaluate whether Burnett could utilize the seismic data that has already been collected to identify oil resources beneath the Preserve. At a minimum, NPS must evaluate the existing geophysical data to determine whether it eliminates the need for the new survey altogether, or supports a decrease in the size of the proposed survey area to encompass only those areas where geophysical data does not currently exist. NPS should evaluate whether there is a pre-existing seismic survey of sufficient quality and scope that is either publically available or can be purchased prior to permitting new seismic exploration activities.⁵²⁵ NPS should require interested companies to work together to invest in a single seismic survey data collection effort to minimize the impact of multiple competitive surveys on the Preserve.⁵²⁶

D. The EA violates NEPA by failing to analyze reasonable alternatives that provide for no surface occupancy.

Agencies shall consider alternatives that include other reasonable courses of action. 40 C.F.R. §1508.25(b)(2). Although the EA evaluates the proposed action against a “worst case scenario” alternative – seismic survey using explosive charges – and a “no action” alternative, it fails to evaluate any alternatives that would avoid surface occupancy altogether. NPS’ failure to evaluate

⁵²¹ GMP/EIS at 62.

⁵²² Onshore Seismic Exploration Best Practice and Model Permit Requirements at 9.

⁵²³ Environmental Assessment at 2.

⁵²⁴ Environmental Assessment at 2.

⁵²⁵ Onshore Seismic Exploration Best Practice and Model Permit Requirements at 9.

⁵²⁶ *See, Id.*

a “no surface occupancy” alternative to the proposed action violates NEPA. *See Wilderness Soc’y*, 524 F. Supp. 2d at 1311. Because the EA only analyzes the worst case scenario (use of explosives), the proposed action, and no action alternatives, and eliminates from consideration every alternative in between with the potential to reduce surface impacts to the Preserve, the alternatives analysis in the EA is inadequate.

An example of an alternative that was not considered and would avoid surface occupancy involves 4D testing using Stress Field Detection (SFD) created by NXT Energy.⁵²⁷ This testing detects reservoirs using SFD sensors affixed to an airplane that flies over the prospective land area at around 1000 to 3000 ft.⁵²⁸ In an effort to pinpoint exactly where, if any, oil plays are, SFD technology uses gravity to determine the density in rock and reservoir quality.⁵²⁹ The technology may also be beneficial to the company, costing 10% less than traditional 2D and 3D surveys.⁵³⁰ In 2013, Kerogen Exploration LLC contracted with NXT Energy to utilize SFD over 125,000 acres in south Florida,⁵³¹ demonstrating that this is a reasonable alternative for consideration in this area. This surveying method is less invasive, cost effective, and time efficient, making it a viable alternative that must be evaluated by NPS.

E. The EA violates NEPA by failing to analyze reasonable alternatives that provide for a reduction of the proposed action area.

The EA fails to evaluate any reasonable alternatives that contemplate a reduced amount of seismic exploration area. The EA acknowledges that the implementation of the proposed action would be the first time that vibroseis technology would be used in the Preserve.⁵³² Despite this acknowledgment, NPS only required Burnett to conduct minimal testing of the off-road vibroseis technology, some of which occurred in uplands, prior to issuing the EA. The first test occurred outside of the Preserve on December 6, 2013,⁵³³ on two transects less than 500 feet in length and approximately 1,500 feet apart placed within a 4,000 x 2,500 foot test site.⁵³⁴ Photographs of the test area were taken six months later on June 6, 2014, but there was no accompanying scientific study or any subsequent monitoring of the impacted areas to determine whether the impacted areas were fully restored.⁵³⁵ Also, the testing that occurred within uplands is not indicative on how the off-road vibroseis equipment would perform in wetlands.

⁵²⁷ *See*, Keith Schaefer, The Most Compelling Value-Add in the Patch—NXT Energy, Oil and Gas Corporate Bulletin (Apr. 2, 2014), <http://www.oilandgas-investments.com/info/?p=118>.

⁵²⁸ *See*, Maurice Smith, Showing the Way, New Technology Magazine (Apr. 1, 2007), <http://www.newtechmagazine.com/index.php/more/archived-articles/1257-showing-the-way> (hereinafter, “Showing the Way”).

⁵²⁹ *See*, James Burgess, New Spy Technology to Spawn Oil Revolution, Oilprice.com (Feb. 27, 2014), <http://oilprice.com/Energy/Energy-General/New-Spy-Technology-to-Spawn-Oil-Revolution.html>.

⁵³⁰ *See*, Showing the Way, *supra*.

⁵³¹ *See*, NXT Energy Solutions Inc., NXT Energy Announces US \$1.1 Million SFD® Survey Contract in the USA (Nov. 27, 2013), <http://kincommunications.com/nxt-energy-announces-us-1-1-million-sfd-survey-contract-in-the-usa/>.

⁵³² Environmental Assessment at 11.

⁵³³ Plan of Operations at Exhibit 8.

⁵³⁴ Plan of Operations at Exhibit 8(E).

⁵³⁵ Plan of Operations at Exhibit 8.

The second test took place on April 24, 2015, at an undisclosed location within the proposed action area. Photographs were taken again six months later on October 10, 2015.⁵³⁶ The EA fails to include any corresponding monitoring reports that identify the type of vegetation noted before and after the demonstration. There is no description of the “success” criteria utilized, or the total percent coverage of native wetland vegetation or exotic and nuisance vegetation observed in the proposed action area both before and after the demonstration. Additionally, there is no documentation whatsoever in the EA that supports NPS’ conclusion that other types of wetland vegetation within the proposed action area, such as cypress trees, shrubby understory vegetation, and mangroves, would naturally recruit within one growing season following impact. Notably, the EA states that the vibroseis truck “got stuck” during this test and had to be extracted by another vehicle.⁵³⁷ This fact alone demonstrates that conditions in the Preserve are not favorable to this type of off-road seismic survey.

The proposed action anticipates the use of 64 source lines located 1,155 feet apart, and 168 receiver lines located 495 feet apart, oriented at right angles within the survey area. The survey lines are designed to accommodate 32,657 source points. The initial field test performed outside of the Preserve by Burnett consisted of short transects spaced farther apart than the transects currently proposed in the EA. Given the fact that the off-road vibroseis technology has been subjected to only minimal testing, some of which was unsuccessful, NPS must evaluate reasonable alternatives consisting of reduced survey areas. Reduced survey areas could be utilized to collect much-needed data to fully evaluate the impacts of vibroseis technology on Preserve resources prior to wide-scale utilization. NPS must not allow Burnett to conduct a 110-square mile experiment using inadequately tested vibroseis technology that NPS acknowledges would be unprecedented in the Preserve.⁵³⁸

F. The EA violates NEPA by failing to analyze reasonable alternatives that provide for use of all available Best Management Practices.

Agencies shall consider an alternative that includes mitigation measures not in the proposed action. 40 C.F.R. § 1508.25(b)(3). Here, NPS fails to evaluate any alternatives that require full implementation of all existing Best Management Practices (“BMPs”) for onshore seismic exploration. Some examples of BMPs that have not been considered are as follows⁵³⁹:

- Prior to permitting exploration, require environmental impact assessments for the seismic study areas to identify sensitive resources, collect baseline data and develop mitigation measures to minimize both short-term and long-term impacts to humans and the environment;
- Identify and map areas of special environmental significance and any special seasonal or temporal sensitivity within the proposed survey areas;
- Complete a historical and cultural resource assessment to identify protected resources that must be preserved and avoided;

⁵³⁶ Environmental Assessment at 88.

⁵³⁷ *Id.* at 88

⁵³⁸ *Id.* at 11.

⁵³⁹ Onshore Seismic Exploration Best Practice and Model Permit Requirements at 10-21.

- Develop a detailed and enforceable remediation and rehabilitation plan to address revegetation, reforestation, and erosion mitigation;
- Examine the potential for public, private, and Native use conflicts and develop a mitigation plan that minimizes impact, is effectively communicated, and obtains support from affected parties;
- Collect aerial photography by helicopter of the seismic data collection area to scout out the lowest impact access and data collection routes, document baseline conditions, and obtain review and approval from NPS in advance;
- Create a set of GIS maps that clearly document all environmentally sensitive, historical, cultural and local resources requiring protection, and clearly document on the maps proposed placement of seismic lines, base camps/staging areas, runways, heliports, and other clearings or access points for crews and equipment;
- Develop a flight path and transportation plan that minimizes noise and disruption to wildlife and humans, and minimizes fuel use;
- Avoid the use of vibroseis machinery on soft ground to avoid excessive compaction from vehicles and the baseplate;
- Maximize the use of existing roads, trails, burn areas and clearings, and minimize creation of new access points and clearings.
- Do not permit removal or damage of a tree of any kind equal to or greater than four inches in diameter (measured twelve inches above ground level)⁵⁴⁰;
- Off-set seismic lines around trees four inches or greater in diameter (measured twelve inches above ground level);
- Avoid or minimize cutlines in very sensitive areas (here, Important Resource Areas), by using Global Positioning System (GPS) technology;
- Survey lines should be identified from the air using helicopters;
- Utilize smaller, lower impact seismic equipment to limit the cutlines to 6-10 feet wide, even when using larger seismic equipment;
- Utilize low-impact survey and clearing techniques that avoid clear cutting long straight sections of woods and vegetation to deploy line-of-sight survey equipment;
- Utilize GPS survey techniques to position geophones along minimally hand-cut, meandering lines;
- Ensure that no line-of-sight seismic line corridor shall extend farther than ½ mile in either direction;
- Prohibit bulldozing of new roads, trails and seismic lines;
- Require seismic lines to be cut by hand, rather than by large hydro-axes and logging equipment, to minimize tree loss and surface disruption;
- Require trees to be cut by hand, rather than pushing them over with large excavation equipment minimizes disturbance to root systems of other trees that do not require removal and prevents erosion;
- Require tree limbs to be cut to create access rather than cutting down the entire tree, whenever possible;
- Pathways should not significantly alter the natural hydrology and should maintain the features and functional characteristics of the area;

⁵⁴⁰WilsonMiller, Inc., Raccoon Point 3-D Seismic Survey Third Annual Monitoring Report for FDEP Permit # 113006055 (April 29, 2002) at 1 (no damage to cypress trees was permitted).

- Slopes should be stabilized and revegetated to minimize erosion, and topography, natural drainage and site runoff patterns into account;
- Ensure there is adequate distance away from streams, rivers and other waterways;
- Minimize direct and indirect wildlife disturbance and mortality by timing seismic activity to avoid disruption during critical life cycle periods (e.g. mating, nesting, spawning), and to places where those critical life cycle periods occur (e.g. nursing areas, molting grounds, staging grounds and migration routes);
- Route seismic operations around nests, dens and other critical habitat;
- Set back seismic lines at least 100 feet from water bodies to reduce soil erosion and sedimentation and prevent damage to riparian habitat;
- Minimize noise using noise attenuation on engines;
- Direct light sources away from habitat, public and private areas;
- Institute a policy of no harassment, feeding, hunting, trapping, fishing policy for all seismic workers during exploration activities;
- Require Burnett, at its own expense, to hire third party qualified and well trained environmental and wildlife experts, with training in conservation, biology, botany, soil science, hydrology and wildlife protection, to oversee seismic operations, and to identify ways to minimize impacts, provide guidance to seismic crews, and ensure that agreed upon mitigation measures are implemented.
- Restore cutlines by returning cut vegetation and trees that were temporarily stockpiled along the cutlines to the cutline area. This practice reduces erosion, eliminates barriers to wildlife by dismantling piles of debris, and limits future access to the cutline to speed up natural recovery processes by blocking access for recreational vehicles (e.g. ORVs).
- Obtain a production test of any nearby water wells to obtain baseline water productivity and quality prior to seismic data acquisition;
- Do not permit any vibroseis activities within 330 feet of a building, structure, water well, or spring;
- Require repair or replacement of any damage to private and public infrastructure;
- Prohibit interference with public hunting, fishing, or other scheduled activities, or with subsistence or wilderness users;
- Map and identify all cultural and historical resources in the field prior to commencing any seismic clearing or survey work.

Based on the foregoing, NPS must evaluate all reasonable alternatives to the proposed action that avoid or minimize impacts to resources and visitor experiences in the Preserve.

XI. CONCLUSION

In light of the aforementioned deficiencies under NEPA, as well as the overall uncertainty of the environmental impacts of the off-road seismic exploration in the Preserve, the EA is inadequate. For the reasons set forth above, we urge NPS to reject Burnett's proposed plan of operations. If NPS nonetheless decides to pursue the NEPA process, the agency must prepare a full environmental impact statement for all phases of exploration in the Preserve.

Thank you in advance for your consideration. Please feel free to contact us with any questions.

Sincerely,

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Daryl Thomas, Biologist, U.S. Fish and Wildlife Service

Tunis McElwain, Chief, Fort Myers Office, U.S. Army Corps of Engineers

INDEX OF EXHIBITS

Exhibit	Description
A	Onshore Seismic Exploration Best Practice and Model Permit Requirements at Report to Sierra Club and Natural Resources Defense Council prepared by Harvey Consulting, LLC (January 20, 2011).
B	Map of Trails in Big Cypress National Preserve
C	Noah Kugler, Opinion and Recommendation: Nobles Grade 3-D Seismic Survey Application (May 16, 2014).
D	Ananta Nath, P.E, D.WRE, F.EWRI letter to Timothy Schwan, State of Florida Department of Environmental Protection re: Application for 3-D Seismic Survey for Geophysical Exploration at Noble Grade, Big Cypress National Preserve (#11-0323836-001) (May 16, 2014).
E	Letter to the U.S. Army Corps of Engineers from NRDC, et al., regarding the Nobles Grade 3-D Seismic Survey/Plan of Operations in Big Cypress National Preserve (October 14, 2015) (Composite).
F	Conservancy of Southwest Florida, et al. Letter to Larry Williams, U.S. Fish and Wildlife Service re: Nobles Grade 3-D Seismic Survey (December 22, 2014).
G	WilsonMiller, Inc., Raccoon Point 3-D Seismic Survey Third Annual Monitoring Report for FDEP Permit # 113006055 (April 29, 2002).