



Submitted via Electronic Submission

December 3, 2018

Public Comments Processing

Attn: FWS-R4-ES-2018- 0079

U.S. Fish and Wildlife Service Headquarters, MS: BPHC

5275 Leesburg Pike

Falls Church, VA 22041-3803

Re: FWS-R4-ES-2018- 0079 – Public Comments on Draft Environmental Impact Statement for Eastern Collier County Multiple Species Habitat Conservation Plan

Dear Mr. Dell,

On behalf of the Center for Biological Diversity, Conservancy of Southwest Florida, Sierra Club, and Natural Resources Defense Council (collectively “Conservation Organizations”), please accept these comments on the Eastern Collier County Multiple Species Habitat Conservation Plan (HCP), the associated incidental take permit applications, and the U.S. Fish and Wildlife Service’s (Service) Draft Environmental Impact Statement (DEIS) on the HCP dated September, 2018.

As set forth below, the HCP and DEIS do not meet the requirements of the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA), and we ask you to deny the HCP and applications accordingly. The HCP has not analyzed all impacts and does not detail how Applicants have minimized and mitigated take, nor have the Applicants ensured adequate funding will be provided. The HCP will also reduce the likelihood of the survival and recovery of listed species. Furthermore, the Service failed to meet the minimum requirements of NEPA in analyzing the HCP. The Service subverted meaningful public comment, fails to analyze a reasonable range of alternatives, distorts the comparison of the two alternatives it does analyze, and chooses an alternative that fails to meet the Service’s stated purpose and need. The Service also fails to evaluate whether the HCP’s mitigation measures are adequate or effective, unlawfully limits the scope of analysis, and fails to take a requisite “hard look” at direct, indirect, and cumulative impacts.

These comments are based on and incorporate by reference the enclosed reports of Drs. Robert Frakes and Reed Noss, the April 25, 2016 comments of the Conservancy of Southwest Florida, the April 25, 2016 comments of the Center for Biological Diversity, and the literature and authorities cited herein, which will be provided on a CD as a supplement to these comments under a separate cover.

TABLE OF CONTENTS

I. INTERESTS OF THE COMMENTERS	5
II. PROJECT BACKGROUND	6
III. LEGAL BACKGROUND	7
A. Endangered Species Act	7
1. Section 9 Take Prohibition	7
2. Section 10 Incidental Take Permit and Habitat Conservation Plan	8
3. Section 7 Consultation.....	9
4. Section 7 Affirmative Conservation Mandate	11
B. National Environmental Policy Act.....	11
IV. THE HCP FAILS TO MEET THE REQUIREMENTS OF ESA SECTION 10 AND IMPLEMENTING REGULATIONS	14
A. The HCP Has Not Analyzed All Impacts	14
1. The HCP Fails to Describe the Impact from Habitat Loss on Listed Species	14
2. The HCP Fails to Detail Impacts to Florida Panthers from Additional Traffic and Roads Generated by the Project	21
a. The HCP Fails to Identify and Quantify Panther Mortality Resulting From New Roads and Increased Traffic	22
3. The HCP Fails to Address Climate Change.....	27
B. The HCP Does Not Detail How Applicants Have Minimized and Mitigated Take	28
1. The “Preserve” Lands Will Allow Many Uses Inconsistent with the Conservation of Listed Species	28
2. The HCP Fails to Provide Mitigation for Take from Increased Panther-Vehicle Collisions.....	29
3. Reliance on the Panther Habitat Assessment Methodology to Conclude that the Impacts of the Proposal Will Be Fully Offset Does Not Reflect the Best Available Science.....	31
a. The Best Available Science Demonstrates that the 2.5:1 Base Ratio for Preservation to Loss Fails to Ensure Impacts Are Offset.....	31
b. Reliance on the Methodology to Assert Impacts are Fully Offset is Irrational on Its Face	36
4. The Best Available Science Shows That the HCP’s Proposal to Mitigate Impacts to Vital Habitat Corridors for Florida Panther Will Not Fully Offset the Impacts of the Proposed Development	37
5. The HCP Fails to Account for the Impacts of Oil and Gas Development and Agricultural Intensification on the Preserve Area Lands.....	38
6. The HCP Overstates the Benefits of the Habitat Preservation By Failing to Account for the Existing Restrictions Already Applicable to the “Preserve Area”.....	40
7. The HCP Fails to Show that the Current Status and Ownership Patterns of the Preserve Lands Ensure that the Described Preservation Will Occur and Provide the Benefits Alleged	41
C. The Applicants Have Not Ensured that Adequate Funding Will Be Provided	42
1. The HCP Impermissibly Makes Restoration and Other Necessary Measures Optional and Discretionary....	45
2. The Service Cannot Rely on the Discretionary Measures that Might Be Provided Under the Marinelli Fund 46	
a. Relying on the Marinelli Fund Would Improperly Delegate the Service’s Duties to a Private Entity	46
b. The Structure of the Marinelli Foundation Creates Perverse Incentives	47
c. The HCP Fails to Show that Impacts Are Avoided, Minimized, and Mitigated to the Maximum Extent Practicable Through Measures Funded by the Marinelli Fund	48

3. The HCP Contains Inadequate Procedures to Address Economic Downturn.....	48
D. The Applicants Did Not Adequately Consider Alternatives Nor Explain Why Alternatives Are Not Being Utilized.....	49
E. The HCP Will Reduce the Likelihood of the Survival and Recovery of Listed Species	51
1. The Best Available Science Shows That Maintaining a Viable Panther Population in South Florida Requires No Further Loss of Breeding Habitat	51
F. The HCP Fails to Provide Procedures to Deal with Unforeseen and Changed Circumstances	53
1. The HCP Contains Inadequate Procedures to Deal with Landowners Dropping Out	53
2. The HCP Fails to Provide for Changes to the FWC Panther Program	54
3. Providing Assurances that No Further Mitigation Will Be Required Over a 50 –year Permit Term Fails to Meet the Requirements of ESA Section 10(a)(2)(B)(ii) and (iv)	54
V. THE SERVICE MUST COMPLY WITH REQUIREMENTS FOR INTRA-SERVICE CONSULTATION SET FORTH IN ESA SECTION 7 AND IMPLEMENTING REGULATIONS	55
A. The HCP and DEIS are Inadequate to Supply the Analysis Necessary for the Service’s Biological Opinion	55
1. The Information Provided in the HCP is Inadequate to Establish Baseline Considerations.....	56
2. The Proposed HCP will Cause or Contribute to Jeopardy of the Florida Panther.	57
a. The Habitat Loss Caused by the HCP will Jeopardize the Continued Existence and Recovery of the Florida Panther.....	58
b. The Increased Traffic Caused by the HCP Will Lead to an Increase in Panther/Vehicle Collisions and Jeopardize the Panther	64
c. Climate Change.....	69
3. Reasonable and Prudent Alternatives	70
A. If the Service Finds the Project Will Not Jeopardize Listed Species, It Must Prepare an Incidental Take Statement.....	70
1. The Service Must Specify the Impact, Including All Direct and Indirect Impacts, Including Habitat Effects, the Number of Expected Florida Panther Injuries and Deaths, and the Effect on Recovery	71
2. The Service Must Specify Reasonable and Prudent Measures and Terms and Conditions	73
B. The Service Will Violate its ESA Section 7 Duty to Not Jeopardize the Continued Existence of the Species if it Approves the Take Caused by the Project	74
VI. THE DRAFT EIS FAILS TO MEET THE REQUIREMENTS OF NEPA	74
A. The Service Has Subverted Meaningful Public Participation on the Draft EIS.....	74
B. The Draft EIS’s Alternatives Analysis is Inadequate	76
1. The Draft EIS Fails to Analyze a Reasonable Range of Alternatives.....	76
2. The Draft EIS Improperly Distorts the Comparison of Alternatives	79
a. The So-called “Preserve” Area	79
b. The DEIS Unlawfully Assumes that Individual Permitting Will Authorize Full Development Allowable Under the Rural Lands Stewardship Area (RLSA) and Rural Lands Stewardship Program (RLSP)	80
C. The Service’s Chosen Alternative Fails to Meet the Service’s Stated Purpose and Need.....	83
D. The Draft EIS Fails to Evaluate Whether the HCP’s Mitigation Measures Are Adequate or Effective...84	

E. The Service Failed to Take a Requisite “Hard Look”	85
1. The Service Adopts the HCP’s Mischaracterization of Future Growth.....	86
2. The Service Inaccurately Describes Effects on Geology and Soils	86
3. The Service Inaccurately Describes Effects on Land Use	86
4. The Service Inaccurately Describes Effects on Water Resources	87
5. The Service Inaccurately Describes Effects on Transportation, Air Quality, and Climate Change	87
6. The Service Inaccurately Describes Effects on Cultural Resources	88
7. The Service Inaccurately Describes Effects on Bald Eagles	88
8. The Service Inaccurately Describes Effects on Crested Caracara	89
9. The Service Inaccurately Describes Effects on Florida Panther	89
10. The Service Inaccurately Describes Effects on American Kestrel, and Sandhill Crane.....	90
11. The Service Inaccurately Claims Development within the HCP Area Would be Capped.....	90
13. The Service Fails to Analyze Effects on Socioeconomics and Environmental Justice	91
14. The Service Fails to Address Scoping Comments	91
F. The Service Improperly Limits the Scope of Analysis.....	91
G. The Draft EIS Fails to Adequately Analyze Cumulative Impacts	92
1. Population growth and large-scale development	92
2. Climate Change and Sea Level Rise.....	98
VII. CONCLUSION	98
LITERATURE CITED	100
ATTACHMENT A.....	106
ATTACHMENT B.....	107
ATTACHMENT C.....	108
ATTACHMENT D.....	109
ATTACHMENT E.....	110
ATTACHMENT F	111
ATTACHMENT G	112
ATTACHMENT I.....	114
ATTACHMENT J	115

I. Interests of the Commenters

The Center for Biological Diversity (Center) is a national, nonprofit organization dedicated to protecting all species, great and small, hovering on the brink of extinction using science, law, and creative media, with a focus on protecting the lands, waters and climate species need to survive. The Center has more than one million members and supporters, many of whom live in Florida and care about the species that live here. To that end, the Center's Florida office works to protect many Florida species including the Florida panther, eastern indigo snake, Florida bonneted bat, wood stork, northern crested caracara, red-cockaded woodpecker, Everglades snail kite, and gopher tortoise.

The Conservancy of Southwest Florida (Conservancy) is a non-profit corporation headquartered in Naples, Florida. The Conservancy has more than 4,300 members in Southwest Florida. The mission of the Conservancy is to protect the environment and natural resources of Southwest Florida, including endangered species such as the Florida panther. The Conservancy pursues this mission in at least three ways relevant to the protection and restoration of the Florida panther: (1) through policy advocacy on the local, regional, state and national levels; (2) through environmental education at the Conservancy Nature Center and by naturalist-lead excursions into wilderness areas of Southwest Florida; and (3) through purchase and protection of land for conservation purposes.

The Conservancy has been engaged in policy advocacy for the protection of the Florida panther for many years, including active involvement in local land-use plan formation for the protection of panther habitat in Collier and Lee Counties. The Conservancy has conducted scientific field research focused on the Florida panther, including examining panther use of public lands in the Primary Zone and establishing benchmarks for panther prey in panther habitat being restored as part of Everglades restoration. The Conservancy's environmental education activities highlight the Florida panther as an "umbrella species," key to the protection of habitat for several other endangered and threatened species and offer opportunities to members and visitors to learn about the panther in the Conservancy Nature Center and on excursions to Florida panther habitat with the hope of viewing a panther in the wild.

The Conservancy also owns property for conservation purposes in Collier County in the area the Fish and Wildlife Service refers to as the panther's Primary Zone – the core of panther habitat. This property is used by Florida panthers and helps support their continued survival. Finally, individual Conservancy members have an aesthetic and scientific appreciation of the Florida panther in the wild and travel to areas in the Primary Zone of panther habitat in hopes of viewing and photographing the elusive panther.

The Natural Resources Defense Council (NRDC) is a non-profit environmental membership organization with more than 400,000 members throughout the United States. Over 16,000 NRDC members reside in Florida. NRDC members use and enjoy natural resources in south Florida, including nearby public lands such as the 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 natural resources and endangered species like the Florida panther. For many years, NRDC has worked

with federal agencies to enhance public participation in government decision making and to protect important lands and wildlife.

The Sierra Club was founded in 1892, and is the nation's oldest grass-roots environmental organization. Headquartered in Oakland, California, it has more than 1.1 million members and supporters nationwide, including a local chapter known as Sierra Club Florida with 37,383 members. The Sierra Club's purpose is to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments. The Sierra Club is dedicated to the protection and preservation of the natural and human environment, including wildlife and endangered species such as the Florida panther and the other species covered by the HCP. Sierra Club members enjoy these species for recreation, wildlife observation, study and photography, and aesthetic, scientific and business purposes. Sierra Club members also use the public lands and waterways of southwest Florida for observing, looking for and otherwise enjoying these species, and their loss would greatly diminish Sierra Club's members use and enjoyment of these areas.

II. Project Background

On June 4, 2010, the Service received the application for the HCP from the Easter Collier Property Owners (Applicants) for an Incidental Take Permit (ITP) under Section 10 of the ESA. On March 25, 2016, the Service provided notice that it intended to gather information necessary to prepare a NEPA draft environmental impact statement for the HCP.¹ In June 2016, the Service published a draft scoping report to support its DEIS. On October 19, 2018, the Service announced the availability of its DEIS for the HCP and solicited public comment.² The public comment period ends December 3, 2018, 45 days after the Service published the DEIS and a revised HCP.³ On October 29, 2018, the Center, Conservancy, and Sierra Club requested an extension of the comment period and a public hearing due to the voluminous and technical nature of the DEIS and revised HCP,⁴ which the Service denied on November 6, 2018.⁵

The proposed HCP is a part of a 195,000-acre planning area, 45,000 acres of which are to be developed for residential, mining, and other uses, with 107,000 acres to be designated as so-called "preserve land" (the "Project"). The Applicants own roughly 85 percent (approximately 151,779 acres) of the land in the planning area..

The HCP is to be located in northeastern Collier County, completely surrounding the town of Immokalee. It is bordered to the south by the Florida Panther National Wildlife Refuge and the Big Cypress National Preserve; to the north and east is the Okaloacoochee Slough State Forest;

¹ 81 Fed. Reg. 16,200 (Mar. 25, 2016).

² 83 Fed. Reg. 53,079 (Oct. 19, 2018).

³ *Id.* at 53,079.

⁴ See Letter from Conservation Organizations to Roxanna Hinzman, U.S. Fish & Wildlife Service (Oct. 29, 2018), attached hereto as an Exhibit.

⁵ See Letter from U.S. Fish & Wildlife Service to Conservation Organizations (Nov. 6, 2018), attached hereto as an Exhibit.

and west of the proposed plan area is the Audubon Corkscrew Swamp Sanctuary and Corkscrew Regional Ecosystem Watershed, thus placing it in important panther habitat.

While the HCP purports to limit development to 45,000 acres, the lands in the planning area are not exclusively owned by the Applicants; and landowners, including the Applicants, may pursue development outside of the HCP resulting in additional impacts. Therefore, it is important to note that the HCP does not provide a complete vision of development for Collier or Hendry counties. The Applicants seek to include under the ITP activities that have previously taken place within the HCP area and are “planned to continue,” including agriculture, ranching, infrastructure, oil and gas exploration, off-road recreation, hunting, fishing, and transportation development for the conveyance of goods and services intrastate and interstate.

III. Legal Background

A. Endangered Species Act

The ESA is “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.”⁶ Its purpose is to “provide a program for the conservation of . . . endangered species and threatened species” and “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved.”⁷ The Supreme Court has found through examination of the language, history, and structure of the ESA that “Congress intended endangered species to be afforded the highest of priorities.”⁸

To those ends, the ESA prohibits any person from taking any species listed as endangered, and empowers the U.S. Fish and Wildlife Service to promulgate regulations prohibiting the taking of any species listed as threatened.⁹ The Service has also defined “take” broadly to include all manner of harm or harassment to protected species, including both direct injury or mortality and also acts and omissions which disrupt or impair significant behavioral patterns.¹⁰ Similarly, federal agencies are required to “carry[] out programs for the conservation of endangered species and threatened species,”¹¹ and to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of [the critical] habitat of such species.”¹²

1. Section 9 Take Prohibition

Under the ESA and its implementing regulations, it is illegal for anyone to “take” an endangered or threatened species.¹³ To “take” an endangered or threatened species means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” it, or “to attempt to engage in any such

⁶ 16 U.S.C. §§ 1531-1544; *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).

⁷ 16 U.S.C. § 1531(b).

⁸ *Tenn. Valley Auth.*, 437 at 174.

⁹ 16 U.S.C. §§ 1538(a)(1); 1533(d); 50 C.F.R. § 222.101.

¹⁰ 16 U.S.C. § 1532(19); 50 C.F.R. § 222.102.

¹¹ 16 U.S.C. § 1536(a)(2).

¹² *Id.*

¹³ 16 U.S.C. § 1538(a)(1); 50 C.F.R. §§ 17.21, 17.31.

conduct.”¹⁴ “Harm” includes significant habitat modification or degradation that results in death or injury to listed species “by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”¹⁵ “Harass” is defined as intentional or negligent actions that create a likelihood of injury to listed species “to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.”¹⁶ Congress intended the term “take” to be defined in the “broadest possible manner to include every conceivable way” a person could harm or kill fish or wildlife.¹⁷

2. Section 10 Incidental Take Permit and Habitat Conservation Plan

Section 10 of the ESA provides an exception to the take prohibition by allowing the incidental take of a listed species where, “such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”¹⁸ The Service shall not issue an “incidental take permit” (“ITP”) unless a permit applicant submits a habitat conservation plan (“HCP”) that specifies:

- (i) the impact which will likely result from such taking;
- (ii) what steps the applicant will take to monitor, minimize, and mitigate such impacts, and the funding that will be available to implement such steps;
- (iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
- (iv) such other measures that the [Service] may require as being necessary or appropriate for purposes of the plan.¹⁹

After reviewing the HCP, the Service must make a determination that the “impact which will likely result from such taking” and the “steps the applicant will take to minimize and mitigate such impacts . . . will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.”²⁰ Before issuing an ITP, the Service must also make a finding that the application and conservation plan provide:

- (v) the taking will be incidental;
- (vi) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- (vii) the applicant will ensure that adequate funding for the plan will be provided;

¹⁴ 16 U.S.C. § 1532(19).

¹⁵ 50 C.F.R. § 17.3.

¹⁶ *Id.*

¹⁷ See S. Rep. No. 93-307, at 7 (1973), as reprinted in 1973 U.S.C.C.A.N. 2989, 2995.

¹⁸ 16 U.S.C. § 1539(a)(1)(B).

¹⁹ *Id.* §1539(a)(2)(A)(i)–(iv); 50 C.F.R. §§ 17.22(b)(1)(iii), 17.32(b)(1)(iii).

²⁰ 16 U.S.C. § 1539(a)(2)(B)(i)–(v); 50 C.F.R. §§ 17.22(b)(2)(i), 17.32(b)(2)(i).

- (viii) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- (ix) the measures, if any, required under subparagraph (A)(iv) will be met.²¹

The Service must also confirm that it “has received such other assurances” as it may require to ensure the HCP is implemented, and that the ITP contains any such terms and conditions “necessary or appropriate” to carry out the purposes of Section 10.

Prior to granting an ITP application, the Service must also undergo the consultation process with itself, as outlined in Section 7 of the ESA. In addition to its obligations under the ESA, the Service also must satisfy its obligations under NEPA before it may issue an ITP.

3. Section 7 Consultation

Section 7(a)(2) of the ESA requires federal agencies to undergo “consultation” for “any action [that] may affect listed species or critical habitat,”²² which includes permitting actions such as issuing ITPs. If the agency taking an action (action agency) determines its action “may affect” a listed species, the action agency must initiate formal consultation with an expert agency.²³ For terrestrial and freshwater species, the Service is the expert agency. Thus, prior to issuing an ITP, the Service must consult with itself through “intra-service consultation.”²⁴

The ultimate purpose of Section 7 consultation is to ensure that federal actions are “not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species.”²⁵ To jeopardize the continued existence of the species is to engage in an activity that either, “directly or indirectly . . . reduces appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.”²⁶

During consultation, the Service must analyze the effects of the proposed action on listed species and habitat, which includes the direct and indirect effects, “together with effects of other activities that are interrelated or interdependent with that action, [which] will be added to the environmental baseline.”²⁷ The “environmental baseline” includes:

“the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already

²¹ *Id.* § 1539(a)(2)(B). The term “measures” in subsection (v) refers to “any additional measures the Secretary may require as being necessary or appropriate for the purposes of the plan.” *Id.* at § 1539 (a)(2)(A)(iv).

²² 50 C.F.R. § 402.14(a).

²³ *Id.*; U.S. Fish & Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook, 2-6 (March 1998), https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf (hereinafter “Consultation Handbook”).

²⁴ See Consultation Handbook at 1-5-1-6

²⁵ 16 U.S.C. § 1536(a)(2).

²⁶ 50 C.F.R. § 402.02(d).

²⁷ *Id.* § 402.02.

undergone formal or early Section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process.”²⁸

Indirect effects are “caused by the proposed action and [occur] later in time, but still are reasonably certain to occur.”²⁹ Interrelated actions “are part of a larger action and depend on the larger action for their justification.”³⁰ Interdependent actions “have no independent utility apart from the action under consideration.”³¹ The Service must also analyze the cumulative effects of “future State or private activities, not involving Federal activities that are reasonably certain to occur within the action area.”³² The Service’s evaluation during consultation must be based on the “best scientific and commercial data available.”³³

At the conclusion of the consultation process, the Service must issue a “biological opinion” that “detail[s] how the agency action affects the species,”³⁴ and sets forth the Service’s opinion as to whether the action is “likely to jeopardize” the continued existence of a listed species.³⁵ If the Service determines the project is not likely to cause jeopardy to the species or to destroy or adversely modify its habitat, the agency must provide a statement specifying the impact of the incidental take on the listed species, outlining “reasonable and prudent measures” (RPMs) that are necessary or appropriate to minimize the impact from incidental take, and setting forth any conditions the agency and applicant must follow in accordance with the ITP.³⁶ If the Service determines that the agency action is likely to jeopardize the continued existence of a listed species or result in adverse modification of critical habitat, the biological opinion must suggest “reasonable and prudent alternatives” (RPAs) that would reduce action-related impacts such that the agency action may avoid jeopardizing listed species.³⁷

If the agency action is expected to cause “take,” the Service must also include an incidental take statement (ITS) in its biological opinion.³⁸ The ITS must, wherever practicable, quantify the amount of take allowed for each species, thereby creating a meaningful “trigger” to reinitiate consultation when an allowable level of take is exceeded.³⁹ The Service may use a reasonable surrogate, or proxy, for take in the ITS only where it: (1) demonstrates that it cannot express anticipated take in numerical form; (2) articulates a causal connection between the surrogate and the anticipated take; and (3) “sets a clear standard for determining when authorized take has been exceeded.”⁴⁰

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ 16 U.S.C. § 1536(a)(2).

³⁴ *Id.* § 1536(b)(3)(A).

³⁵ 50 C.F.R. § 402.14(h)(1)-(3).

³⁶ 16 U.S.C. § 1536(b)(4)(A)-(C); 50 C.F.R. § 402.14(i)(1)(ii).

³⁷ 16 U.S.C. § 1536(b)(3)(A).

³⁸ 50 C.F.R. § 402.14(i).

³⁹ *Id.* § 402.14(i)(1)(i).

⁴⁰ *Id.*

Compliance with a biological opinion and its ITS protects federal agencies, and others acting under or consistent with the biological opinion, from enforcement action under the Section 9 prohibition against take.⁴¹ However, take that is not in compliance with a biological opinion or absent a valid ITS or ITP violates Section 9 of the ESA. Even after the Service issues a biological opinion, the ultimate duty to ensure that the action will not jeopardize a listed species lies with the action agency, here, also the Service.⁴² An agency cannot rely on an inadequate, incomplete, or flawed biological opinion to satisfy its duty to avoid jeopardy.

4. Section 7 Affirmative Conservation Mandate

Section 7(a)(1) of the ESA sets forth a conservation mandate for all federal agencies. Specifically, “Federal agencies shall . . . utilize their authorities in furtherance of the purposes of [the ESA] by carrying out programs for the conservation of endangered and threatened species.”⁴³ “Conservation” means “to use all necessary methods and procedures which are necessary to bring any endangered species or threatened species to the point at which [conservation efforts] are no longer necessary.”⁴⁴ “Accordingly, the ESA creates an affirmative duty: it requires federal agencies take proper steps to conserve endangered species.”⁴⁵ While the ESA does not mandate specific duties under the conservation mandate, “taking insignificant measures cannot satisfy the requirements under Section 7(a)(1).”⁴⁶

B. National Environmental Policy Act

Under NEPA, every federal agency that takes a major federal action “significantly affecting the quality of the human environment” is required to create a detailed statement discussing: (i) the environmental impact of the proposed action; (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented; (iii) alternatives to the proposed action; (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.⁴⁷ When, as here, any significant environmental impacts might result from the proposed action, the agency must complete a meticulous environmental impact statement (EIS).⁴⁸

The sufficiency and utility of an EIS rely heavily on the scope and depth of the analysis of environmental impacts. The EIS must include the full scope of environmental effects, including direct, indirect, and cumulative impacts.⁴⁹ While direct impacts are straightforward and defined

⁴¹ 16 U.S.C. §§ 1536(o)(2), 1538(a); 50 C.F.R. § 17.31(a).

⁴² 50 C.F.R. § 402.15; *See Pyramid Lake Paiute Tribe of Indians v. United States Dep't of the Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990).

⁴³ 16 U.S.C. § 1536(a)(1).

⁴⁴ *Id.* § 1532(3).

⁴⁵ *Center for Biological Diversity v. Vilsack*, 276 F. Supp. 3d 1015, 1031 (D. Nev. 2017).

⁴⁶ *Id.*

⁴⁷ 42 U.S.C. § 4332(2)(C)(i)–(v).

⁴⁸ *Sierra Club v. Van Antwerp*, 661 F.3d 1147, 1153 (D.C. Cir. 2011) (citing *Sierra Club v. Peterson*, 717 F.2d 1409, 1415 (D.C. Cir. 1983)); *see also* 40 C.F.R. §§ 1508.11, 1508.27.

⁴⁹ 40 C.F.R. § 1508.25(a)(c)(1)–(3). The terms “effects” and “impacts” are used synonymously in the CEQ regulations interpreting NEPA. 40 C.F.R. § 1508.8.

as impacts that “are caused by the action and occur at the same time and place,”⁵⁰ the definitions of indirect and cumulative impacts encompass a broader collection of effects. Indirect impacts “are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”⁵¹ Indirect impacts should have a reasonably close causal connection with the proposed action;⁵² in other words, the impacts must be “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.”⁵³ Indirect impacts may include “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate” and their related impacts on air, water, and ecosystems.⁵⁴

Cumulative impacts are “the incremental environmental impact[s] or effect[s] of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”⁵⁵ The definition of cumulative impacts expressly encompasses an analysis of private actions.⁵⁶ Cumulative impacts can result from “individually minor but collectively significant actions taking place over a period of time,”⁵⁷ and thus it is important to take an “environmental baseline.” To that end, cumulative impacts analysis must identify:

- (i) the area in which the effects of the proposed project will be felt;
- (ii) the impact expected in that area;
- (iii) those other actions—past, present, and proposed, and reasonably foreseeable—that have had or will have impact in the same area;
- (iv) the effects of those other impacts; and
- (v) the overall impact that can be expected if the individual impacts are allowed to accumulate.⁵⁸

This type of analysis “prevents agencies from ignoring the environmental effects of other actions . . . because those effects set the baseline state of affairs and thus the context in which the significance of proposed federal action must be evaluated.”⁵⁹

Though an agency should not engage in irrational speculation about indirect and cumulative impacts when preparing an environmental impact statement, reasonable forecasting and speculation is “implicit in NEPA” and an agency must “fulfill its duties to the fullest extent

⁵⁰ 40 C.F.R. § 1508.8

⁵¹ *Id.*

⁵² *Sierra Club v. FERC*, 2016 U.S. App. LEXIS 11744, *19–20 (D.C. Cir. 2016) (quoting *Department of Transp. V. Public Citizen*, 541 U.S. 752, 767 (2004)).

⁵³ *Id.* at *19 (quoting *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005)).

⁵⁴ 40 C.F.R. § 1508.8

⁵⁵ 40 C.F.R. § 1508.7 (emphasis added).

⁵⁶ *Id.*; see also *Sierra Club v. United States Army Corps of Eng'rs*, 803 F.3d 31, 50 (D.C. Cir. 2015) (“[P]rivate action is expressly encompassed in the cumulative action analysis”).

⁵⁷ 40 C.F.R. § 1508.7.

⁵⁸ *Sierra Club*, 2016 U.S. App. LEXIS 11744 at *26–27 (quoting *Taxpayers of Michigan Against Casinos [TOMAC] v. Norton*, 433 F.3d 852, 864 (D.C. Cir. 2006)) (internal quotation marks omitted).

⁵⁹ *Sierra Club*, 803 F.3d at 51.

possible.”⁶⁰ This “rule of reason” does not wholly absolve an agency of the duty to forecast impacts in good faith based on available information; in fact, it has an overriding statutory duty to do just that.⁶¹ The D.C. Circuit court has explained that upon judicial review, it will not allow agencies “to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as ‘crystal ball inquiry,’” but instead it will hold them to compliance “to the fullest extent possible.”⁶²

With these definitions and principles in mind, it is clear that NEPA analysis should include environmental impacts from growth-inducing effects caused by a proposed project.⁶³ The Council for Environmental Quality (CEQ) has stated that in the case of proposed development:

It will often be possible to consider . . . the development trends in that area or similar areas in recent years The agency has the responsibility to make an informed judgment, and to estimate future impacts on that basis, especially if trends are ascertainable The agency cannot ignore these uncertain, but probable, effects of its decisions.⁶⁴

In other words, an agency must consider reasonably foreseeable future developments, including transportation infrastructure, and analyze the impacts stemming from those developments.

Environmental Protection Agency (EPA) NEPA guidance provides a helpful example. To illustrate that cumulative impacts include “broad range . . . activities and patterns of environmental degradation” such as increased development trends,⁶⁵ it provides as a prototypical example the cumulative effect of transportation infrastructure and other development, which often results in habitat fragmentation and direct species mortality from road kills.⁶⁶

Complete NEPA analyses should include environmental impacts from growth-inducing effects of projects, such as increased commercial activity, growing networks of roads, and stimulation of more, high-intensity land uses.⁶⁷ These impacts include road mortality. In *Sierra Club v. Van*

⁶⁰ *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1310 (D.C. Cir. 2014) (quoting *Scientists' Institute for Public Information, Inc. v. Atomic Energy Com.*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)).

⁶¹ *Atomic Energy Com.*, 481 F.2d 1079 at 1092.

⁶² *Del. Riverkeeper Network*, 753 F.3d at 1310; *Atomic Energy Com.*, 481 F.2d 1079 at 1092.

⁶³ See, e.g., *TOMAC*, 433 F.3d at 858–859 (finding an agency’s environmental assessment supplement “thorough and reasonably conducted” where it predicted the pattern and extent of residential and commercial growth induced by construction of the proposed casino as well as air-quality impacts including “vehicle emissions resulting from increased traffic associated with indirect development throughout the region”); see also *Mich. Gambling Opposition v. Kempthorne*, 525 F.3d 23, 27 (D.C. Cir. 2008) (analyzing an environmental assessment that analyzed, among many things, “the possibility that the casino would increase local traffic” which would in turn result in delays).

⁶⁴ Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (March 23, 1981), available at <http://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf>.

⁶⁵ Consideration of Cumulative Impacts in EPA Review of NEPA Documents, EPA 315-R-99-002 *11–12 (EPA, May 1999), available at <https://www.epa.gov/sites/production/files/2014-08/documents/cumulative.pdf>.

⁶⁶ *Id.* at *12.

⁶⁷ See, e.g., *Citizens for Smart Growth v. Sec'y of the DOT*, 669 F.3d 1203, 1215 (11th Cir. 2012) (finding Department of Transportation’s analysis of indirect impacts sufficient where it considered and addressed stimulation of commercial growth as an indirect environmental impact).

Antwerp,⁶⁸ the D.C. Circuit court found that the Army Corps of Engineers (Corps) violated NEPA by failing to analyze and respond to fragmentation impacts on the eastern indigo snake caused by construction of a mall, which the Corps' issuance of a Clean Water Act Section 404 dredge-and-fill permit enabled.⁶⁹ Specifically, the court found the Corps' issuance of the Section 404 permit would enable construction of a mall in an important wildlife corridor, which would significantly fragment eastern indigo snake habitat, which in turn would expose eastern indigo snakes to increased road mortality.⁷⁰ Because the Corps did not address this potential adverse impact when it arrived at its finding of no significant impact (FONSI) under NEPA, the court found that it had failed to comply with NEPA's environmental analysis requirements.⁷¹

IV. The HCP Fails to Meet the Requirements of ESA Section 10 and Implementing Regulations

The HCP does not meet the minimum requirements of Section 10 of the ESA and its implementing regulations. The HCP has the potential to impact many imperiled species, including eight federally protected species—the Florida panther, Florida bonneted bat, eastern indigo snake, Florida scrub jay, northern crested caracara, wood stork, red-cockaded woodpecker, and Everglades snail kite—and species that are candidates or under review for federal protection—the gopher tortoise, eastern diamondback rattlesnake, and gopher frog. The HCP fails to specify the impacts to the species that will likely result from the take caused by the Applicants. Specifically, it fails to adequately identify and describe take caused by habitat loss and fragmentation, and the impact of additional roads and increased traffic. It then fails to adequately explain how the so-called preserve lands, which themselves may be subject to conversion and uses that are incompatible with listed species conservation, will offset the loss of habitat. These failures make impossible a finding that the HCP minimizes and mitigates impacts to the maximum extent practicable. The HCP also fails to ensure adequate funding to support the plan, and does not provide procedures to deal with unforeseen circumstances. It also does not provide alternatives to the proposed action. It is evident that the HCP will appreciably reduce the likelihood of survival and recovery of listed species.

A. The HCP Has Not Analyzed All Impacts

The HCP fails to characterize the nature and extent of take that will occur, particularly take resulting from habitat loss and fragmentation. It also fails to address how the Project will necessitate the construction of new roads and create a massive volume of additional traffic and the impacts that will have on imperiled wildlife, particularly the Florida panther. Finally, the HCP still fails to adequately address climate change.

1. The HCP Fails to Describe the Impact from Habitat Loss on Listed Species

⁶⁸ 661 F.3d 1147 (D.C. Cir. 2011).

⁶⁹ *Id.* at 1149, 1155–1157.

⁷⁰ *Id.* at 1156–1157.

⁷¹ *Id.* at 1157.

The HCP takes an unlawfully narrow “harassment only” view of take for covered species, which fails to characterize the true nature and extent of take that will occur.⁷² ESA Section 10 requires that a habitat conservation plan include a description and analysis of anticipated take of covered species resulting from both direct take and indirect take.⁷³ It must also include a description of the type of take, including injury, mortality, harassment, and harm.⁷⁴ While harm can include an act that directly “kills or injures wildlife,” it “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”⁷⁵

Furthermore, though it may appear from an isolated reading of ESA Section 10 that environmental analysis for an incidental take permit is limited to the actions of the permit applicant only, this is not so. The decision to grant an incidental take permit under Section 10 must be made, in part, “using the same standard as found in section 7(a)(2) of the Act.”⁷⁶ Because the issuance of a Section 10 permit is a federal action, the Service must first consult with itself under Section 7(a)(2) to ensure that no species’ existence will be jeopardized if the permit is issued.⁷⁷ Thus, the Service’s habitat conservation plan guidance has explained that the Service should undergo a “concurrent, integrated” analysis to determine whether a habitat conservation plan complies with Section 7 and Section 10.⁷⁸ Through this analysis, the Service must address direct and indirect project effects as part of the integrated Section 10 procedure.⁷⁹ For example, if its action will cause the destruction of tree cavities used by bats for hibernacula, it must analyze that action for direct effects—the direct destruction of hibernation habitat and potential direct take of hibernating bats—as well as indirect effects—the indirect harm to bats who no longer have habitat in which to hibernate.⁸⁰ If these types of direct and indirect effects—considered cumulatively with surrounding activities, interrelated and interdependent activities,

⁷² 16 U.S.C. § 1539(a)(2)(A)(i)–(iv).

⁷³ U.S. Fish and Wildlife Service & National Marine Fisheries Service, Habitat Conservation Planning and Incidental Take Permit Processing Handbook, 12-2 (Dec. 21, 2016), https://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf [hereinafter HCP Handbook].

⁷⁴ *Id.*

⁷⁵ 50 C.F.R. § 17.3

⁷⁶ H.R. Conf. Rep. No. 97-835, at 29 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2860, 2870.

⁷⁷ U.S. Fish & Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook” Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act, 2-4, https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf [hereinafter Consultation Handbook]; HCP Handbook at 1-9. A “no-jeopardy” finding for all federally listed species is a prerequisite for issuance of an incidental take permit. HCP Handbook at 4-3-4-4 (“In the past, some HCP practitioners viewed the section 7 consultation 4-4 for the section 10(a)(1)(B) permit as an independent review process that occurs after the HCP has been prepared. However, this approach often left the permit applicants and the section 7 biologists with no guarantee that the process of meeting the requirements of section 10(a)(1)(B) would result in issuance of the permit, since a section 7 consultation conducted late in the process could result in the discovery of unresolved issues, the return of an inadequate HCP to the applicant, or a jeopardy biological opinion.”); 3-27 (“For species covered by an incidental take permit, the biological opinion informs the “not appreciably reduce the likelihood of the survival and recovery of the species in the wild” issuance criterion”).

⁷⁸ HCP Handbook at 2-9, 2-2, 4-4, 15-5; *see also* 8-4 (“Conducting section 7 analyses concurrently with HCP development helps us better negotiate take levels in the HCP and identify appropriate units to enumerate take.”).

⁷⁹ HCP Handbook at 3-16; *see also* HCP Handbook at 3-2 (“The standard for determining whether activities are likely to result in incidental take is whether take is “reasonably certain” to occur in considering both the direct and indirect impacts of the activities.”).

⁸⁰ HCP Handbook at 8-2.

and the environmental baseline⁸¹—are serious enough to result in jeopardy and are not adequately addressed in the HCP, the permit must be denied.⁸²

The HCP fails to characterize the nature and extent of take that will occur, and it also fails to characterize the full range of impacts caused by such take. For example, the HCP does not acknowledge harm to the Florida panther and eastern indigo snake that will result from permanent habitat destruction, replacement and fragmentation of habitat with internal roads, and increased traffic induced by development. But for the development proposed in the HCP, a larger network of roads would not be needed or built and there would be less need for increased traffic to enter the area. Because increased development of transportation infrastructure and increased traffic result in increased habitat loss, habitat fragmentation, and vehicle-caused species mortality, these impacts—whether caused by agents of the Applicants or other individuals—must be analyzed under the ESA prior to issuing an incidental take permit.⁸³

For example, the HCP fails to characterize take of Florida panther associated with permanent habitat destruction from the Covered Activities and related roadways. The Covered Activities in the HCP will cause more than 45,000 acres of habitat loss in the most important area for the Florida panther through development and the construction of roads. The entire project falls within the panther’s Primary or Secondary Zones, defined by the Service’s Florida Panther subteam of the Multi-species/Ecosystem Recovery Implementation Team as “all lands essential for the survival of the Florida panther in the wild” and “lands contiguous with the Primary Zone, and areas which panthers may currently use, and where expansion of the Florida panther population is most likely to occur.” (Kautz et al. 2006).

Because the extent of Florida panther habitat is declining, and less habitat remains than previously thought, Frakes et al. (2015) recommends “that all remaining breeding habitat in south Florida should be maintained, and the current panther range should be expanded into south-central Florida.” Yet the HCP does not acknowledge take via harm to the Florida panther caused by the permanent habitat destruction and fragmentation in the Primary and Secondary Zones, which are areas that are crucial to the species for essential survival behaviors such as feeding, breeding, and sheltering.

⁸¹ 50 C.F.R. § 402.14(g)(4) (requiring the Service to “evaluate the effects of the action” and “[f]ormulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species”); 50 C.F.R. § 402.02 (“Effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.”); *id.* (“Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.”)

⁸² HCP Handbook at 12-6 (“If we conclude that the incidental take permit would result in jeopardy or destruction/adverse modification of critical habitat, we cannot issue the permit.”); *see* HCP Handbook at 4-3–4-4.

⁸³ See 16 U.S.C. § 1539(a)(2); 50 C.F.R. §§ 17.22(b)(1)-(2), 17.32(b)(1)-(2).

The HCP also fails to characterize the nature and extent of take of Florida panther that will occur in connection with the fragmentation and road mortality resulting from internal roads and increased traffic induced by development. Large mammalian carnivores, like the Florida panther, are particularly vulnerable to habitat loss and fragmentation because of their relatively low numbers, large home ranges, and interactions with humans (Noss 1996 entire, Woodroffe 1998 entire). Their low fecundity and long generation times result in reduced levels of genetic variation (Roekle 1993 entire, Lu 2001 entire). Habitat loss and fragmentation can lead to increased mortality (Jules 1998 entire); reduced abundance (Flather and Bevers 2002 at 40-56); disruption of the social structure of populations (Ims 1999 at 839-849, Cale 2003 entire); reduced population viability (Harrison and Bruna 1999 at 225-230, Srikwan 2000 entire, Cale 2003 entire, Lindenmayer 2006); isolated populations with reduced population sizes and decreased genetic variation (Frankham 1996 entire). Loss of genetic variation may reduce the ability of individuals to adapt to a changing environment; cause inbreeding depression (Ebert 2002 entire); reduce survival and reproduction (Frankham 1996 entire, Reed 2003 entire); and increase the probability of extinction (Saccheri 1998 entire, Westmeier 1998, Kramer-Schadt 2004 entire, Letcher 2007 entire, Ruiz-Gutierrez 2008 entire, Sherwin 2000).

A 2009 study concluded the anthropogenic influences—primarily road density and vehicular traffic—can substantially affect the population dynamics of large carnivores with large home ranges, like the Florida panther (Hostetler 2009 entire). Habitat fragmentation and anthropogenic barriers to movement have limited the dispersal capability of species, reducing gene flow among populations and resulting in genetically distinct populations (Dixon 2007 at 455-464). Large carnivores may be much more susceptible to losses in genetic variation due to habitat fragmentation because of their large home ranges, low population densities, and long generation times (Paetkau and Strobeck 1994 entire, Johnson et al. 2001). Isolation is reinforced when travel between subpopulations is limited due to significant barriers, such as high-volume roads (Paetkau 1997 entire, Mader 1984 entire, Brody and Pelton 1989, Proctor et al. 2002 entire, Voss et al. 2001 entire, Keller 2003 entire, Gerlach and Musolf 2000 entire, Trombulak and Frissell 2000 entire, Coffin 2007 at 396-403). Thus roads and other anthropogenic obstacles can substantially reduce gene flow among populations (Dixon et al. 2007 at 455-464, Kyle and Strobeck 2001 at 343-346, Walker et al. 2001 entire, Ernest et al. 2004).

The HCP also fails to account for take of Florida panther through increases in intra-specific aggression as panthers are squeezed into smaller remaining areas of habitat; increased human-panther interactions caused by encroaching development, which will inevitably lead to removal of individuals from the wild; and possibility of injury or death during land management practices such as forest thinning or prescribed fire.

The HCP also fails to account for the nature of take that will occur for the eastern indigo snake by failing to account for road mortality and injuries caused by the increasing number of roads and increased traffic associated with the activities in the Covered Areas, taking into account the characteristics of the eastern indigo snake that makes it susceptible to road kills and the attributes of foreseeable roadways in the project area that will increase the likelihood of road kills. Roadways are a pervasive part of urban development, and though they have a relatively small footprint, their impacts are devastating and far-reaching for reptiles like the eastern indigo snake (Andrews et al. 2006, entire; Clark et al. 2010, entire). Roads directly kill wildlife through road fatalities and indirectly through habitat fragmentation, genetic isolation, pollution, and a host of

other impacts (Fahrig and Rytwinski 2009, entire; Jochimsen 2006, entire; Shwiff et al. 2007, entire; Seiler and Helldin 2006, entire; Shepard et al. 2008, entire; Shepherd et al. 2008, entire). As America's transportation network expands, so does the wildlife death toll, with estimates as high as 1 million direct vertebrate fatalities along America's roadways each day (Andrews et al. 2006). Likewise, tens to hundreds of millions of snakes are killed annually by vehicles on roads in the United States (DeGregorio et al. 2010, at 441). Enge and Wood (2002) estimate that approximately 1.4 million snakes are killed annually in Florida, and they indicate that estimate is likely low (Enge and Wood 2002, at 376; Santos et al. 2011, entire).

Herpetologists have long recognized the "irreparable landscape alteration from the nation's transportation infrastructure," (Andrews and Gibbons 2005) and studied the physical and behavioral traits of reptiles and amphibians that make them particularly susceptible to road mortality (Andrews et al. 2006, entire). The eastern indigo snake's physical characteristics and behavior patterns make it highly susceptible to road mortality (Andrews et al. 2008, at 127). Because eastern indigo snakes are long-lived, have large home ranges, and are large-bodied, they are more likely to succumb to vehicle collisions, and this threat may result in such a significant loss of individuals that it threatens the sustainability of impacted populations (Andrews et al. 2008, at 127).

A species' life history can impact the frequency and severity of road mortality impacts. Long-lived species with delayed sexual maturity are especially vulnerable to increases in adult mortality, and because many reptiles are long-lived road mortality can severely impact their populations (Row et al. 2007 at 122). Road mortality can have a particularly pronounced negative effect on long-lived snakes like the eastern indigo (Row et al. 2007, entire). Because of these negative effects, Row et al. (2007) concluded: "[I]f no measures are taken to decrease road mortality, it is probable that many populations of long-lived species in close proximity to roads will go extinct or at least experience significant declines."

Natural behaviors also make certain species like the eastern indigo snake more susceptible to road mortality (Andrews et al. 2006, at 15–21). These behaviors include movement-associated behavior, such as speed and immobilization defenses; daily movement patterns; migration; breeding and nesting; movement to hibernation sites; dispersal; defensive behavior; foraging behavior; and communication and social behavior (Andrews et al. 2006, at 15–21). Many of the eastern indigo snake's behaviors and traits make it more likely to be negatively impacted by road mortality. For instance, the eastern indigo snake is a wide-ranging species that travels as far as 224 hectares, which means this snake is much more likely to encounter roads and the associated risks of direct mortality or isolation (USFWS 1999, at 4-571; Andrews et al. 2006, at 19–20). Additionally, snake species that move frequently over long distances have been observed to experience higher mortality than more sedentary species (Andrews et al. 2008, at 123). Long-distance movers, like the eastern indigo snake are also particularly sensitive to edge effects (Andrews et al. 2008, at 123, citing Breininger et al. 2004). Species that depend on large areas of non-fragmented landscape to complete their life cycles are in greatest jeopardy (Andrews et al. 2008, at 123). Enge and Wood (2002) predict that slow-moving species and active species with large home ranges will experience future declines in area due to cumulative road mortality and increased traffic (Enge and Wood 2002, at 377).

The eastern indigo snake's natural behaviors also put it at additional risk for road mortality once it reaches a roadway. While some species of snake avoid crossing roads, larger snakes like the eastern indigo are less likely to exhibit this avoidance behavior, which places them directly in the path of traffic (Andrews and Gibbons 2005, entire). This readiness to cross may only be exacerbated during mating season, when the willingness of reproductive snakes to cross roads reduces the barrier effect of the roads but also increases the chance of mortality for these classes (Row et al. 2007 at 122; Andrews et al. 2006, at 18–19). Eastern indigo snakes may also readily cross roads when the road's placement fragments foraging areas, separating the snakes from important food sources (Andrews et al. 2006, at 21).

Once on the road, the eastern indigo snake's mode of movement, speed, and defensive behaviors make it less likely it will successfully cross without being subject to a vehicle collision (Andrews et al. 2006, at 20). Andrews and Gibbons (2005) investigated the behavior of various species of snake near roads and found that the eastern racer (*Coluber constrictor*), a species of snake that shares the subfamily *Colubrinae* with the eastern indigo snake, readily crosses roads (Andrews & Gibbons 2005, at 778). In another road-mortality study, DeGregorio et al. (2010) found that of five snake species recovered, most of them were eastern racers. A large proportion of the eastern racers found by DeGregorio et al. were gravid, and they hypothesized that the gravid snakes were highly impacted by road mortality because of their large home range size and propensity to seek out nesting sites (DeGregorio et al. 2010, at 445). The findings of Andrews and Gibbons and Degregorio et al. could indicate that the subfamily of snakes to which the eastern indigo snake belongs could have traits that make them more susceptible to road mortality.

Andrews and Gibbons (2005) also identified specific features of snake movement and defensive behaviors that made certain species more likely to be impacted by road mortality. They concluded that species with higher mass-to-length ratios (thick-bodied snakes) are more likely to cross roads at a slower rate of speed, subjecting them to a higher risk of road mortality when they cannot cross quickly enough to avoid collision (Andrews & Gibbons 2005, at 776–780). The scientists found that even snakes that rely on rapid flight to escape predators (e.g., *Coluber constrictor*) exhibited higher immobilization responses to oncoming vehicles than hypothesized (Andrews & Gibbons 2005, at 779–780). Because eastern indigo snakes are heavy-bodied snakes and members of the subfamily *Colubrinae*, they may have characteristics that may make them more likely to cross roads at slower rates, causing great harm and even jeopardy (Row et al. 2007, entire).

Impacts from road-mortality are compounded by other road-related impacts that are less readily measureable but still significant (Andrews et al. 2006, at 4). For instance, the isolating nature of roads can lead to population-level impacts, such as skewed population structure via altered sex ratios and composition of age classes and restricted gene flow that results in decreased genetic diversity (Andrews et al. 2008, at 131; Clark et al. 2010, entire). Because eastern indigo snakes are long-lived, the negative impacts of these effects may take decades to become apparent, at which point it may be too late to remedy them.

While the eastern indigo snake's characteristics make it more likely to suffer the ill effects of roads, there are also compounding characteristics of people and the roads themselves that contribute to the negative impacts. Roads with higher speeds, heavier traffic, and lower visibility can be devastating to nearby herpetofauna. Breininger et al. (2012) found that habitat

fragmentation is likely a critical factor for the eastern indigo snake's persistence and that eastern indigo snakes are vulnerable to extinction in conservation areas bordered by roads and developed areas. Though the snake's chances of survival can be quite high in conservation core areas, its survival rates significantly decline in conservation areas along highways and in suburbs (Breininger et al. 2012, at 365). More than half of known snake mortalities documented in the study were caused by humans, directly or indirectly, along roads (Breininger et al. 2012, at 365).

Additionally, because snakes are a maligned group of animals, humans are more likely to intentionally kill them when they are easily visible on the roadway (USFWS 1999, at 4-567; Andrews et al. 2006, at 24–25). Snake researchers in Louisiana have reported that 30% of drivers will change lanes to intentionally kill a snake and 10% will back over the snake again to ensure it is dead. (Schlierf et al., undated, at 16).

Overall impact of road mortalities and numbers of eastern indigo snakes taken by vehicle impacts are likely understated. Visual-observation studies of road kill rates are likely to produce results much lower than actual road kills that occur. Based on a study of road kills on radio-telemetry tagged snakes, Row et al. (2007) estimate that 2 of every 3 road kills are not found (Row et al. 2007 at 122). This disparity in detection of road kills may be attributable to scavengers, which can rapidly remove carcasses from the road and cause underestimation of mortality (Hubbard and Chalfoun 2012, entire). Additionally, the covert nature of many herpetofaunal species makes sampling and studying the negative impacts of roads challenging (Andrews et al. 2006, at 22), and eastern indigo snakes are highly cryptic.

The Covered Activities in the HCP will require the construction of new roads, promote the need for additional roads, and increase the amount of traffic on those roads. Because of the eastern indigo snake's high vulnerability to road mortality and other related impacts of these roads, the HCP must account for take in the form of road mortality and injury, and habitat loss and fragmentation; however, the HCP has failed to do so.

The failure to account for direct and indirect take of eastern indigo snake from roads has also led to the HCP failing to mitigate such impacts. Experts have proposed using proactive planning to avoid or minimize these impacts (Andrews et al. 2006, at 74–76). Some have found that road placement can be the most important factor when considering the severity of road impacts on wildlife because it influences road kill rates and locations, as well as visibility of species when they are on the road (Andrews et al. 2008, at 121; Andrews et al. 2006, at 31). Thus the HCP should take into account location, density, and distribution of roadways; traffic density; seasonal changes in traffic use; and species movement when considering road-related impacts and determining how they can be minimized and mitigated to the maximum extent practicable (Andrews et al. 2006, at 31–34).

The HCP also fails to account for all forms of take for the Florida bonneted bat. Focusing only on harm and harassment, the HCP fails to account for direct take in the form of injury or death from felling roost trees with bonneted bats inside, as well as deaths and injuries during land management practices such as forest thinning and prescribed fire. The HCP also fails to support its apparent assertion that take in the form of harassment will only occur from Covered Activities even though the Preservation/Plan-Wide Activities and Very Low Density Use areas will be used for agriculture, development, oil and gas exploration and production, and other human activities

that are likely to cause light and noise and recognized by the HCP itself as potential causes of harassment.

2. The HCP Fails to Detail Impacts to Florida Panthers from Additional Traffic and Roads Generated by the Project

The HCP fails to assess the take that will result from the proposed development causing increased roads and traffic. Indeed, the HCP attempts to disclaim responsibility for this obvious form of impact to the species resulting from the Applicants' activities.⁸⁴ After disclaiming any obligation to compensate for such impacts, the HCP asserts that the plan "will provide a source of funding for land preservation and activities that will help address the risk of such collisions, such as construction of additional wildlife crossings under and fencing along roadways."⁸⁵ The HCP neither quantifies nor in any manner gauges the magnitude of increased panther vehicle mortality that will result from increased roads and traffic induced by their proposed developments. And instead of determining what mitigation measures are necessary to fully prevent or compensate for that increased mortality, and providing specific mitigation plans to undertake those measures, the HCP provides only a discretionary mechanism (the Marinelli Fund) through which some unspecified amount of mitigation measures (wildlife crossings) *might* be implemented depending on the funding generated.

Despite disclaiming responsibility for vehicle collisions even on the new roads constructed specifically for the housing development,⁸⁶ the HCP nonetheless purports that such roads will be designed to reduce harm to panthers. The HCP states that minimization measures will include: "Designing internal road networks and roadway design elements within the lands designated for Covered Activities to minimize the potential for future panther-vehicle collisions."⁸⁷ Paradoxically, the HCP thus concedes that the roads they will build through panther habitat foreseeably will result in vehicle collisions in places that at present obviously have no roads and no potential for collisions, yet disclaims any actual obligation to fully offset that impact, or demonstrate mitigation to the maximum extent practicable.

The DEIS similarly attempts to obscure the conclusion that increased vehicle trips per day resulting from the applicants' proposed developments will increase Florida panther mortality from vehicle collisions. Nonetheless, it makes the cursory admission that: "The USFWS considered an increase in the number of trips per day, and determined such an increase may lead to adverse effects on the FP."⁸⁸ There is no explanation of the USFWS analysis, and no further characterization of the extent of the adverse effects resulting from the increased number of trips per day. The DEIS provides an assessment of the increased traffic volumes that will result from

⁸⁴ See, e.g., HCP at 33 n. 12, 66 ("[T]he permits and Plan do not anticipate that the Covered Activities will cause, and therefore do not cover, panther-vehicle collisions . . .").

⁸⁵ *Id.*; see also *id.* at 110 (stating that the Marinelli Fund will provide for easement purchases to facilitate wildlife crossings).

⁸⁶ see HCP at 33 n.12.

⁸⁷ HCP at 109. Notably, the HCP provides no indication of how that will be accomplished, what principles are used to guide such minimization, nor how effective such minimization is likely to be.

⁸⁸ DEIS at 91; see also *id.* at 86 (explaining that under the no action alternative "an increase in the number of trips per day is expected to increase FP mortality from vehicle strikes).

issuance of the ITP,⁸⁹ but does not in any manner connect the projected increase in traffic volume to the anticipated adverse effects on panthers.⁹⁰

In addition to failing to fully characterize the impacts of the taking, as required by 50 C.F.R. § 17.22(b)(1)(iii)(A), the failure to disclose the actual extent of the “adverse effects on FP” resulting from the proposal causing an increase in road trips, despite the fact that the Service apparently evaluated the effects, also violates NEPA requirements to disclose and analyze the impacts of the proposed action, and to provide the public with opportunities to comment on its evaluation. Furthermore, the HCP fails to assess the amount of mitigation necessary to address those impacts, and to either provide mitigation to fully offset them or otherwise show that they have been offset to the maximum extent practicable.

a. The HCP Fails to Identify and Quantify Panther Mortality Resulting From New Roads and Increased Traffic

With regard to the Florida panther, the HCP Applicants purport to be seeking take coverage only for the “harassment” of panthers that will occur during construction activities and as a result of land conversion that will displace panthers from their habitat.⁹¹ The HCP applicants improperly attempt to sever this take from the other forms of take that will be caused from the very same construction and land conversion activities. Critically, the applicants do this in an attempt to evade analysis of the impacts of new roads and increased traffic caused by their development activities that will increase Florida panther mortality from vehicle collisions. The law makes clear that harm from vehicle collisions caused by increased traffic generated by the development is an effect of the construction⁹² of the proposed developments, and must be included in the consideration of take from the proposed activities.

With regard to the ESA’s definition of take, the Supreme Court in *Sweet Home* made clear that “the statutory term ‘harm’ encompasses indirect as well as direct injuries.” Specifically with regard to ESA section 10, the Court observed that “Congress had in mind foreseeable rather than

⁸⁹ See DEIS at 75-76.

⁹⁰ The DEIS asserts that the HCP will “help avoid and minimize transportation-related impacts to the FP by preserving habitat away from highways, preserving habitat corridors that help to minimize the roadway crossing areas used by the FP, and preventing development in areas that might otherwise result in increased traffic. According to the ECMSHCP, the plan would provide land preservation, through perpetual easements on both sides of key roadway segments, that would make the construction of more fenced wildlife crossings possible through the FDOT Work Program, the Marinelli Fund, or otherwise.” DEIS at 91. The DEIS makes no attempt to evaluate whether these measures will be adequate to fully offset the adverse impacts from increased vehicle mortality, or to assess the extent of the residual impact in terms of increased panther mortality from vehicle collisions.

⁹¹ See HCP Appendix A-1. In the breakdown of covered activities, the proponents describe temporary habitat loss effects only. Instead of addressing the impacts associated with permanent habitat loss in this breakdown, there is a single-line reference in it that states only “SEE PANTHER-DEV PAGE.” HCP Appendix A-1. It’s unclear what exactly that is a reference to.

⁹² *Babbitt v. Sweet Home*, 515 U.S. 687, 697-98 (1995).

merely accidental effects on listed species” with regard to what was encompassed in the concept of incidental take.⁹³

The HCP Handbook makes clear that in assessing the scope of incidental take resulting from the applicant’s activities, applicants should consider both direct and indirect impacts of those activities. “The standard for determining whether activities are likely to result in incidental take is whether take is ‘reasonably certain’ to occur in considering *both the direct and indirect impacts of the activities.*”⁹⁴ “The ‘reasonable certainty’ standard does not require a guarantee that a take will result, rather, only … a rational basis for a finding of take. … The standard is not a high bar and may be readily satisfied [.]”⁹⁵ “The Services should advise project proponents to consider both the direct and indirect effects of their activities.”⁹⁶ The definition of “indirect effects” referred to in the HCP Handbook is the definition in the Service’s regulations governing consultation, which states: “Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.”⁹⁷

The Handbook also makes clear that the permit should address the full scope of the take that will result from the proponent’s activities. “The amount of take the permit authorizes should be commensurate with the effects of the incidental take caused by the project throughout the analysis area (see Chapter 6.3.1), plus any take that results from mitigation activities.”⁹⁸ “If there are potential indirect effects attributable to implementation of the proposed HCP covered activities, the HCP should incorporate contingency measures that address how those impacts will be remediated and provide the funding assurances for such measures.”⁹⁹

Further, liability for take is attributable to an actor whose actions are the actual and proximate cause of the harm.¹⁰⁰ Strict but-for causation is not required.¹⁰¹ Courts have found that proximate causation turns on whether the harm to the species is a reasonably foreseeable result of the activity.¹⁰² The mere fact that the effect on the species takes place through the actions of

⁹³ *Id.* at 700; see also *Nat. Res. Def. Council v. Zinke*, No. 105CV01207LJOEPG, 2018 WL 4705942, at *15 (E.D. Cal. Sept. 28, 2018) (“the fact that the 1982 amendments to the ESA permitted the issuance of permits for takings Section 9 would otherwise prohibit ‘if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity,’ strongly suggested that Congress understood Section 9 to prohibit indirect as well as direct takings.” (summarizing *Babbitt v. Sweet Home*)).

⁹⁴ Handbook at 3-2 (emphasis added).

⁹⁵ *Id.* at 3-3 (quoting 80 Fed. Reg. 26,832).

⁹⁶ *Id.*

⁹⁷ 50 C.F.R. § 402.02.

⁹⁸ Handbook at 8-5.

⁹⁹ Handbook at 11-9.

¹⁰⁰ See, e.g., *Strahan v. Coxe*, 127 F.3d 155, 164 (1st Cir. 1997) (“The causation here, while indirect, is not so removed that it extends outside the realm of causation as it is understood in the common law.”); see also *Aransas Project v. Shaw*, 775 F.3d 641, 659-60 (5th Cir. 2014) (acknowledging that an indirect causal relationship may satisfy the proximate causation requirement).

¹⁰¹ *Nat. Res. Def. Council v. Zinke*, No. 105CV01207LJOEPG, 2018 WL 4705942, at *16 (E.D. Cal. Sept. 28, 2018) (“strict but-for causation cannot be required under the circumstances. Any other finding would exclude categorically from Section 9 liability any party whose conduct is individually insignificant, but is collectively significant, no matter how foreseeable to each of the individual actors the collective consequences of their actions.”).

¹⁰² See, e.g., *Aransas Project v. Shaw*, 775 F.3d at 663.

other parties does not break the causal chain where the activity in question is the “stimulus” for their conduct.¹⁰³

Notably, in evaluating ITP applications in the past, the Service has clearly found increased vehicle collisions resulting from increased traffic induced by a development to be take of Florida panthers indirectly caused by the construction of the development.¹⁰⁴ In the Biological Opinion for an ITP that would cover “the construction of a mixed-use, nonresidential, commercial/industrial office park complex,” for development on only 240 acres, the Service expressly stated that it “anticipates take from indirect effects on the panther in the form of harassment and harm because of potential increases in traffic and intraspecific aggression.”¹⁰⁵ Even though the development encompassed only 240 acres, and the proposed activity was the construction of the development, the Service evaluated effects of the development over a 25-mile radius from the project site to capture direct and indirect effects on panthers.¹⁰⁶

Here, it is abundantly clear that the Applicants’ proposed activities are the actual and proximate cause of panther/vehicle collisions from new roads and increased traffic. But for the proponents replacing panther habitat with new internal roads, no vehicle collisions would take place in that habitat. And it is obviously reasonably foreseeable that such collisions will take place, as the HCP itself purports to describe design measures – albeit insufficient design measures – to reduce the potential for those very collisions.

Similarly, the increased traffic and need for new state roads and highways that will result from replacing panther habitat with housing developments and other types of development obviously would not take place if the applicants left the land in question as habitat rather than turning it into new housing, resulting in a projected addition of at least 182,960 more vehicles on the roads of eastern Collier County.¹⁰⁷ That projection is based on the commonsense premise that the HCP proponents placing at least 91,480 new housing units on panther habitat will result in at least

¹⁰³ See *Animal Prot. Inst., Ctr. for Biological Diversity v. Holsten*, 541 F. Supp. 2d 1073, 1078-79 (D. Minn. 2008) (rejecting argument that conduct of parties regulated by government defendant “is an independent, intervening cause that relieves the [defendant] of liability” for causing take).

¹⁰⁴ See, e.g., USFWS, Biological Opinion for Issuance of a Section 10(a)(1)(B) incidental take permit to Citygate Development, LLC and CG 11, LLC for the Florida panther and red cockaded Woodpecker (March 30, 2009) (Attached as Ex. __).

¹⁰⁵ *Id* at 1, 5; see also *id.* at 59 (“considering the project traffic projections, the Service believes that the increase in traffic generated by the project may potentially contribute to an increase in injury and harassment of panthers.”), and 63 (incidental take statement) (“the Service anticipates take in the form of harassment and harm due to potential increases in traffic and intraspecific aggression”). To mitigate for the impact of that take, the HCP proposed and the ITP included a requirement that the permittee construct a wildlife crossing. See *id.* at 60 (“the Applicants will construct a wildlife crossing on CR 846 at a location that has had four panther mortalities over the last 10 years. This crossing should reduce panther vehicular mortality and mitigate for impacts to the panther at the Project site.”); City Gate ITP (July 1, 2009) at 4-5 (setting forth terms for funding assurance and completion deadline for new wildlife crossing to be provided by permittee as mitigation). In the Citygate Biological Opinion, the Service stated that it could not quantify the take associated with increased traffic. See, e.g., BiOp at 63. However, as discussed below, for a slightly larger project, the Service did indeed quantify the take. See Biological Opinion for Argo Corkscrew Crossing (Jan. 2018) at 4, 15-16 (construction of residential development on a 395 acre parcel). The size of the proposed development at issue here is thus vastly greater than prior projects where the Service has shown that it can quantify the take from induced increases in traffic.

¹⁰⁶ See *id.* at 6, 55.

¹⁰⁷ Noss Report at 11; see also DEIS at 75-76 (showing increased traffic volumes under action alternative).

91,480 families with an average of two cars per home occupying those housing units.¹⁰⁸ That adding those vehicles and population to areas of panther habitat will result in more vehicle trips is a plainly foreseeable outcome of building new housing to attract those buyers and establish a new community. Again, that increased traffic is plainly reasonable foreseeable, as the DEIS concedes that the Service found that increased vehicle trips due to the proposed activities would have an adverse impact on panthers. Further, the HCP proponents' activities, replacing panther habitat with new housing communities, clearly are the stimulus for bringing additional drivers to live and work in the area, and to use highways and roads in manner that will foreseeably lead to increased panther-vehicle collisions on those roads.¹⁰⁹

Moreover, for other projects building residential developments in Florida panther habitat, the Service itself has demonstrated that estimating the expected take due to increased vehicle collisions from increased traffic (more vehicle trips) caused by the development is possible.¹¹⁰ This shows not only that such take is reasonably foreseeable, but also that it can be quantified. For Argo Corkscrew Crossing, the Service quantified the number of deaths by assessing the average rate of panther deaths per year on roads affected by the project in light of the prevailing number of vehicle trips on those roads, and then multiplying that estimate by the proportional increase in vehicle trips on each road that would result from the residential development.¹¹¹ The

¹⁰⁸ Notably, the estimate of a projected addition of at least 182,960 more vehicles likely underestimates the actual increase in vehicles on the roads in the HCP area that will result from the proposed activities. The anticipated 91,480 new dwelling units reflects a density of 2.03 units per acre, but the HCP itself states that it arrived at that figure based upon densities for Ave Maria and Rural Lands West, which reflect an overall density of 2.5 dwelling units per gross acre. HCP at 33. Ave Maria is actually 2.18 units per acre, and Rural Lands West is proposing 2.43 units per acre. Thus it appears that the actual number of new dwelling units could be considerably higher than 91,480. A density of 2.5 units per acre would result in 112,500 units. Independently, the HCP underestimates the new population that will be added to the area by assuming there will be 1.9 persons per household. In contrast, the U.S. Census Bureau's 2012-2016 estimate for persons per household in Collier County is 2.58. U.S. Census Bureau, https://www.google.com/url?q=https://www.census.gov/quickfacts/fact/table/colliercountyflorida/HSD310216%23v_iewtop&sa=D&ust=1543589605134000&usg=AFQjCNHOj0dfdLcnTgaMmxDzae76nF-65A.

¹⁰⁹ The HCP proponents cannot evade liability by arguing that it is up to the state or federal authorities to regulate speed limits to correct the problem that the HCP proponents themselves have stimulated. Plainly, it would still be the actions of the HCP proponents creating the need for such additional regulation in the first place by making the roads in question even more dangerous to panthers. "An independent intervening cause 'is one the operation of which is not stimulated by a situation created by the actor's conduct. An act of a human being or animal is an independent force if the situation created by the actor has not influenced the doing of the act.'" *Animal Prot. Inst., Ctr. for Biological Diversity v. Holsten*, 541 F. Supp. 2d 1073, 1079 (D. Minn. 2008) (quoting Restatement (Second) Torts § 441). Here, actions by the state and federal agencies governing roads are not an independent action that causes the harm in question regardless of the HCP proponents' conduct.

¹¹⁰ See, e.g., Biological Opinion for Argo Corkscrew Crossing (Jan. 2018) at 15-16. Using the Service's methodology which looks at Average Annual Daily Trips (AADT) and panther mortality to estimate possible future roadkill mortalities, we approximate that the 50 year HCP would result in about 1,276 panther mortalities. We utilized available AADT for existing roads within the RLSA, which was from 2006, showing an estimate of 129,867,000 daily trips over a five year period. There were 16 panther roadkill mortalities in the RLSA from 2001-2006. This equate to 1 panther death for every 8.1 million trips, as a conservative estimate since there were 30 panther roadkill mortalities in the same area from 2011-2016. Using an incremental approach in which there would be 825,000 new daily trips on RLSA roadways by 2050, we estimated 573.5 deaths in the first 31 years of the permit (assuming that trips ramps up linearly over time), and 703 deaths in the last 19 years of the permit. This totals 1,276.5 panther roadkill mortalities from the 45,000 acres of mining and development, based on the Service's methodology.

¹¹¹ See *id.*

DEIS provides an assessment of the increased traffic volumes that will result from issuance of the ITP, but does not take the necessary next step of using those increased volumes along with estimates of panther-vehicle collisions on those roads, to calculate the number of additional panther deaths that will result from the proposed development activities.¹¹² Moreover, analyzing the impacts of 45,000 acres of development in a footprint nearly identical to the submitted HCP, the PRT found that the HCP Covered Activities would add 1 million daily traffic trips by 2050.¹¹³ The HCP would increase daily traffic trips on one segment of SR 29 from 7,100 daily trips in 2011 to 23,686 by 2050,¹¹⁴ and on another segment of SR29 from 19,100 daily trips in 2011 to 44,499 by 2050,¹¹⁵ a magnitude increase of 3.8 and 2.9 respectively.¹¹⁶ On Corkscrew Road, the daily traffic trips would increase by 23.5 times the magnitude, from 14,500 trips in 2011 to 44,886 in 2050.¹¹⁷

This shows that it is plainly possible, applying methods employed by the Service itself, to use available estimates of how the HCP will increase the number of daily trips on these specific roadways where panther-vehicle collisions have occurred to predict how the present rate of panther mortality for those roadways will proportionally increase due to the activities under this HCP.

Further, because the take can indeed be quantified in terms of additional panther mortality, the use of a habitat surrogate instead would be improper because it would not capture direct panther mortality but only habitat lost.¹¹⁸ Moreover, quantifying take in terms of panther vehicle collisions would actually facilitate meaningful monitoring of whether the purported mitigation provided by the plan is actually achieving its intended effect of keeping panther deaths below increased level anticipated by these estimates, whereas reliance on a habitat surrogate would not because there would be no independent accounting of vehicle collisions.

¹¹² see DEIS at 75-76. Further, the increased traffic used to quantify panther mortality should be measured relative to the baseline of a true no action scenario where the proponents' development does not occur at all, not relative to the purported no action alternative in the DEIS, which actually describes a scenario where proponents are responsible for causing additional traffic by building sprawling lower density developments, not a scenario where they undertake no development.

¹¹³ Florida Panther Protection Program Panther Review Team, 2009. Technical review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County. P. 54, 68-69. By 2050, PRT estimated 400,000 additional daily trips on existing roads + 425,000 daily trips on new roads.

¹¹⁴ Segment of SR29 north of SR82.

¹¹⁵ Segment of SR29 south of SR82.

¹¹⁶ Florida Panther Protection Program Panther Review Team, 2009. Technical review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County. Table 6.3-1.

¹¹⁷ *Id.*

¹¹⁸ See HCP Handbook at 8-3. The HCP Handbook states: "The HCP must identify the impacts likely to result from the proposed incidental take. It must include defined units to quantify impacts in terms of taking a number of affected individual animals or acceptable habitat surrogate units within the plan area. These same units are used on the permit to specify the authorized levels of incidental take... To use a surrogate measure, we must:

- describe the causal link between the surrogate and take of the covered species,
- explain why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of number of individuals, and
- set a clear standard for determining when the level of anticipated take has been exceeded."

In sum, increased panther-vehicle collisions caused by new roads and increased vehicle trips are a “reasonably certain” and “reasonably foreseeable” effect of the proposed activities, and can be quantified in terms of the number of panther deaths. The HCP proponents cannot escape responsibility to identify, avoid, minimize, and mitigate for this category of take resulting from the activities for which they seek incidental take authorization by purporting that they are not liable for this category of effects.

Even if the increased panther mortality resulting from increased traffic and roads was not take requiring coverage under the sought Incidental Take Permits, it would nonetheless be an impact of the same acts of taking for which the applicants are seeking ITPs. The acts of taking for which the Applicants seek ITPs include construction and land conversion that will disturb and displace panthers, causing them to travel across roads where they are vulnerable to vehicle collisions. Furthermore, the Applicants’ activities will cause the construction of more roads where these vehicle collisions can occur. Additionally, the land conversion to housing and other development will cause increased traffic by attracting significant numbers of people to an area where they would otherwise have no reason to be; indeed, attracting new homeowners is the entire purpose of the land conversion. These acts are what constitutes the otherwise prohibited taking.¹¹⁹ ESA Section 10 requires that “the applicant will, to the maximum extent practicable, minimize and mitigate *the impacts of* such taking.”¹²⁰ Thus, Section 10 requires avoidance, reduction, and compensation for all impacts to the species caused by the same act that results in injury to the species constituting take. Therefore, regardless of whether the traffic related impacts in and of themselves constitute take, they nonetheless are “impacts” of the same type of taking that the HCP proponents concede will occur, and therefore must be minimized and mitigated to the maximum extent practicable.

3. The HCP Fails to Address Climate Change

The HCP continues to treat climate change as a potential “changed circumstance” and suggests that many impacts due to climate change cannot be predicted over the 50-year life of the permit, and those impacts that can be predicted would not require new measures to be implemented. The climate change section fails to analyze changes in temperature, precipitation, and sea level rise that will alter ecological thresholds for many of the species in the area, even though “[e]cological thresholds are expected to be crossed throughout the region, causing major disruptions to ecosystems and to the benefits they provide to people.” (Karl 2009 at 115). Climate change will increase the incidence and severity of both drought and major storm events in the southeast (Karl 2009 at 111-116).

The percentage of the southeast region experiencing moderate to severe drought has already increased over the past three decades. Since the mid-1970s, the area of moderate to severe spring and summer drought has increased by 12 percent and 14 percent, respectively. Fall precipitation tended to increase in most of the southeast, but the extent of region-wide drought still increased by nine percent (Karl 2009 at 111). For example, drought and severe storms could threaten the

¹¹⁹ See 50 C.F.R. § 17.3 (defining “harm” and “harassment” to include the “act” that results in injury, not merely the injury itself).

¹²⁰ 16. U.S.C. § 1539(a)(2)(B)(ii) (emphasis added).

Florida black bear with habitat alteration, altered vegetation, and altered prey base and food availability (Seager 2009 entire).

The warming climate will likely cause ecological zones to shift upward in latitude and altitude and species' persistence will depend upon, among other factors, their ability to disperse to suitable habitat (Peters 1985 entire). Because of some of the species' already limited range and the high degree of development in the surrounding area, there is likely no suitable habitat where the species could disperse, making climate change a dire threat to their survival.

The HCP acknowledges that climate change will result in significant habitat loss outside the HCP area to Florida panthers and other species.¹²¹ Problematically, the HCP fails to acknowledge that as a result, the lands within the HCP Covered Activities area will be of increasingly elevated importance to the survival and recovery of the Florida panther. The HCP asserts it properly addresses climate change by "protecting...biologically important inland habitats."¹²² But the HCP entirely fails to consider whether additional avoidance in the Covered Activities Area may become necessary in light of the increased importance of the inland habitat. The HCP also entirely fails to consider whether additional mitigation measures throughout the HCP area, such as habitat restoration or wildlife crossings, will be necessary in light of the increased dependence of the Florida panther populations on the inland areas within the HCP.

B. The HCP Does Not Detail How Applicants Have Minimized and Mitigated Take

The HCP fails to support its assertion that it will minimize and mitigate impacts to listed species to the maximum extent practicable. ESA Section 10 requires incidental take permit applicants "to the maximum extent practicable, minimize and mitigate the impacts of . . . taking."¹²³ However, neither the HCP nor the DEIS support the Applicants' apparent assertion that they have minimized and mitigated impacts to the maximum extent practicable, as required under the ESA.

1. The "Preserve" Lands Will Allow Many Uses Inconsistent with the Conservation of Listed Species

As a general matter, the lands designated for Preserve/Plan-Wide Activities and Very Low Density Use will allow many uses that are inconsistent with the conservation of listed species, including agriculture, development, and oil and gas exploration and production. Moreover, even if the lands were to be wholly conserved and restored, many areas are "islands" amid a sea of development in the Covered Areas. Because these fragments of habitat are isolated from the larger parcels, they should be considered lost to impacts from the Covered Areas.

More specifically, the HCP fails to minimize and mitigate impacts to the Florida bonneted bat caused by habitat loss to the maximum extent practicable. The HCP states that 5,100 acres of

¹²¹ HCP at 275–276.

¹²² *Id.* at 276.

¹²³ 16 U.S.C. § 1539(a)(2)(A)(ii), (B)(ii).

habitat, 2,571 acres of which is roosting habitat, will be lost to covered activities, and that 65,425 acres of existing habitat will be preserved in perpetuity, including 25,000 acres of freshwater herbaceous wetlands for foraging.¹²⁴ The HCP does not describe the total amount of roosting habitat to be “preserved.” However, the DEIS acknowledges that the Florida bonneted bat will lose approximately half of its roosting habitat in the HCP area, which is located in the consultation area and focal areas to the species,¹²⁵ and that the loss of roosting habitat would be “offset” by “permanent preservation of approximately 43 percent of the HCP area containing large contiguous forested systems that would provide roosting habitat, interspersed with open area that would provide foraging habitat (approximately 16 percent of the HCP area).”¹²⁶ Neither the DEIS nor the HCP provide support for the finding that “preserving” approximately 43 percent of foraging habitat “offsets” the loss of 50 percent of foraging habitat in the Covered Areas, which represents a net loss of 50% of important habitat for the species’ survival. The HCP and DEIS also fail to explain how allowing agriculture, development, oil and gas exploration and production, and other uses on the “preservation land” will affect its viability as land intended to offset negative impacts to the species.

Likewise, the HCP fails to support that the purported “preservation” of the 107,000 acres will adequately minimize and mitigate impacts to the eastern indigo snake to the maximum extent practicable. As the HCP explains, the Preservation/Plan-Wide Activities and Very Low Density Use areas may be used for development and agricultural uses. In fact, the HCP explains that “a minimum of 32,260 acres of . . . agricultural land uses will be preserved under the Plan.”¹²⁷ At the same time, the HCP concedes that “[t]he vast size of the row crop fields and citrus groves within the HCP do not generally provide suitable habitat mosaics” for the eastern indigo snake and that row cropping creates conditions “that are highly unfavorable to the snake.”¹²⁸ Given the poor suitability of agricultural lands and the highly unfavorable condition of row crops to solely support eastern indigo snakes, the HCP utterly fails to explain how “preserving” agricultural land minimizes and mitigates impacts to the eastern indigo snake caused by destroying roughly 2,203 acres of its native upland habitat and 2,897 acres of native wetland habitat in the Covered Area.¹²⁹

The HCP also fails to explain how lands designated for “Preservation/Plan-Wide Activities and Very Low Density Use” will offset loss of land designated for Covered Activities, much of which is within core foraging area for nearby wood stork colonies.¹³⁰ Moreover, it does not explain how the “preservation” lands, which will be permitted to be used for agriculture, development, oil and gas exploration and development, and other intensive uses, will offset the loss of wet, foraging habitats.

2. The HCP Fails to Provide Mitigation for Take from Increased Panther-Vehicle Collisions

¹²⁴ HCP at 225.

¹²⁵ DEIS at 82.

¹²⁶ DEIS at 82–83.

¹²⁷ HCP at 223.

¹²⁸ *Id.* at 222.

¹²⁹ *Id.* at 222–223.

¹³⁰ *Id.* at 216.

Neither the proposed habitat preservation nor the vaguely defined and uncertain promises to provide possible wildlife crossings through the Marinelli Fund can be relied upon by the HCP proponents to demonstrate that the take from increased vehicle collisions will be either fully offset or mitigated to the maximum extent practicable.

First, neither the HCP nor DEIS actually assess the impact of the proposed activities on increasing panther-vehicle collisions in terms of increased fatalities per year anticipated, even though this impact is readily available and capable of being quantified. In the absence of that necessary assessment, it is impossible for the HCP proponents to assert that they have provided enough mitigation to either fully offset those impacts or even offset them to the maximum extent practicable.

Second, even if the proposed land preservation compensated for the impacts from habitat loss (which it does not), that would not compensate for the additional impacts of increased panther deaths from the new traffic and roads caused by the development on that habitat. The Panther Habitat Assessment Methodology, which the HCP proponents rely on to assert generally that impacts of their activities are fully offset by the maintenance of the proposed preservation areas, does not result in calculation of the amount of extra habitat that must be preserved to account for the traffic-induced impacts of the proposal at hand.¹³¹ The traffic related component of the Panther Habitat Assessment Methodology does not account for the traffic-inducing effects of the proposal itself, but rather is an attempt at correcting the Methodology's initial assumption about the how much privately owned habitat is necessary to preserve to ensure its target of supporting 90 panthers---to account for impacts to panthers that will occur during a five year window from activities that *do not themselves involve habitat loss factors*.¹³²

Further, it is notable that the Methodology's adjustment appears to lack a biological basis. The base ratio's adjustment to include mitigation for the effects on panthers from increased traffic is calculated by assessing the cost of adding one wildlife crossing every year for five years, and converting that cost into acres by assuming an acre is worth \$8500. *See Methodology at 2.* Though the Methodology refers to this as a "habitat surrogate,"¹³³ there appears to be no biological connection between the amount of habitat preservation it requires and the extent of impacts to panthers from the increased traffic generation. It is unclear how the assumption that increased traffic from projects without habitat loss factors will necessitate 1 new crossing per year relates to the amount of panther mortality that will be avoided by that crossing, or to how much panther mortality will be generated as a result of the increase in traffic.¹³⁴

In any event, the HCP does not actually provide *any* assessment to determine how much additional habitat preservation would be required to compensate for the traffic-inducing effects of the proposal. The HCP lacks any projection of the number of crossings that would be needed,

¹³¹ It is not at all clear whether the HCP proponents are asserting that habitat preservation in ratios according with the Methodology provides offsets for the traffic impacts. The HCP provides no analysis to even attempt to show that such offset has been provided, and indeed repeatedly repudiates that there is an obligation to address this form of take at all.

¹³² *See Methodology at 2.*

¹³³ *Id.*

¹³⁴ *See Noss Report at 10–14.*

which is necessary to determine how many acres would be needed as a surrogate, or when they would be built, or why preserving land is a valid substitute for crossings at all in light of the fact panther/vehicle collisions are the number one cause of known deaths and they will be increased tremendously by this project.¹³⁵

Finally, the HCP purports that wildlife crossings and other “additional” measures provided through the Marinelli Fund will mitigate the impacts from increased traffic. However, the HCP does not provide any certainty as to how many crossings, if any, will actually be provided compared to how many will be necessary to mitigate the fatalities from increased traffic, when the crossings will be built compared to the time that they will be necessary to avoid fatalities, or whether there will actually be enough funding to build those crossings at the times when the fatalities from increased traffic will result.¹³⁶ In evaluating whether the mitigation will offset the impacts from increased vehicle traffic and roads, the Service cannot ignore that providing crossings in the long-term will not address short-term impacts that may harm the population long before the crossings are ever constructed.¹³⁷ Nor is there any demonstration that it is not practicable to actually provide the number of crossings at the points in time that would be necessary to mitigate the increased vehicle collision fatalities.

Moreover, reliance on potential future mitigation actions taken through the Marinelli Fund and by the Florida Department of Transportation is improper because an HCP applicant cannot rely on unenforceable measures, nor on plans for conservation efforts by non-applicants.¹³⁸

The HCP has thus failed to adequately characterize the take that will occur as a result of their activities. It also fails to demonstrate these effects will be either fully offset or minimized and mitigated to the maximum extent practicable.

3. Reliance on the Panther Habitat Assessment Methodology to Conclude that the Impacts of the Proposal Will Be Fully Offset Does Not Reflect the Best Available Science

a. The Best Available Science Demonstrates that the 2.5:1 Base Ratio for Preservation to Loss Fails to Ensure Impacts Are Offset

The HCP and the DEIS both rely on the Panther Habitat Assessment Methodology, last revised in 2009, to conclude that the impacts of the proposed habitat destruction will be offset merely by

¹³⁵ See Noss Report.

¹³⁶ See Noss Report at 14–15. As discussed more below, the HCP disclaims any need to provide these measures through binding requirements or even set forth specifically what measures will occur, and concedes that they are entirely discretionary and subject to funding availability. See HCP at 286.

¹³⁷ See, e.g., Klamath-Siskiyou Wildlands Center v. NOAA, 99 F.Supp. 3d 1033, 1058–59 (N.D. Ca 2015) (finding that take would not appreciably reduce survival or recovery was arbitrary where the take would be offset by mitigation that would occur in the long-term, but the species could be wiped out in the short-term, before any benefits from long-term habitat mitigation would accrue).

¹³⁸ See *Klamath-Siskiyou Wildlands Center*, 99 F. Supp. 3d at 1050–52, 1053–54.

preserving other existing habitat in the HCP area.¹³⁹ That reliance is misplaced because the Methodology no longer reflects consideration of the best available scientific information regarding the quantity and relative value of remaining panther habitat in South Florida. For example, research published in 2015 by Dr. Robert Frakes et al.¹⁴⁰ demonstrates that the base ratio established in the Methodology is inadequate to ensure that habitat loss will be fully offset, and to ensure that development will not jeopardize the survival and recovery of the species. The HCP asserts that the impacts of the proposed development on panthers will be “fully offset” by the maintenance of lands in the “Preserve Area” because the amount of Panther Habitat Units (PHUs) generated by potentially placing those areas under conservation easements exceeds the number of PHUs necessary to mitigate for the impacts to lands within the “Covered Activities” area. The DEIS echoes, “According to the analysis described in the ECMSHCP, Section 4.2.2, the plan provides more than sufficient mitigation to offset potential FP habitat impacts. The total number of PHUs provided through preservation of conservation lands would exceed required PHU compensation levels, as calculated by the USFWS Panther Habitat Assessment Methodology.”¹⁴¹

The Panther Habitat Assessment Methodology is used by the Service during ESA Section 7 consultations to determine the amount of habitat preservation required to minimize the impacts of projects on the Florida panther resulting from habitat losses due to development. The Methodology turns on ensuring that enough habitat to support a population of 90 panthers in South Florida will be preserved from destruction. The Methodology starts by evaluating how much “primary habitat equivalent” acres are necessary to preserve a population of 90 panthers.¹⁴² Using an estimated habitat requirement of 31,923 acres per panther of “primary habitat equivalent” lands, the Methodology turns on ensuring that 2,873,070 acres of “primary habitat equivalent” land will remain available to the species (31,923 acres/panther x 90 panthers).¹⁴³ The Methodology then determines the acreage of primary habitat equivalent already being conserved, and subtracts that amount from 2,873,070 acreage to determine the acreage of privately held habitat that must be prevented from destruction.¹⁴⁴ In assessing how much “primary habitat equivalent” acreage is present in conserved and privately owned areas, the Methodology assumes that each acre of secondary panther habitat is equivalent to 0.69 acres of primary zone habitat in terms of the value provided for the support of the population.¹⁴⁵ The Methodology then calculates the proportion of privately held habitat that must be preserved relative to the amount that can be lost without the total amount of “primary zone equivalents” falling below 2,873,070 acres.¹⁴⁶ That proportion forms the basis for the “base ratio” that the Service uses to determine

¹³⁹ See U.S. FWS, Panther Habitat Assessment Methodology, September 24, 2012 available at https://www.fws.gov/verobeach/MammalsPDFs/20120924_Panther%20Habitat%20Assessment%20Method_Appendix.pdf (“Methodology”). As stated in the 2012 document, the Methodology was last revised in 2009, but was described in full in the September 2012 document.

¹⁴⁰ Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044, at 14, available at <https://doi.org/10.1371/journal.pone.0133044>.

¹⁴¹ DEIS at 92. Notably, other portions of the DEIS state that the adverse impacts from the proposal are only “partially offset by habitat compensation.” DEIS at 89 (emphasis added).

¹⁴² See Methodology at 1.

¹⁴³ See *id.*

¹⁴⁴ See *id.*

¹⁴⁵ See *id.* at 1, 11 Tables PM3 and PM4.

¹⁴⁶ See *id.* at 1.

how many acres of habitat a project proponent must preserve as mitigation to compensate for habitat that will be destroyed. The Methodology calculates that the proportion is that 1.98 acres of “primary zone equivalents” must be maintained for every acre of primary zone equivalent that is lost. The Service then makes a series of adjustments to that figure to account for other factors. These adjustments increase the ratio for preservation by about 25%, such that the final base ratio factor is that 2.5 acres of privately owned “primary zone equivalent” must be protected for every acre of it that is developed.

The research of Frakes et al. 2015 demonstrates that key assumptions used in the above calculation are not supported by the best available science. First, Frakes (2015) demonstrates that an acre of secondary zone habitat does not provide a habitat value to the panther population equivalent to 0.69 acres of primary zone habitat because the secondary zone lands “are of little value to support a breeding population of Florida panthers.”¹⁴⁷ This means that the assessment of the total amount of “primary habitat equivalents” already conserved (2,073,865 acres) is inflated by as much as 212,950 acres.¹⁴⁸ Consequently, the total acreage of private lands that must be preserved to ensure the minimum of 2,873,070 acres is maintained is at least 212,950 acres too low, and should be 1,012,155 acres of primary zone equivalent instead of 799,205 acres ($212,950 + 799,205 = 1,012,155$ acres of primary zone equivalent).¹⁴⁹ Further, the total estimate of undeveloped privately owned primary zone equivalent habitat is inflated by 347,402 acres because it includes secondary habitat that actually is of little use to breeding panthers; thus the total area of privately owned primary habitat equivalent should be no more than 855,297 acres (1,202,699 acres - 347,402 acres).¹⁵⁰ The consequence is that instead of the base ratio being $799,205 \text{ acres} / (1,202,699 \text{ acres} - 799,205 \text{ acres}) = 1.98$, the reality is that no primary zone equivalent habitat can be lost. Instead of there being a *surplus* of 403,494 acres which can be lost as long as the remaining 799,205 is preserved (resulting in a ratio of preservation to loss of $799,205 / 403,494 = 1.98$), the calculation would show that there is actually a *deficit* of 156,858 acres ($1,012,155 \text{ acres} - 855,297 \text{ acres}$) between the remaining amount of privately owned undeveloped habitat and the amount required to sustain 90 panthers. As a consequence of that reality, mitigation must not merely protect other primary zone habitat, but rather would have to actually restore areas in order to offset the impact from loss of primary zone breeding habitat. In short, the “base ratio” system only makes sense where there is a cushion of “primary zone equivalent” habitat in private ownership that can be lost without the net amount of habitat dropping below what is required to maintain 90 panthers. Frakes 2015 demonstrates the reality that there is no such cushion because the secondary zone provides little value to support the breeding population.

Moreover, in addition to demonstrating that secondary zone habitat is of little use to support the breeding population, Frakes et al. 2015 concludes that adult breeding habitat has been reduced..¹⁵¹ This only exacerbates the problem described above. The rationale underlying the base ratio turns on there being a surplus of habitat to meet its minimum population target. Frakes et al. shows that there is no such surplus because, in addition to the reasons described above

¹⁴⁷ Frakes et al. 2015 at 15.

¹⁴⁸ See Methodology at 11 Table PM-3.

¹⁴⁹ See *id.* at 1.

¹⁵⁰ See *id.* at 11 Table PM4.

¹⁵¹ Frakes (2015) at 15.

regarding the limited value of secondary zone habitat, areas identified as primary zone have been degraded in terms of their ability to support breeding adults.

The HCP’s assertions about the adequacy of conservation of the Preserve Area to fully offset for the impacts of the proposal therefore are not based on the best available science. Nor is the DEIS’s assertion that the mitigation will be sufficient to offset the impacts from habitat loss based on the best available science. Further, the Service’s failure to analyze the HCP’s reliance on the 2012 Methodology’s base ratio rationale in light of the new scientific information from Frakes 2015 is arbitrary and capricious, and violates NEPA’s requirements to take a hard look at the impacts of the proposal and to use the best available science.¹⁵²

Even if some small amount of the secondary habitat could indeed be counted towards the total of primary zone habitat equivalents, it would be inconsistent with the best available science to rely on the 2012 base ratio without recalculating it to ensure that the underlying rationale that there is a cushion of habitat remains valid, and to determine what increase in the ratio is required to demonstrate that impacts are minimized.¹⁵³

Reliance on the Methodology to assert that impacts are offset is also unsupportable based on the best available science because the Methodology’s adjustment of the base ratio to account for additional habitat loss (1) was limited to a projection of loss over only five years (2009-2014), and (2) does not make up for the enormous disparity identified by Frakes et al. 2015 between the amount of primary zone equivalent habitat that the Methodology relies on and the actual amount of habitat supporting breeding adults, largely as a result of overvaluing the secondary zone. First, the Methodology, acknowledging that habitat destruction outside Federal review might occur, increases the base ratio from 1.98 to 2.23 to account for an estimated 7,410 acres per year of loss from projects the agency would not be aware of.¹⁵⁴ The adjustment to account for loss is limited to a five-year window, and therefore only takes into account the effect of 37,000 acres of habitat loss (7,410 acres/yr x 5 yrs).¹⁵⁵ Consequently, the adjustment only accounted for habitat loss between 2009 and 2014, and the resultant base ratio cannot rationally be applied to activities that will be taking place long outside that five year window, and which are being authorized outside that five year window.

Here, the proposed ITP term is *50 years*, and the base ratio, under the logic of the Methodology, would have to be adjusted to account for 50 years of additional unreported habitat loss. Any attempt to rely on the Methodology’s base ratio without making such an adjustment would

¹⁵² NEPA requires agencies to ensure the “scientific integrity[] of the discussions and analyses in [EISs].” 40 C.F.R. § 1502.24, accord 40 C.F.R. § 1500.1(b) (requiring “accurate scientific analysis”). An agency violates NEPA where its analysis is based on a factual inaccuracy. *Oregon Nat. Desert Ass’n v. Jewell*, 840 F.3d 562, 570 (9th Cir. 2016).

¹⁵³ In other words, if there is a credible scientific basis to conclude that the relative value is some number between zero and 0.69, rather than zero, as assumed in our calculations above, the evaluation of whether impacts are mitigated still must recalculate the base ratio because Frakes et al. 2015 makes plain that 0.69 is not based on science and is grossly too high based on the reality that only 4% of breeding habitat occurs in the secondary zone. *See* Frakes et al. at 15. For example, if the value was halved to 0.345 instead of 0.69, the initial base ratio would be 7.34 instead of 1.98, meaning that the required mitigation should at minimum be approximately three times more than the 2.5 final base ratio of the Methodology.

¹⁵⁴ *See* Methodology at 1-2.

¹⁵⁵ *Id.*

plainly be factually unsupportable based on the Methodology’s own projection that unreported habitat loss would continue to occur at an estimated rate of 7,410 acres per year.

Similarly, the adjustment of the base ratio from 2.23 to 2.48 to account for habitat losses from small scale development of homes on lots of 5 acres or less by individual homeowners only reflects the estimated losses over a five year window.¹⁵⁶ Consequently, it is unsupportable to rely on the base ratio of the 2012 Methodology for actions that will be authorized and occur not between 2009 and 2014, but for 50 years into the future, without any adjustment that reflects the likely continued small scale development by individual owners over the next 50 years.

Also similarly, the Methodology’s adjustment of the base ratio from 2.48 to 2.50 to account for the indirect effects of traffic generated by projects *without* habitat loss factors only accounts for impacts over a five-year window.¹⁵⁷ It would clearly be improper to apply the base ratio of the Methodology to projects that will occur over the course of the next 50 years without any adjustment to account for the reality that the proposed activities here will occur over a period ten-times that five year duration.¹⁵⁸

In sum, the HCP purports that the 2.5 base ratio of the Methodology takes into consideration indirect effects, but it is plain that the base ratio only accounts for those impacts over the course of a five year period, not the 50 year term of the activities proposed here. Reliance on the Methodology to demonstrate that the direct and indirect impacts of the proposed development will be fully offset there is not rationally supportable based on the text of the Methodology itself.

Second, the Methodology’s estimates for these forms of habitat loss between 2009 and 2014 anticipate total losses of 31,265 acres and 25,900 acres of primary zone equivalent habitat respectively. As discussed above, Frakes et al. (2015) indicates that the amount of “primary zone equivalent” habitat likely is hundreds of thousands of acres less than the baseline amount estimated in the Methodology. Thus, the fact that the base ratio in the Methodology accounts for a total of 57,165 acres of additional loss of primary zone equivalent habitat does not in any way make up for the reality there are hundreds of thousands of acres less of habitat meeting that definition. Consequently, this aspect of the base ratio calculation does not in any way cure or render harmless the failure to consider best available science (Frakes et al. (2015)) in continuing to rely on the Methodology when it is based on an extreme inflation of the presently remaining “primary zone equivalent” habitat.

A final, independent consideration regarding the HCP’s improper reliance on the Panther Habitat Assessment Methodology is that the Methodology appears to center on preventing backsliding from the *interim* goal of the recovery plan, rather than on preventing actions that would diminish the attainment of recovery. The Methodology centers on maintaining enough habitat to support a

¹⁵⁶ *Id.* at 2.

¹⁵⁷ *Id.* at 2.

¹⁵⁸ As discussed in detail below, this component of the Panther Habitat Assessment Methodology *does not account for the traffic-inducing effects of the proposal itself*, but rather is an attempt at correcting the Methodology’s initial assumption about the how much privately owned habitat is necessary to preserve enough total habitat to ensure its target of supporting 90 panthers---to account for impacts that will occur during a five year window from activities that do not themselves involve habitat loss factors.

population of 90 panthers. One “interim goal” of the 2008 Recovery Plan is that: “The south / south-central Florida panther subpopulation has been maintained, restored, and expanded beyond 80 to 100 individuals (adults and subadults).”¹⁵⁹ By contrast, the 2008 Recovery Plan sets forth that actual recovery to the point where the species can be delisted would require, *inter alia*, that: “Three viable, self-sustaining populations of at least 240 individuals (adults and subadults) each have been established and subsequently maintained for a minimum of twelve years.”¹⁶⁰ Further, since a population of 240 reflects the minimum to ensure genetic viability,¹⁶¹ the self-sustaining persistence of even one population is impaired by actions that would eliminate habitat below what is necessary to support that minimum population number. Thus, compliance with the base ratio derived from the interim goal does not ensure that the proposal will not impair the survival and recovery of the species.

b. Reliance on the Methodology to Assert Impacts are Fully Offset is Irrational on Its Face

The HCP’s assertion that impacts will be fully offset merely because the Preserve Area represents sufficient number of PHUs to cover the number that would be required for compensation under the Methodology is also inherently faulty because the Methodology purports to *minimize* effects on the species, not provide full compensatory mitigation. The Methodology repeatedly states that it is used to “minimize” the effects of projects on the Florida panther. It does not purport to provide full compensatory mitigation that eliminates all negative impacts on the species.¹⁶² In short, the Methodology does not purport to eliminate all impacts to the species, so merely showing that its requirements could be satisfied does not rationally show that all impacts will be fully mitigated. Further, because the Methodology provides no way of assessing the residual impact to the species, merely preserving more PHUs than required under the Methodology does not necessarily mean that all residual negative impacts would be fully addressed.

Further, though aimed at “minimizing” negative effects on the species, the Methodology in no manner can be used to assert that impacts are minimized to the “maximum extent practicable.” First, the Methodology does not purport to demonstrate that negative impacts are reduced to the maximum extent practicable, nor that impacts are mitigated to the maximum extent practicable as a result of application of its procedures. Second, it is plain that assessing whether minimization and mitigation has been provided to the maximum extent practicable must be considered in light of the technical and economic aspects of the specific proposal in question. Third, an assessment of the reasonable and prudent measures that should be imposed to reduce take under ESA Section 7, in the context of issuing an incidental take statement, does not necessarily satisfy the requirements of ESA Section 10 to reduce and mitigate to the maximum

¹⁵⁹ Recovery Plan at 99.

¹⁶⁰ *Id.*

¹⁶¹ See Frakes et al. 2015 at 15 (Citing Kautz R, Kawula R, Hoctor T, Comiskey J, Jansen D, Jennings D, et al. How much is enough? Landscape-scale conservation for the Florida panther. *Biological Conservation*. 2006; 130: 118–133.).

¹⁶² See e.g., Methodology at 1 (“We used these values … as the basis for habitat evaluations and the recommended compensation values to *minimize* project effects to the Florida panther[.]”) (emphasis added); *id.* at 3 (“These zones affect the level of compensation the Service believes is necessary to *minimize* a project’s effects to Florida panther habitat.”) (emphasis added).

extent practicable. As the court stated in *Fund for Animals v. Babbitt*, 903 F. Supp. 96, 107 (D.D.C. 1995), “the phrase ‘to the maximum extent practicable’ . . . imposes a clear duty . . . to fulfill the statutory command to the extent that it is feasible or possible.” Section 10 requires that all harm be reduced to the maximum extent practicable and then mitigated to the maximum extent practicable, such that all unavoidable residual harm be eliminated through compensation measures if possible.

In sum, the HCP cannot rely on the Methodology to show that impacts are fully offset. Nor can it rely on the Methodology to show that impacts have been minimized and mitigated to the maximum extent practicable.

4. The Best Available Science Shows That the HCP’s Proposal to Mitigate Impacts to Vital Habitat Corridors for Florida Panther Will Not Fully Offset the Impacts of the Proposed Development

The HCP purports that all impacts for Florida panther will be “fully offset” by the habitat preservation alone, and that the contingent, discretionary, and limited restoration described cursorily in the HCP is essentially additional mitigation beyond what is necessary to offset the impacts. In addition to the flaws in that rationale described above, analysis of the HCP’s impacts conducted by Dr. Robert Frakes shows that the proposed habitat preservation areas are not adequate to prevent important north-south corridors for Florida panther movement from being broken.¹⁶³ According to this analysis, with regard to the existing north-south panther habitat connection on the western side of the RLSA, between Florida Panther NWR and Corkscrew Swamp, the pathway that adult panthers use will be “broken and substantially narrowed.”¹⁶⁴ The existing north-south panther habitat connection on the eastern side of the RLSA, between Florida Panther NWR and Okaloacoochee Slough, will also be “broken” and “substantially narrowed.”¹⁶⁵ Dr. Frakes explains:¹⁶⁶

The analysis shown in Figs. 10 and 11 was intended to examine potential impacts to connections between the main body of habitat to the south and the Okaloacoochee Slough and Corkscrew Swamp to the north. Adverse impacts to these connections may be even more damaging than direct habitat losses in certain areas, because they could block or hinder the movement of panthers between these areas of excellent habitat and impact the potential for panthers to disperse north across the Caloosahatchee River. Since dispersal of panthers across the Caloosahatchee River is a requirement for recovery, impacts to these pathways will reduce the likelihood of panther recovery.

Dr. Frakes concludes, “[I]t is likely that the degraded/reduced habitat along these pathways will adversely impact all north-south panther movements.”¹⁶⁷

¹⁶³ See (Frakes 2018).

¹⁶⁴ *Id.* at 20, Fig. 10.

¹⁶⁵ *Id.* at 21, Fig. 11.

¹⁶⁶ *Id.* at 17.

¹⁶⁷ *Id.*

In sum, despite the maintenance of “preservation areas” proposed by the HCP, there will be adverse impacts to all north-south panther movements resulting from these corridors being broken and narrowed. Thus, contrary to the assertions in the HCP, this serious adverse impact on the species clearly will not be fully offset by the proposed habitat preservation.

Notably, neither the HCP nor the DEIS provide any analysis to substantiate the assertion that impacts to the corridors are fully offset. The DEIS asserts, “Despite the narrower cross section of these two corridors proposed in Alternative 2 these corridors will be preserved and maintained to encourage wildlife movements towards planned wildlife under passes.”¹⁶⁸ Neither the HCP nor the DEIS provide any scientific basis for the assertion that the *functionality* of the north-south corridors will actually be preserved and maintained in the absence of additional mitigation measures left to the discretion of the Marinelli fund. Nor do they assess the extent of the adverse impact to those corridors from the proposed development.

In short, these important corridors will be impaired by the proposed activities, despite the preservation of adjacent areas, and therefore land preservation alone does not fully offset those impacts.

5. The HCP Fails to Account for the Impacts of Oil and Gas Development and Agricultural Intensification on the Preserve Area Lands

In asserting that the impacts of the proposed habitat loss in the Covered Activities area will be fully offset by the maintenance of the lands within the Preserve Area based upon calculations showing that the Preserve Area represents more than enough PHUs to offset the total PHUs of the area that will be destroyed and degraded, the HCP fails to take into account that lands within the Preserve Area will be subject to habitat loss and degradation even after those lands are “protected” by easements or deed restrictions to prevent certain uses. The HCP makes clear that the limitations imposed on the Preserve Area lands will still allow for “historical uses.”¹⁶⁹ These “historical” uses include crop cultivation, silviculture, and even oil and gas development.¹⁷⁰ Problematically, the HCP does not appear to limit the nature or intensity that may occur on any given area within the Preserve Area to the same type or intensity of “historical use” presently occurring on that specific land. Thus, land that is currently a pasture ostensibly could be converted to row crops, and oil and gas development “may occur anywhere within the HCP Area.”¹⁷¹ Since the PHU value of an area depends on its current land cover type, *see* Methodology, it is plain that changes to new or more intense “historical uses” on a given plot could diminish the PHU value of the Preserve Area lands, even after they have been subject to the proposed deed restrictions or easements. And regardless of whether “oil and gas production is compatible with utilization of the *surrounding* habitat,” as the HCP alleges,¹⁷² it is plainly the

¹⁶⁸ DEIS at 81; *see also* DEIS at 91 (“landscape scale FP habitat corridors would be maintained, providing linkages to allow for FP movement and dispersal between public conservation lands and other habitat areas.”).

¹⁶⁹ See HCP at 29 (“Activities that may occur in the lands designated for Preservation/Plan-Wide Activities include the types of agricultural, ranching, and other rural activities that have occurred throughout the HCP Area historically.”).

¹⁷⁰ *See id.*

¹⁷¹ *Id.* Although the HCP purports that pasture in the Covered Activities Area will be replaced when destroyed, it appears to lack any similar commitment that pasture in the Preserve Area will be replaced if degraded or destroyed.

¹⁷² *See* HCP at 29.

case that the habitat within the footprint of the oil and gas production facilities, such as well pads, pipelines, and wastewater containment structures, will be destroyed. Thus it would be arbitrary and capricious, and in violation of the requirements of ESA section 10 to rely on these areas to provide mitigation when they will be subject to such development. Further the impacts of oil and gas development in the HCP must be analyzed under NEPA.

Furthermore, it also plainly the case that oil and gas exploration activities can have negative impacts on the ability of panthers to use the habitat. For example, oil exploration activities, such as those currently taking place in the Big Cypress National Preserve, cause damage to “primary zone” habitats, which are habitats essential for the survival of the endangered Florida panther.¹⁷³ Seismic survey activities impact the habitat quality for panthers by fragmenting and degrading natural plant compositions, making the impacted areas less suitable for habitation; seismic survey activities can overlap denning season, which can lead to mothers abandoning their dens in response to seismic survey activities; the potential for dispersal of and impacts to the panther’s prey species may reduce the amount of food available to panthers; and avoidance of the seismic survey areas by panthers may result in more frequent crossings of roads, putting panthers at increased risk of death or injury by vehicular collision.¹⁷⁴ Further, oil and gas development would increase vehicular traffic in the area. These are the types of impacts that must be analyzed under NEPA and the ESA if oil and gas development activities are contemplated to take place within the HCP.

The HCP proponents thus want habitat to be credited for conservation even though they will retain the ability to destroy that habitat for oil and gas development or more intense agricultural uses. The HCP proponents want to have their cake and eat it too, at the expense of the Florida panthers’ survival.

With regard to preservation of area of existing native vegetation within the Preserve Area, the HCP states that existing native vegetation will be preserved to the same “general extent,” but provides absolutely no indication of what that means, or how much may be lost.¹⁷⁵ By contrast, the HCP states more specifically that a cap of 10% applies to loss of native vegetation for the 2,087 acres of “very low density use” lands.¹⁷⁶ The failure to provide a clear and measurable limit for how much native vegetation may be lost from the Preserve Area lands means that it is unclear how much additional habitat degradation and loss will occur in the Preserve Area due to shifts or intensification of the “historical uses” occurring on a given parcel.

In sum, the HCP overstates the extent to which preservation can offset harm by failing to account for the continued habitat loss and degradation that will occur as a result of so-called historical uses shifting in extent, location, and intensity.

¹⁷³ See Quest Ecology, *Preliminary Evaluation of Potential Effects of Seismic Survey for Oil and Gas In and Near the Big Cypress National Preserve on the Florida Panther* (October 2018), available at:

https://www.nrdc.org/sites/default/files/preliminary-evaluation-of-potential-effects-of-seismic-surveying-for-oil-and-gas-on-the-endangered-florida-panther_2018-10-16.pdf; see also Quest Ecology, *Seismic Survey Inspection Report Big Cypress National Preserve* (May 2018), available at: <https://assets.nrdc.org/sites/default/files/seismic-survey-inspection-big-cypress-20180531.pdf?ga=2.64474735.1368414805.1534966676-1336211018.1533580820>

¹⁷⁴ *Id.*

¹⁷⁵ See, e.g., HCP at 115.

¹⁷⁶ *Id.*

6. The HCP Overstates the Benefits of the Habitat Preservation By Failing to Account for the Existing Restrictions Already Applicable to the “Preserve Area”

The fundamental premise underlying the application of the Panther Habitat Assessment Methodology is that the habitat to be preserved as mitigation for other habitat destruction is actually otherwise at risk of development. Many of the lands included in the “Preserve Area” are subject to pre-existing restrictions imposed by Collier County, which apply to the lands regardless of whether the owners participate in the RLSA program. County Comprehensive Plan and Florida state requirements applicable to the Big Cypress Area of Critical State Concern provide protections to this area to varying degrees from both mining and development. For example, residential uses and earth mining are already excluded uses for 31,100 acres of the land in question due to county restrictions on Flow way Stewardship Areas.¹⁷⁷ Only agriculture, agricultural support uses and conservation are available uses on this acreage. Further, site alteration on the lands within the Big Cypress ACSC is restricted by Florida Administrative Code Rule 28-25.006, which provides that for non-agricultural purposes, “Site alteration shall be limited to 10% of the total site size.” Approximately 18,300 acres of land in the RLSA’s “open” area is within the ACSC, and therefore subject to this restriction, which obviously severely limits the potential for residential development to occur on those lands. Further, approximately 40,000 acres of land in Habitat Stewardship Areas and 18,200 acres of land in Water Retention Areas are subject to a restriction on non-agricultural uses that limits site alteration to 20% of the total site size.¹⁷⁸

In considering the extent to which the mitigation provided under a conservation plan offsets the harm resulting from the take to be authorized, the Service must separate out the benefits provided by already existing conservation measures, and only weigh the additive (new) benefits provided by the plan when assessing the net impact of the proposed ITP.¹⁷⁹ Any rational assessment of the extent to which the proposed HCP actually provides new benefits to offset the new harms that will result from the proposed development must evaluate only the benefits that are additional to existing restrictions on the land use. Put another way, lands that are already protected from activity that would destroy their value to panthers are not “at-risk” and therefore entering into a conservation easement for those lands does not provide the same amount of additional benefit as entering into a conservation easement for lands that lack such restrictions under otherwise applicable law, such as local codes.

Furthermore, the assessment of putative benefits should also take into account that for the Applicants to accomplish their objective, which clearly and plainly is to undertake dense development, they *must* accept additional restrictions on lands in the Preserve Area to generate the credits necessary under the RLSA. The developers cannot achieve the objective they seek

¹⁷⁷ Collier County Growth Management Plan. Future Land Use Element. RLSA Overlay. Policy 5.1, *available at* <https://www.colliercountyfl.gov/home/showdocument?id=77306>. Policy 5.1 imposes that restriction regardless of whether the landowner participates in the RLSA, and Policy 3.5 further imposes it upon lands that do participate in the RLSA. Thus the restriction is inescapable for those lands.

¹⁷⁸ Collier County Growth Management Plan. Future Land Use Element. RLSA Overlay. Policy 5.3.

¹⁷⁹ *Cf. Pacificans for a Scenic Coast v. California Dep’t of Transportation*, 204 F. Supp. 3d 1075, 1087-88 (N.D. Cal. 2016) (Biological Opinion was based on faulty information because proponent agency offered already existing perpetual conservation easement as mitigation for new impacts, without disclosing that no new benefits would accrue).

under this HCP, which is facilitating dense development, without opting into the RLSA system. Thus, although participation is voluntary, it is nonetheless inescapable if the Applicants are to pursue the plans that they seek to undertake here. Consequently, the assessment of benefits must start from the baseline that participation in the RLSA is required in order to build developments, and that numerous restrictions will therefore be compelled on lands within the proposed “Preserve Area,” regardless of whether the proposed dense development must also comply with the ESA; and therefore the benefits of the HCP must be assessed in terms of what *additional* value they provide beyond the restrictions imposed by opting into the RLSA. Thus, the HCP should expressly identify the RLSA credits that would be required to allow development on the 40,000 acres in the CA and explain how those credits would be achieved by restrictions on Preserve Area lands. The actual benefit to panthers must then be measured in terms of the extent of the remaining risk of development *after* all of these otherwise applicable restrictions are considered.

As a consequence of the HCP’s total failure to acknowledge the reality that use of extensive areas within the “Preserve Area” will be restricted regardless of ESA obligations, the HCP vastly overstates the benefit to the species from the proposed maintenance of those lands.

7. The HCP Fails to Show that the Current Status and Ownership Patterns of the Preserve Lands Ensure that the Described Preservation Will Occur and Provide the Benefits Alleged

Independent of other concerns about the sufficiency of the proposed preservation as mitigation for the impacts of the taking that will result from the covered activities, the HCP is inadequate because it will not verify key information about the proposed preservation lands until after the ITP is issued, and will *never* verify other key information relevant to determining the extent to which impacts are offset. Moreover, the HCP apparently lacks a mechanism to ensure that the entirety of the Preserve Area actually will be subject to permanent preservation and maintenance.

First, the HCP states that aerial imagery to confirm the current land use/cover types in the Preserve Area will not be obtained until *after* the ITP is issued.¹⁸⁰ This means that if cover types have changed since the survey information relied upon in the HCP to develop its mapping of cover types, which appears to date from 2016 at the latest,¹⁸¹ the calculation of PHUs for that area may reflect an overestimate compared to actual conditions in 2019. This should be evaluated before the ITP is issued, not after.

Second the HCP states that Preserve Areas will not be subject to biological surveys to evaluate the extent to which they are actually used or occupied by the covered species.¹⁸² The HCP instead will rely on the modeled suitability of lands within the Preserve Areas. This means that for many of the covered species, the HCP will be “offsetting” impacts from definitely destroying occupied habitat in the Covered Activities Area (because the presence of the species as detected

¹⁸⁰ See, e.g., HCP at 242, 261.

¹⁸¹ See HCP at 47. The HCP cites the 2016 FFWCC and Florida Natural Areas Inventory Cooperative Land Cover version 3.2. Vector.

¹⁸² See HCP at 264.

by project specific biological surveys in the Covered Area is what triggers the requirements for mitigation), by protecting other areas that may in fact not be used or occupied by that species for reasons not captured by the suitability model. The failure to actually ascertain whether the Preservation Area habitat is occupied or not, and to consider that in evaluating the impacts to the species, would violate the ESA.¹⁸³

Third, the HCP entirely fails to evaluate whether each applicant individually has sufficient ownership of lands within the Preserve Area to provide the alleged offset of the impacts associated with development of the parcels they own within the Covered Area. Nor does the HCP provide any mechanism whatsoever to ensure that individual Applicants who do not own enough acreage within the Preserve Area will be able to secure rights to preserve additional lands within the Preserve Area owned by other Applicants.

Fourth, the HCP appears to lack any mechanism whatsoever to ensure that the total acreage promised for preservation actually will be preserved, even if all of the development under the Covered Activities proceeds. The HCP appears to entirely defer the determinations about the areal extent and exact location of habitat in the Preserve Area that will be subject to easements/deed restriction to compensate for projects in the Covered Activities Area to future permitting decisions to be conducted by state and federal agencies. In this HCP, for most of the Covered Species, the Applicants provide no clear commitments to specific ratios for mitigation. Even for Florida panthers, the HCP uses the Methodology to show that enough habitat is theoretically available within the Preserve Area, but does not actually commit to providing compensation at least in accordance with that Methodology. Further, the HCP asserts that the Preserve Area contains more PHUs than necessary to compensate for losses in the Covered Area, which appears to mean that there would be lands within the Preserve Area that never become subject to deed restrictions or easements. Since the premise of this HCP relies entirely on maintaining the contiguity of the lands in the Preserve Area, it would be unlawful to conclude that such contiguity will be maintained when the reality is that lands within the Preserve Area might never become subject to permanent protections.

Further, the vague framework described in the HCP, whereby the actual decision about how much land will be covered by easements or deed restrictions is deferred to the permitting for individual projects, seemingly will avoid a forward-looking analysis of the total cumulative impact on Covered Species of all 40,000 acres being developed. This significantly undermines the whole alleged benefit of the HCP, which was to provide a landscape-scale assessment of the collective impacts and offsets of the proposed development. Without binding commitments to mitigation ratios that will ensure the entirety of the promised Preserve actually will be put into permanent conservation, it would be unlawful to conclude that the HCP provides any benefit that is tied to ensuring that all of the lands are indeed preserved, such as benefits derived from allegedly preserving corridors.

C. The Applicants Have Not Ensured that Adequate Funding Will Be Provided

¹⁸³ See *Southwest Center For Biological Diversity v. Bartel*, 470 F. Supp. 2d 1118 (S.D. Cal. 2006), *appeal dismissed and remanded on other grounds*, 409 Fed. Appx. 143 (9th Cir. 2011) (conclusion that taking would not appreciably reduce survival or recovery unlawfully failed to distinguish between occupied and unoccupied habitat).

The HCP repeatedly asserts that the mitigation measures to be provided under the Marinelli Fund are “additional” or “outside the plan,” the plain reality is that the land maintenance on which the HCP relies to assert that impacts will be “fully offset” in no way actually demonstrates that all impacts have been fully compensated for, nor that the land maintenance represents minimization and mitigation to the maximum extent practicable. Consequently, the “additional” measures, such as wildlife crossings and habitat restoration, must be assured through adequate funding mechanisms. The HCP does not provide an adequate funding mechanism.¹⁸⁴

The HCP states that the Marinelli Fund will receive funds from: (1) a \$350 per acre contribution paid within 90 days of the time that the developers receive certificates of occupancy from the county, or 90 days from the time product leaves a mining site; (2) a \$200 per unit fee paid when the housing units are sold or re-sold.¹⁸⁵ Taking into account that approximately 40,000 acres are proposed to be developed, this means that the per acre fee would constitute approximately 14 million dollars (40,000 acres x \$350/acre). Considering that, according to the HCP, 91,480 housing units are proposed to be developed, the initial sale of those units would generate approximately 18.3 million dollars (91,480 units x \$200/unit). This means that of the 150 million dollars that the HCP claims will be generated for the Fund over 50 years, approximately 117.7 million dollars will depend on the same units being repeatedly resold. To generate 117.7 million dollars with a \$200 re-sale fee per unit would require that each unit be resold approximately 6.4 times. The HCP provides no documentation or explanation of how it concluded that 150 million would be generated. Nor does it provide any documentation to support its implicit assumptions about how many times the units would be re-sold. Indeed, instead of supplying this necessary information, the HCP states: “The precise value of the revenue stream to be generated through these mechanisms over the 50-year term of the ITPs is unquantifiable at this time.”¹⁸⁶ Yet, far from providing a “precise” value, the HCP does not even support or explain the 150 million dollar estimate it provides.

Based on the structure of the funding mechanism, it is plain that only a fraction of the funds (the per acre fee) are generated at the time that impacts from habitat destruction will occur. Thus, if sales do not occur due to down turns in the real estate market, there plainly may be periods where the harms from habitat destruction will have accrued, but funding to address them may lag by years. Further, the extreme impacts on the Florida panther and other species from increased traffic and roads plainly will occur when initial sales of new housing units bring additional people into the area, yet the mitigation for that impact will turn on repeated resales over the course of decades. Thus the impacts of traffic will be felt long before funds are generated from the repeated resales on which the HCP relies to inflate its estimate of the available funding. In short, the harms from the development will be front-loaded, but the funding for necessary mitigation measures to address those impacts (such as wildlife crossings) will lag, and may also be subject to long funding gaps if resales slow.

The HCP asserts that a severe economic downturn “would not affect the sequencing where mitigation must be provided prior to the initiation of impacts and potential taking(s)” and that therefore “overall impacts and mitigation are in balance.”¹⁸⁷ But that statement relies entirely on

¹⁸⁴ See Noss Report at 14–15.

¹⁸⁵ HCP at 284.

¹⁸⁶ HCP at 284.

¹⁸⁷ HCP at 277.

ignoring the need for mitigation beyond the land preservation and maintenance the HCP proposes; it rests on the false assumption that the wildlife crossings and habitat restoration are not necessary to compensate for residual harms resulting from development activities.

The HCP provides no backup mechanism to ensure that there will be funding if there are lags or gaps due to the structure of the funding mechanism it describes. Nor does it demonstrate that no backup mechanism is necessary.

According to the HCP, the Marinelli Fund will pay for plan-wide monitoring and reporting as a first priority, with the remaining funds to be used at the discretion of the Marinelli Fund board for mitigation measures.¹⁸⁸ The HCP provides no estimate of the costs of such plan-wide monitoring and annual reporting. Instead, the HCP asserts with no foundation that, “These…costs are expected to be relatively modest, and will result in expenditure of only a small percentage of the revenue available in the Marinelli Fund.”¹⁸⁹

Nor does the HCP provide any estimate for the costs of the mitigation activities such as wildlife crossings and habitat restoration that it states will be carried out at the discretion of the Marinelli Foundation’s board.

Notably, the HCP asserts that it will rely on the Florida Fish and Wildlife Commission (FWC) to conduct all surveying and monitoring of Florida panthers that is necessary to evaluating the impact of the proposed activities and purported mitigation.¹⁹⁰ The HCP states that if additional funding for FWC is necessary to accomplish the surveying and monitoring, or that if FWC no longer can provide such surveying and monitoring, the Marinelli Fund “may” provide the required funds.¹⁹¹ The prospect that FWC may reduce or eliminate aspects of its panther monitoring program is not a mere possibility; the FWC discontinued planned capture season activities this past year.¹⁹² The HCP contains no estimate of what the costs of necessary surveying and monitoring could be, or how they compare to the availability of funds in the Marinelli Fund. This leaves an obviously mandatory component of the HCP (monitoring) in an uncertain state in terms of the adequacy of funding. Moreover, it may mean that mitigation activities do not occur or must be delayed because the available funding must be directed to monitoring instead.

¹⁸⁸ HCP at 285.

¹⁸⁹ HCP at 286.

¹⁹⁰ See HCP at 276.

¹⁹¹ See *id.*

¹⁹² See Craig Pittman, “Three decades of panther capture-and-collar program may come to an end,” Tampa Bay Times (Nov. 1, 2017), available at <https://www.tbo.com/news/environment/wildlife/three-decades-of-panther-capture-and-collar-program-may-come-to-an-end/2343066> (“But the annual ritual of capturing big cats to put radio collars on them may at last be at an end. ‘We may just choose not to have a panther capture season this year[.]’”); Florida FWC, Annual Report on the Research and Management of Florida Panthers: 2017-2018 (Oct. 18, 2018) at 12 (“No formal capture season was planned the 2017-2018 FY.”) (compare with Florida FWC, Annual Report on the Research and Management of Florida Panthers: 2016-2017 at 11 (Oct. 24, 2017) (describing planned capture season), and Florida FWC, Annual Report on the Research and Management of Florida Panthers: 2015-2016 at 11 (Sept. 26, 2017) .

In sum, the HCP fails to provide the basic information necessary to ascertain whether there will be adequate funding to administer the plan, comply with reporting requirements, fund necessary monitoring, and pay for necessary mitigation measures such as wildlife crossings and habitat restoration at the points in time when funding for those activities is necessary. The HCP both fails to show that the funding it anticipates will be sufficient in amount and timing, *and* fails to show that such funding is adequately certain to be provided.

1. The HCP Impermissibly Makes Restoration and Other Necessary Measures Optional and Discretionary

For Florida panthers, the HCP does not ensure that any habitat restoration or replacement will occur to minimize or mitigate for the impacts on the species.¹⁹³ Nor does the HCP ensure that any other mitigation measures, such as wildlife crossings, will actually be provided to offset the impacts to the species. Indeed the HCP expressly claims that: “These initiatives… represent additional benefits of the Plan that are not needed in order to fully offset the projected impacts of incidental take (because other elements of the Plan fully offset those impacts), and therefore the funded conservation initiatives are not prescribed or specifically required elements—as mitigation or otherwise—under the Plan of the ITPs.”¹⁹⁴ Yet, it is clear that the habitat preservation offered by the HCP will not in itself fully offset for the loss of vital habitat that will result from this proposal, nor for the impacts resulting from increased traffic and roads plainly caused by the same habitat modification. Consequently, these measures are necessary to offset impacts, and therefore cannot be relied upon unless they are mandatory, specific, and ensured by adequate funding mechanisms.

As the HCP concedes, the “additional” measures the HCP mentions, such as potential restoration of areas near the north- south corridors, and wildlife crossings, are entirely contingent on future discretionary decisions. Moreover, the HCP makes these measures dependent on adequate funding in the Marinelli Fund, but there is absolutely no information as to the extent to which these measures will be necessary to ensure that impacts actually are fully offset (in other words, how much land restoration and new land purchase would be required to ensure that the wildlife corridors remain intact and usable by the panther population, or how many wildlife crossings will be required to offset the increased mortality from vehicle collisions that will result from the increased traffic induced by their development), nor is there any assessment of what the costs of those measures are likely to be, or when the measures will be implemented, or whether adequate funds will be available at the point in time when the measures are necessary to offset the negative impacts being experienced by the species.¹⁹⁵ Notably, harms to the panthers from reduction of breeding habitat and constriction of corridors will happen as soon as ground-disturbing development begins, but the bulk of the funding for the Marinelli Fund turns on sales and repeated *resales* of the finished housing units.¹⁹⁶ Thus while the harms to the species will be immediate and certain, the funding for these proposed mitigation measures turns on sales (and

¹⁹³ This contrasts with the provisions of the HCP relating to a few of the other species, for which specific ratios for habitat replacement through restoration are identified.

¹⁹⁴ HCP at 286.

¹⁹⁵ See Noss Report at 10–15.

¹⁹⁶ See analysis below, assessing inadequacy of funding mechanisms; *see also* Noss Report at 14–15.

resales) that may not happen for years, or that may dry up for extensive periods due to economic downturns.

The HCP provides no information to explain how the \$150 million of funds it estimates was calculated, nor does it provide information to show the anticipated cash flow over time. Nor does it compare the funding it asserts will be available through the Fund to costs for the wildlife crossings and habitat restoration that the HCP makes entirely contingent on these funds being available. Based on this HCP, the Service could not rationally conclude that the funding will be sufficient to provide enough mitigation to fully offset the harms of the proposed activities, nor that additional measures are not practicable.¹⁹⁷

Contrary to the repeated suggestion in the HCP, the measures to be provided under the Marinelli Fund are not providing benefits beyond what is necessary to offset the impacts to Florida panthers. At minimum, extensive habitat restoration in appropriately located areas is clearly necessary to offset the impacts of the habitat loss, and wildlife crossings are absolutely necessary to mitigate the impacts that will result from increased traffic and roads. The HCP does not provide a plan to assure that the necessary habitat replacement and wildlife crossings will be implemented. Due to the lack of specificity, the lack of requirements for implementation, and the lack of information to demonstrate that funding will be adequate to cover the full extent of necessary mitigation to offset impacts, the Service could not lawfully rely on these entirely discretionary, poorly defined, and questionably funded measures to conclude that the impacts have been fully offset.¹⁹⁸ Similarly, the vague “Best Management Practices” that the HCP purports it will “promote,” *see* HCP at 211, cannot be relied upon by the Service to evaluate whether the HCP satisfies the requirement to avoid, minimize, and mitigate to the maximum extent practicable.

2. The Service Cannot Rely on the Discretionary Measures that Might Be Provided Under the Marinelli Fund

The Service cannot rely on the discretionary measures that might be provided under the Marinelli Fund because doing so would improperly delegate the Service’s duties to a private entity and would create perverse incentives.

a. Relying on the Marinelli Fund Would Improperly Delegate the Service’s Duties to a Private Entity

In addition to the problems identified above, the Service cannot rely on the list of measures that might be provided under the Marinelli Fund to conclude that the requirements of ESA Section 10(a)(2)(B)(ii) and (iv) have been met because to do so would unlawfully delegate the Service’s decision-making to the Marinelli Fund board.¹⁹⁹ It is the Service’s duty to determine what

¹⁹⁷ *See Sierra Club v. Babbitt*, 15 F. Supp. 2d 1274 (S.D. Ala. 1998).

¹⁹⁸ *See Klamath-Siskiyou Wildlands Center v. National Oceanic and Atmospheric Administration*, 99 F. Supp. 3d 1033, 1053-54 (N.D. Cal. 2015) (“The Secretary cannot make this ESA § 10(a)(2)(B)(ii) finding by relying on mitigation that the Services cannot enforce.”). Nor could the Service lawfully rely on them to reach a no jeopardy conclusion. See, e.g., *Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 524 F.3d 917, 935–36 (9th Cir. 2008).

¹⁹⁹ *See Pub. Employees for Envtl. Responsibility v. Beaudreau*, 25 F. Supp. 3d 67, 107 (D.D.C. 2014).

mitigation measures must be undertaken to ensure that impacts are minimized and mitigated to the maximum extent practicable, and to evaluate whether the mitigation will ensure that the taking will not appreciable reduce the likelihood of the species' survival and recovery.²⁰⁰ The measures that the HCP's purports may be provided under the Marinelli Fund will be determined entirely by a board of private parties. The HCP expressly disclaims any binding commitment to undertake any of the described measures, and makes clear the intention that those measures will not be imposed as binding commitments in the ITPs. If the Service attempted nonetheless to rely on the prospect of those measures to conclude either that the obligations to minimize and mitigate have been satisfied or that the mitigation will be sufficient to avoid an appreciable impact on the survival and recovery, the Service would be unlawfully delegating its decision-making duty to non-governmental entities. It would be leaving to the Marinelli Fund board critical determinations about what mitigation measures are required and whether funding should be allocated to such mitigation. The Service cannot lawfully leave these decisions to private parties.

**b. The Structure of the Marinelli Foundation
Creates Perverse Incentives**

A further reason that the Service cannot lawfully rely on any mitigation measures that purportedly will be undertaken through the Marinelli Fund is that the structure of the Marinelli Foundation's board and the lack of any binding commitments to specific mitigation projects create perverse incentives for the four "environmental" group NGO board members to direct funds to "public education" rather than wildlife crossings or habitat restoration and replacement projects. Although the HCP purports that the groups and developers have agreed to a ranking of priorities that puts wildlife crossings and habitat restoration before most other expenditures,²⁰¹ the HCP does not indicate that these priorities will in any way be binding on the board's decisions. Nor does it provide any assessment of how those priorities will be applied when there are insufficient funds available to complete expensive mitigation measures such as wildlife crossings and habitat restoration.

Will no funds be spent until enough funding is available for those projects? Or will funds nonetheless be directed to other measures such as "public education," even though directing funds in that manner would ostensibly delay full funding becoming available for the higher priorities?

Will the Marinelli Fund be used to fund "public education" work by the four environmental organizations on its board, or to "matching funds" for "public education" work by those organizations? If that could possibly occur under applicable corporate law, then the board members from those organizations could have strong incentives to direct funding to "public education" rather than to wildlife crossings or habitat restoration. Further, funds could also be directed toward initiatives to reduce conflict between human activities and wildlife.²⁰²

Ostensibly, that could include measures such as payments to ranchers, which would benefit the developers themselves, who plan to continue to use lands in the Preserve Area for ranching.

²⁰⁰ 16 U.S.C. § 1539(a)(2)(B)(ii, iv).

²⁰¹ See HCP at 287.

²⁰² See HCP at 287.

The HCP thus describes a scenario where the board members may have significant incentives to agree to direct funds to these other measures. The Service cannot ignore the reality that without any binding commitments to complete any specified wildlife crossing or habitat restoration projects, there is significant potential for funds to be directed toward “public education” or other measures that benefit the board organizations or developers instead.

c. The HCP Fails to Show that Impacts Are Avoided, Minimized, and Mitigated to the Maximum Extent Practicable Through Measures Funded by the Marinelli Fund

The HCP relies on the faulty premise that the impact of the proposed activities will be fully offset by the proposed land preservation. The HCP discusses additional measures to be provided on a discretionary basis by the Marinelli Fund, but makes no assertion that either the habitat avoidance and preservation or the discretionary mitigation provided under the Marinelli Fund represent avoidance, minimization, and reduction of harm to the maximum extent practicable. As discussed in more detail below, the HCP provides inadequate documentation to support its rejection of an alternative that would better avoid impacts to panther habitat. Further, the HCP fails to provide any consideration whatsoever of whether the footprint of the Covered Activities Area could be reduced or shifted to better avoid panther habitat or the habitat of other covered species. The HCP provides no information to support a finding that the proposed configuration represents avoidance to the maximum extent practicable. Similarly, the HCP provides no information to show that the preservation of additional lands, or that enforceable requirements for habitat replacement and restoration, or wildlife crossings would not be practicable. Finally, the HCP provides no documentation to show that the funding mechanism provided by the Marinelli Fund reflects the maximum extent practicable in terms of what the proponents can pay to provide for compensatory mitigation.

3. The HCP Contains Inadequate Procedures to Address Economic Downturn

The HCP asserts that severe economic downturn will not affect the plan because the HCP ensures that mitigation will occur prior to the initiation of impacts.²⁰³ Again, this statement rests on the faulty premise that the proposed land preservation and maintenance will fully offset all impacts. The reality is that additional mitigation measures such as wildlife crossings and habitat restoration are necessary to mitigate obvious impacts that will occur as a result of the proposed actions. Rather than committing to and securing funding for such measures, the HCP provides them only on a discretionary basis, pending the availability of funds in the Marinelli Fund. The funding mechanisms for the Marinelli Fund fail to ensure that there will be adequate and sufficiently certain funding for these necessary mitigation measures. In particular, because the Marinelli Fund turns almost entirely on sales and repeated resales of housing units to generate funds, it is likely that those funds will dry out during periods of economic downturn. The HCP provides no mechanism to address that problem. Instead, it improperly attempts to ignore the problem by purporting that the mitigation measures that depend on the Marinelli Fund are merely “additional.”

²⁰³ See HCP at 277.

D. The Applicants Did Not Adequately Consider Alternatives Nor Explain Why Alternatives Are Not Being Utilized

The reasons stated in the HCP for rejecting the much less harmful and science-based Panther Review Team (PRT) Alternative are inadequate and do not explain why the proponents could not consider *any* other alternative that would result in less harm to the Florida panther by keeping development outside of Primary Zone and adult breeding habitat. The PRT Alternative²⁰⁴ configuration provides much more land protection than the Plan in areas important to the Florida panther and some other Covered Species.²⁰⁵ The PRT Alternative better avoids Primary Zone habitat and adult breeding habitat for the Florida panther by locating development activities in Secondary Zone lands. It also provides for more effective preservation of corridors for panthers.²⁰⁶ Similarly, the Conservancy's proposed vision map, submitted during the scoping process, depicts an alternative footprint for development that would direct all development outside of the Primary Zone, while still providing for a total development footprint that leaves 38,200 acres available for potential additional development, which would in combination of Ave Maria total 43,227 if completely built out.

The HCP does not mention the Conservancy's proposal, and cursorily rejects the PRT Alternative for the following reasons:²⁰⁷

- 13,000 acres of the total 45,000 acres of land the PRT Alternative allocates to development are owned by parties other than the HCP proponents;
- The PRT alternative is not "economically feasible" because some of the individual HCP proponents' lands would be entirely in the area designated for preservation;
- Some of the PRT recommendations are no longer available due to planning and permitting activities that have occurred during the years since the PRT recommendation was made.

This rationale starts with the flawed premise that the 11 HCP Applicants here necessarily are entitled to engage in dense development on at least 45,000 acres of land. The HCP provides no reason why an alternative that would authorize less total development is not economically or logically feasible for these Applicants.

Essentially, these developers are saying that if they cannot develop the likely maximum amount of lands in their ownership that would be allowed under the RLSA,²⁰⁸ they will choose not participate in this HCP because they would prefer to gamble that other options will better

²⁰⁴ It appears that the HCP and DEIS are referring to a map shown as Figure 13 from the PRT report as the "PRT Alternative." However, the PRT had several suggestions in their report, including moving development from the primary zone into the secondary zone. The latter PRT recommendation was the basis of the Conservancy's vision map. The Conservancy's vision map reflects a minor adjustment to that PRT recommendation to avoid some adult breeding habitat identified by Frakes et al. 2015 not encompassed within the primary zone.

²⁰⁵ See, e.g., Noss Report at 21.

²⁰⁶ See, e.g., Noss Report at 23.

²⁰⁷ See HCP at 297.

²⁰⁸ See Noss Report at 20, explaining that according to analysis by WilsonMiller (Stantec), only 43,312 acres of dense development could be authorized in the "open" area, and that amendments would be required to increase that amount to the 45,000 acres that the HCP proponents insist on.

optimize their individual economic interests (such as speculating that the results of an individual HCP or section 7 authorizations for a development on their land would allow more development). That is in no manner the same as saying that a smaller overall development footprint would not be economically or logically feasible. The Applicants here have done nothing to show that a smaller development footprint could not provide them with sufficient economic returns. There is no economic analysis at all to support the HCP proponents' assertions. In short, all they have said is that they don't want to develop anything less than what they have proposed here. If that were a legally sufficient reason for rejecting less harmful alternatives, it would completely gut the Section 10 requirement to avoid harm to the maximum extent practicable.

Further, the HCP proponents have done nothing to show that it is not possible to establish a banking, crediting, or pooling system, or some form of land exchange between the 11 owners that would establish adequate economic incentives to make continued participation in the plan economically feasible even for those landowners whose lands would fall entirely in the preservation areas under the PRT Alternative. In light of the HCP's assertion that the inclusion of these owners is key to the overall functionality of the plan in terms of establishing large contiguous areas for protection, it would seemingly follow that the remaining landowners have a strong incentive to ensure their participation through such alternative mechanisms. Yet there is no discussion of such mechanisms at all. Nor has the HCP shown that a reduced footprint of development for those landowners is not feasible. There is no explanation at all as to why a footprint that avoids at least some of the 13,000 acres of land at issue is not possible. Again, the rationale appears to be that the proponents just didn't want to do anything else.

Finally, the HCP's assertion that some aspects of the PRT have been foreclosed by planning and permitting that has occurred since 2009 does not provide an adequate basis for concluding that adoption of a slightly modified version of the PRT Alternative is not feasible. The HCP makes no attempt whatsoever to even explain what these specific aspects are, nor why adjustments cannot be made to account for them.

Moreover, the HCP entirely fails to consider any alternative that would ensure habitat restoration and replacement to compensate for losses of Florida panther Primary Zone and adult breeding habitat. Nor does it provide any reason why such an alternative would not be feasible.

Without economic analysis and other information affirmatively demonstrating that less harmful alternatives are not possible, the Service could not rationally reach a conclusion that the requirements of Section 10(a)(2)(B)(ii) have been met.²⁰⁹

The requirement to minimize and mitigate impacts to the maximum extent practicable is a stringent requirement. ESA Section 10(a) does not simply require minimization measures that are practicable, or minimization "to the extent practicable." Rather, ESA Section 10(a)(2)(B)(ii) requires minimization "to the maximum extent practicable." This language signifies a significantly more demanding standard than if Congress had simply said "if practicable" or "to

²⁰⁹ See, e.g., *National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1292 (E.D. Cal. 2000) (The Service failed to consider any alternatives that would provide greater mitigation than the proposed plan, and relied on conclusory statements rather than any economic analysis to assert that the proposed mitigation was the maximum practicable).

the extent practicable.” The Service must be able to affirmatively make a finding that (1) impacts have been avoided the maximum extent practicable, and (2) remaining impacts have been mitigated to the maximum extent practicable. The reasons provided by the HCP do not provide a basis for a rational finding on either of those points.

E. The HCP Will Reduce the Likelihood of the Survival and Recovery of Listed Species

The HCP provides no guarantee that 107,000 acres of lands in the Preservation/Plan-Wide Activities and Very Low Density Use areas will be set aside for conservation purposes, nor is there a clear explanation or description of what percentage of the land will be devoted to mixed uses, such as agriculture, development, and oil and gas exploration and development, and what areas will be left as “native habitat” for species. Furthermore, it is unclear what percentage of the 107,000 acres is presently used or usable by each of the species, and what percentage would require a Clean Water Act Section 404 permit for development anyway. Without this information, and in light of the significant amount of development in crucial habitat for the covered species, the Service cannot lawfully conclude that the HCP will not appreciably reduce the likelihood of survival and recovery of the species in the wild.

Furthermore, what little information exists in the HCP indicates that the plan will in fact appreciably reduce the likelihood of survival and recovery for the Florida panther by impairing North-South habitat corridors and causing a net loss of adult breeding habitat corridors, resulting in a net loss of adult breeding habitat because it is no longer functional. For example, the land proposed for development on the southeast side of Immokalee would completely cut off migration between southern and northern habitat. Although it is difficult to determine the total size of the proposed corridor to the east of Immokalee, it would need to be large enough and have enough buffer to facilitate the flow of panthers that currently use this area to migrate north from the southeast corner of the project area. Additionally, it is unclear what percent and locations within the Preservation/Plan-Wide Activities and Very Low Density Use areas provide suitable habitat for the listed species, including the Florida panther.

1. The Best Available Science Shows That Maintaining a Viable Panther Population in South Florida Requires No Further Loss of Breeding Habitat

As the 2008 Recovery Plan recognizes, a population size of 240 adults and subadults is the minimum necessary to maintain genetic viability and a high probability of the individual population persisting²¹⁰ After assessing the amount of adult breeding habitat actually remaining in southern Florida, Frakes et al. conclude: “Even if all of the adult habitat within southern Florida had the maximum adult density of 2.80 panthers per 100 km² as reported in Quigley and Hornocker, the total population would remain below 240 adults and subadults...Coupled with our findings, this indicates that there is not enough adult panther (breeding) habitat remaining in

²¹⁰ See Recovery Plan USFWS 2008 Florida Panther Recovery Plan available at <https://www.fws.gov/uploadedFiles/Panther%20Recovery%20Plan.pdf>. at xi, 84, 86, 99; Frakes et al. 2015 at 15. Citing Kautz R, Kawula R, Hoctor T, Comiskey J, Jansen D, Jennings D, et al. How much is enough? Landscape-scale conservation for the Florida panther. *Biological Conservation*. 2006; 130: 118–133.).

south Florida to maintain one genetically viable population.”²¹¹ Frakes et al, 2015 found that there was actually less adult breeding habitat remaining than previously thought:

The Water Conservation Areas on the east side of the Primary Zone, the Shark River Slough in Everglades National Park, and the long, narrow corridor extending east from the Primary Zone and bisecting the Secondary Zone, do not contain adult panther habitat according to the probabilities assigned to those areas by our model. These areas probably are used by transient males and fit more closely to the definition of the Secondary Zone.

Kautz estimated the primary zone size to be 3547 mi² (9187 km²), whereas Frakes 2015 estimates that the actual total amount of adult breeding habitat is only 2147 mi² (5579 km²).²¹² The figure presented below, taken from Frakes et al. 2015 at 9 Fig. 3, shows the Shark River Slough and Water Conservation Areas in relationship to areas Frakes et al. identified as adult breeding habitat.

In light of this scientific evidence showing that there is presently not enough breeding habitat to maintain one viable population in southern Florida, it is plain that “offsetting” the impact of destroying a substantial amount of that habitat cannot be achieved merely by not destroying other habitat. According to an analysis prepared by Dr. Robert Frakes,²¹³ the proposal will result in the direct loss of at least 16,799 acres (67.9 km²) of adult breeding habitat, which constitutes approximately 4.8% of the total adult breeding habitat in private ownership.²¹⁴ It is plain that offset the impacts of this habitat loss would require, at minimum, replacement by successfully restoring a commensurate amount of properly located habitat, under conditions that ensure it will actually replace the spatial extent and full function of the habitat destroyed.

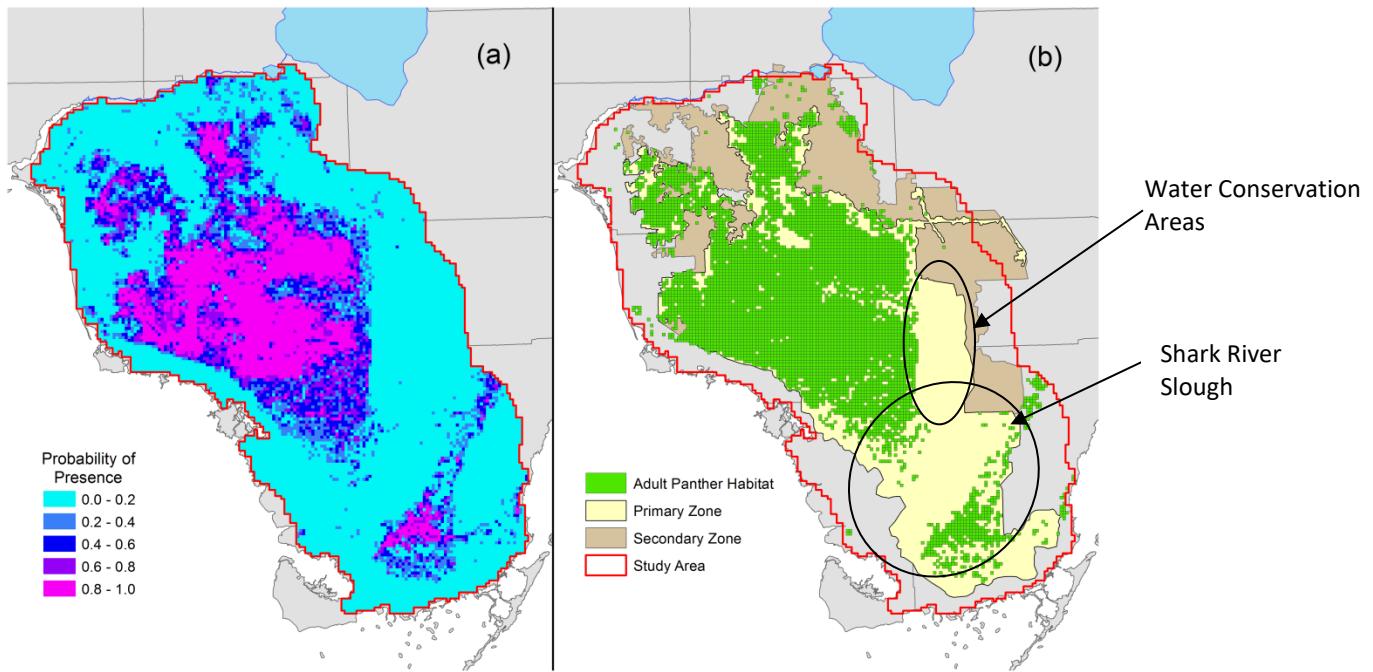
In short, the assertion that mere preservation of other habitat “offsets” for total destruction of breeding habitat does not comport with the best available science indicating that the species does not have sufficient breeding habitat to support a viable population, and therefore cannot tolerate net loss of additional breeding habitat.

²¹¹ Frakes et. al. (2015) at 15.

²¹² Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044, at 14, available at <https://doi.org/10.1371/journal.pone.0133044> (“The RF model indicates that 5579 km² of suitable adult panther habitat remain in southern Florida. Of this, 1399 km² (25%) is in non-protected private ownership. Of the available breeding habitat, approximately 5232 km² (93.8%) is contained within the Primary Zone defined by Kautz et al., and 211 km² (3.8%) is contained within their Secondary Zone. The remaining lands classified as adult habitat by our model (135.8 km², 2.4%) are disjunct patches outside the Primary and Secondary zones and are seldom used by panthers, except for transient males. The Secondary Zone of Kautz et al. is of little value to breeding panthers in its current state.”).

²¹³ Frakes, RA, Impacts to Panther Habitat from the Proposed Eastern Collier Multiple Species Habitat Conservation Plan: A Quantitative Analysis (Oct. 7, 2018) at 13, Table 1.

²¹⁴ Frakes 2015 estimated that there was 1399 km² of adult breeding habitat in private ownership. 67.9 km²/1399 km² = 4.85%.



F. The HCP Fails to Provide Procedures to Deal with Unforeseen and Changed Circumstances

The HCP fails to anticipate and provide procedures for dealing with circumstances that may change, like landowners dropping out of the HCP, changes in the Florida panther program, and other assumptions regarding this longterm 50-year HCP and take application.

1. The HCP Contains Inadequate Procedures to Deal with Landowners Dropping Out

The HCP asserts that if Applicants subsequently drop out of participation in the plan and abandon their permits, the remaining ECPO landowners will “work with USFWS to proportionally reduce the amount of acreage available for Covered Activities under this Plan” if the amount of Preserve Area is not sufficient to fully offset harm to covered species.²¹⁵ Yet this would not address the reality that non-participation by that landowner could diminish the value of other lands in the Preserve Area that already have been subject to deed restrictions/easements as mitigation for habitat destruction. The HCP repeatedly relies on the contiguity of the lands in the Preserve Area as a basis for asserting that the HCP will compensate for impacts to Florida panther and other species.²¹⁶ Indeed, the HCP acknowledges the need to exclude areas within the Preserve Area that are not interconnected from its calculation of the PHUs available in the Preserve Area.²¹⁷ If a landowner drops out, subsequent development of that landowner's property could isolate and fragment areas within the Preserve that have already been “protected” in exchange for habitat destruction. Thus the question should be not only whether further development should be proportionally reduced, but whether additional compensation and mitigation for the development that has occurred up to that point is required to address the failure

²¹⁵ HCP at 277.

²¹⁶ See e.g., HCP at 29, 30, 90, 292.

²¹⁷ See HCP at 90.

to ensure that the perpetually preserved lands will remain interconnected. In other words, because the value of each landowners' proposed conservation lands depends on contiguity being maintained, and therefore turns on participation by all of the owners, there must be some mechanism for reassessing whether additional mitigation measures are necessary to compensate for the development that has occurred already, not just for the remaining development that could occur.

2. The HCP Fails to Provide for Changes to the FWC Panther Program

The HCP fails to provide that funding will be available for panther monitoring, a necessary component of the plan, in the event that the FWC reduces or discontinues its panther research and management program. The HCP relies entirely on FWC to keep providing this monitoring, and yet fails to ensure that there will be sufficient funding to provide alternatives to that monitoring if FWC does not provide it.

3. Providing Assurances that No Further Mitigation Will Be Required Over a 50 –year Permit Term Fails to Meet the Requirements of ESA Section 10(a)(2)(B)(ii) and (iv)

Approving the proposed HCP and associated ITPs with assurances that no further mitigation will be mandated would unlawfully allow the landowners here to avoid any additional requirements for minimization and mitigation of the harms resulting from their activities, even if the proffered land preservation proves to be insufficient to, *inter alia*, preserve functional north-south corridors, ensure that home range restrictions do not exacerbate mortality from intra-species aggression, or address increased mortality from vehicle collisions caused by drastically increased roads and traffic. The HCP has failed to show that the impacts of the proposed development will actually be offset merely by the proposed land preservation. Its assertions that corridors will be preserved regardless of “additional” mitigation measures are not supported by any scientific evaluation. Further, the HCP refuses to commit to any mitigation to address the increase in vehicle collision mortality that will result from completion of the covered activities. The HCP provides no scientific basis to assert that vehicle mortality will be addressed by the mitigation that it does commit to undertake. Thus it is highly uncertain whether the proffered mitigation will be sufficient to address lasting impacts to the Florida panther population that will occur from impairment of north-south corridors and increased vehicle mortality.

Further, the impacts of climate change and sea level rise over the decades to come will make the Florida panther population even more dependent on inland habitats, such as the HCP area, exacerbating the consequences of impairing the north-south corridors and increasing the potential for vehicle mortality.

In light of the uncertainty of effectiveness of the proposed mitigation to address plainly foreseeable impacts, the uncertainty of implementation of any other measures, and the increased importance of the affected habitats to the species as a result of climate change, insulating these developers from any further mitigation requirements over the course of 50 years could have a

devastating effect on the species, and it would therefore be unlawful for the Service to approve the ITPs.²¹⁸

V. The Service Must Comply with Requirements for Intra-Service Consultation Set Forth in ESA Section 7 and Implementing Regulations

A. The HCP and DEIS are Inadequate to Supply the Analysis Necessary for the Service’s Biological Opinion

The Service is required to consult with itself and prepare a biological opinion; however, the HCP and DEIS here are inadequate to supply the detailed analysis required for a biological opinion.

“Each Federal agency” is required to review its actions to determine whether “any action” may affect listed species or critical habitat.²¹⁹ The instant application for an ITP contemplates an “agency action” by the Service—the approval or denial of the ITPs. The issuance of the ITPs “may affect” the Florida panther and other species addressed by the HCP since they authorize the taking of their habitat and affect their breeding, sheltering, feeding, travel and other characteristics.²²⁰ “The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”²²¹

The Section 7 consultation requirement applies equally to the Service’s actions in connection with the issuance of an ITP pursuant to Section 10(a)(1)(B) as it does to other federal agency actions that may affect endangered or threatened species. Accordingly, the Service acknowledges an intra-Service consultation regarding the issuance of each permit application under Section 10(a)(1)(B) is required.²²²

In this case, on information and belief, the Service is preparing a biological opinion (BiOp) to comply with its intra-service consultation duties.

The Service’s BiOp must be based on the “best scientific and commercial data available,”²²³ and in it the Service “must state a rational connection between the facts found and the decision made.”²²⁴ To comply with Section 7(b)(3) of the ESA, the Service’s BiOp must “detail[] how the agency action affects the species or its critical habitat.”²²⁵

The HCP and DEIS here are inadequate to supply the detailed analysis required for a BiOp. As set forth above, they are not based on “the best scientific and commercial data available,” as

²¹⁸ See *Southwest Center for Biological Diversity v. Bartel*, 470 F. Supp. 2d 1118 (S.D. Cal. 2006), appeal dismissed and remanded on other grounds, 409 Fed. Appx. 143 (9th Cir. 2011).

²¹⁹ 40 C.F.R. § 402.13.

²²⁰ 16 U.S.C. § 1532(19).

²²¹ *Id.*; see *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, (1995) (“harm” includes habitat modification); *Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1055 (9th Cir. 1994), cert. denied, 514 U.S. 1082, 115 S.Ct. 1793, 131 L.Ed.2d 721 (1995) (U.S. Forest Service land management plans were “actions that ‘may affect’ the protected salmon because the plans set forth criteria for harvesting resources within the salmon’s habitat”).

²²² See e.g. HCP Handbook at G-17.

²²³ 16 U.S.C. § 1536(a)(2).

²²⁴ *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, 378 F.3d 1059, 1065 (9th Cir. 2004).

²²⁵ 16 U.S.C. § 1536(b)(3).

required by Section 7(a)(2) and NEPA. Also, the Service began its BiOp before receiving the final HCP from the Applicants and before taking public comment on the HCP and DEIS. This indicates the Service is not relying on the science submitted in the comment period, and may have pre-decided the HCP, ITP, and its own incidental take statement and whether they will jeopardize species, which is arbitrary and capricious.²²⁶

1. The Information Provided in the HCP is Inadequate to Establish Baseline Considerations

The HCP does not provide the Service the information it needs to determine the environmental baseline, a necessary foundation to analyzing the effects of the project and for determining whether the project will jeopardize listed species.

Under ESA section 7(a)(2), the Service’s consultation process must “[e]valuate the current status of the listed species or habitat” and “the effects of the action and cumulative effects on the listed species or critical habitat.”²²⁷ “Effects of the action” and “cumulative effects” have specific meanings in the context of formal consultation under Section 7. Assessing the “effects of the action” requires the Services to define an “environmental baseline” and add to that the “direct and indirect effects of an action on the species or critical habitat, together with the effect of other activities that are interrelated or interdependent with that action.”²²⁸

Determining the environmental baseline requires a description of “the *past and present* impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all *proposed* Federal projects in the action area ... and the impact of State or private actions which are *contemporaneous* with the consultation *in progress*.”²²⁹ This baseline includes certain anticipated actions that have *already* undergone formal or early consultation.²³⁰ Thus, the proper baseline is the *present* status of the habitat and species, and this is the environmental baseline against which the HCP should be judged.²³¹

For example, in this case, the HCP states that its proposal will result in an estimated 91,480 new housing units, and 174,000 new residents.²³² The HCP does not assess the increase in vehicle trips or traffic that will be associated with that additional population, but Dr. Noss estimates that using the HCP’s projections of new housing units and residents, an additional 182,960 vehicles

²²⁶ See *Sierra Club v. Bosworth*, 510 F.3d 1016, 1026 (9th Cir. 2007) (the Department of the Interior inappropriately decided to establish a NEPA categorical exclusion for hazardous fuel reduction before conducting the data call).

²²⁷ 50 C.F.R. § 402.14(g)(2)-(3).

²²⁸ 50 C.F.R. § 402.02. *see also*, Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1063 amended, 387 F.3d 968 (9th Cir. 2004) (“The BiOp should address both the jeopardy and critical habitat prongs of Section 7 by considering the current status of the species, the environmental baseline, the effects of the proposed action, and the cumulative effects of the proposed action. 50 C.F.R. § 402.14(g)(2)-(3).”).

²²⁹ 50 C.F.R. § 412.02 (emphasis added).

²³⁰ See, *Defenders of Wildlife v. Babbitt*, 130 F.Supp.2d 121, 126 (D.D.C. 2001).

²³¹ See e.g., *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 928-29 (9th Cir. 2008) (finding NMFS’s BiOp violated the ESA because its jeopardy analysis relied on hypothetical operations and uncertain long-term improvements in its baseline).

²³² HCP at 33.

would be on the road due to the proposed development.²³³ This is a conservative estimate and the amount of vehicles based on the HCP, but it may actually be closer to 225,000 vehicles.²³⁴ Analyzing the impacts of 45,000 acres of development in a similar footprint to the submitted HCP, the PRT found that the HCP Covered Activities would add an estimated 400,000 additional daily trips on existing roads and 425,000 daily trips on new roads.²³⁵

These are the impacts that must be measured against the environmental baseline. The Service cannot merely measure the incremental harm of this against speculative development scenarios that assume any or all other development would necessarily occur or be approved (in a piecemeal fashion or otherwise) by the Service, the Corps, and other federal agencies. Nor can the Service assume or project the mitigation measures that might be required of these hypothetical future projects under the ESA, CWA and NEPA. This includes the RLSA, ranchette-style development, and potential mining. In short, the Service is obligated to compare the effects of the proposed HCP project against a baseline of no such other development.²³⁶

2. The Proposed HCP will Cause or Contribute to Jeopardy of the Florida Panther.²³⁷

The Florida panther recovery plan calls for increased habitat and populations, not no-net loss or a decrease in habitat, therefore, the Service cannot find that this HCP which proposes to destroy 45,000 acres will not result in jeopardy.

The purpose of intra-service or internal consultation, like any Section 7 consultation, is to insure that any action authorized, funded, or carried out by the federal government, including the

²³³ Noss Report at 11.

²³⁴ *Id.*

²³⁵ Florida Panther Protection Program Panther Review Team, 2009. Technical review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County. P. 54, 68-69.

²³⁶ Similarly, the Service cannot consider other development inevitable if this HCP is denied, and use that as the basis for its NEPA no action alternative, as it has here. The no action alternative “provide[s] a baseline against which the action alternative...is evaluated.” *Ctr. for Biological Diversity v. U.S. Dep’t of the Interior*, 623 F.3d 633, 642 (9th Cir. 2010). “Without [accurate baseline] data, an agency cannot carefully consider information about significant environment impacts...resulting in an arbitrary and capricious decision.” *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011). “Courts not infrequently find NEPA violations when an agency miscalculates the ‘no build’ baseline or when the baseline assumes the existence of a proposed project.” *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012). In short, an agency cannot assume that development is inevitable. *Davis v. Mineta*, 302 F.3d 1104, 1122-23 (10th Cir. 2002) (noting that “[a] conclusory statement that growth will increase with or without the project, or that development is inevitable, is insufficient”), abrogated on other grounds. *See also High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1197 (D. Colo. 2014) (rejecting the government’s argument that “the same amount of coal will be burned” regardless of whether the government approved leases for coal production). Although the Service here notes other development would be subject to permitting, it nonetheless includes future development in its “no-action” alternative, stating individual applicants would be “free to independently pursue” residential or commercial development under base-zoning or the RSLA as well as earth mining activities. DEIS at 18-19.

²³⁷ In addition to causing jeopardy to the Florida panther, the HCP would cause jeopardy to the some or all of the other covered species, for the reasons discussed in these comments. This includes significant impacts to what the FWS should have designated as “critical habitat” for the bonneted bat that is the subject of pending litigation in the U.S. District Court for the District of Columbia.

Service's issuance of an ITP, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species.²³⁸

As part of its analysis the Service must consider whether the proposed action hinders recovery. The objective of the ESA is to recover listed species to the point at which "the measures provided pursuant [to the Act] are no longer necessary."²³⁹ "[I]n exceptional circumstances," injury to recovery prospects alone could result in a jeopardy finding.²⁴⁰ Therefore, the Services must give "some attention to recovery issues" in the BiOp to ensure that the agency action "will not appreciably reduce the odds of success for future recovery planning, by tipping a listed species too far into danger."²⁴¹ But in this case, the HCP and DEIS are lacking consideration of whether the HCP would hinder the *recovery* of listed species. A valid BiOp must supply this analysis.²⁴²

When a species is already in jeopardy, like the Florida panther, the action agency "may not take action that deepens the jeopardy by causing additional harm."²⁴³ The BiOp must consider whether certain "activities in particular areas were fundamentally incompatible with the continued existence of the species."²⁴⁴ For the Florida panther, the Recovery Plan calls for increased habitat and populations—not no-net loss or a decrease in habitat. Applying these principles, the Service should find the project would cause jeopardy to the species and deny the HCP.

a. The Habitat Loss Caused by the HCP will Jeopardize the Continued Existence and Recovery of the Florida Panther

As set forth above in these comments, the primary habitat loss caused by the HCP will cause jeopardy and inhibit recovery of the Florida panther. To reiterate:

²³⁸ See, 16 U.S.C. § 1526(a)(2); 63 Fed. Reg. 8859, 8861–62 (Feb. 23, 1998) (FWS statement on the "no-surprises" rule).

²³⁹ 16 U.S.C. §1532(3); *see Sierra Club v. FWS*, 245 F.3d 434, 438 (5th Cir. 2001).

²⁴⁰ *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 932 (9th Cir. 2008).

²⁴¹ *Id.*

²⁴² The HCP and DEIS are both inadequate for not analyzing the impacts on recovery. The term "conservation" in "habitat conservation plan" includes recovery. *See* 16 U.S.C. § 1532(3): "The term [...] 'conservation' mean[s] to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measure provided pursuant to this chapter are no longer necessary." *Id.*; *see Sierra Club v. Babbitt*, 15 F. Supp. 2d 1274, n. 3 (S.D. Ala. 1998) ("Pursuant to section 10, the FWS may issue a permit for the 'incidental take' of some members of the species, if the applicant for the permit submits a 'conservation plan' that will—as its name plainly connotes—help 'conserve' the entire species by facilitating its survival and recovery.") (Emphasis added.) Congress directed the Services to "consider the extent to which [a] conservation plan is likely to enhance the habitat of the listed species or increase the long-term survivability of the species or its ecosystem." HCP Handbook at 7-4.; H.R. Report No. 97-835, 97th Congress, Second Session (Emphasis added). The Service implicitly recognizes its obligation in the DEIS, stating it will "[e]nsure that issuance of any ITPs and implementation of the ECMSHCP achieve long-term conservation objectives for the covered species and affected ecosystems in southern Florida." DEIS at 10.

²⁴³ *Nat'l Wildlife Fed'n v. NMFS*, 524 F.3d at 930.

²⁴⁴ *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988).

- The Recovery Plan recognizes that “habitat loss, fragmentation, and degradation, and associated human disturbance are the greatest threats to panther survival and among the greatest threats to its recovery.”²⁴⁵
- Protecting the primary habitat is necessary to save the Florida panther. According to the Service, the Primary Zone is “essential to the long-term viability and persistence of the panther in the wild.”²⁴⁶ Contrary to this, the HCP proposes to directly destroy 19,565 acres of these critical lands.²⁴⁷
- “The maintenance of existing home ranges and habitat function within the Primary Zone is *essential to maintaining a viable Florida panther population*. Assessments of potential impacts of proposed developments within the Primary Zone should strive to achieve *no net loss* (emphasis added) of landscape function or carrying capacity for panthers within the Primary Zone.”²⁴⁸
- As the Kautz et al. Primary Zone and the Frakes et al. Adult Breeding Habitat support the only known breeding population unit of the Florida panther, “any loss of reproductive capability . . . can represent jeopardy because the survival of the entire species is significantly impaired.”²⁴⁹
- Kautz et al. and the Recovery Plan both delineate primary habitat, as crucial for Florida panther continued survival and recovery, and recovery goals state that these lands be maintained in order to “contribute to a viable population.”²⁵⁰
- In order to support even a critically-endangered population, Kautz et al states that “*no* habitat loss or catastrophes can be tolerated.”²⁵¹ Root et al. (2004), also stipulated that “unless the current condition, amount, and configuration of the currently occupied panther habitat are safeguarded, the long-term viability of the panther is not secure.”²⁵²
- According to Frakes (2015): “this [panther] population may already be at or close to carrying capacity, yet the panther population is below what is required for long-term genetic viability. . . . Further loss of adult panther habitat is likely to reduce the

²⁴⁵ U.S. Fish and Wildlife Service, 2008. Florida Panther Recovery Plan, 3rd Revision. P. 36. As the FWS has concluded, “[r]apid development in southwest Florida has compromised the ability of landscapes to support a self-sustaining panther population.” *Id.* at 38. As well as directly destroying panther habitat, rapid development is fragmenting what little habitat remains into small blocks thereby leaving panthers trapped on ‘islands’ of remaining habitat. As the Service explains, “small populations may become isolated, subjecting them to demographic and stochastic factors that reduce their chances of survival and recovery.” *Id.* at 39.

²⁴⁶ Recovery Plan at 27.

²⁴⁷ HCP at 88. This does not include Primary Zone impacts from Town of Ave Maria.

²⁴⁸ Kautz 2006 (quoted in attached Frakes report).

²⁴⁹ US Fish and Wildlife Service, 1998. Endangered Species Act Section 7 Consultation Handbook. P. 4-37.

²⁵⁰ Florida Panther Recovery Plan at 101.

²⁵¹ Kautz, et al, 2006. How much is enough? Landscape-scale conservation for the Florida panther. *Biological Conservation*: Vol. 130, p. 118-133. p. 129. (Emphasis added.)

²⁵² US Fish and Wildlife Service, 2008. Florida Panther Recovery Plan, 3rd Revision p. 96.

prospects for survival of the existing population, and decrease the probability of natural expansion of the population....”²⁵³

- “In conclusion, approval of the [HCP] by the USFWS would appreciably reduce the likelihood of survival and recovery of the Florida panther, due to significant habitat loss and fragmentation.”²⁵⁴

The panther habitat unit or credits, *i.e.* the conservation banking system the HCP proposes, does not offset these jeopardy factors. As discussed above, it is based on the false premise that the species can tolerate further losses of privately owned primary zone habitat in South Florida. The best available science (Frakes et. al. 2015) shows that it cannot. The Florida Panther Recovery Plan also emphasizes that the *total* available area, quality and spatial extent the primary zone should be preserved to support the remaining population of endangered Florida panther. The HCP is contrary to the experts who caution the mitigation proposed (e.g., preservation of the undeveloped area for agriculture and low-density housing plus funding) is not sufficient to protect the species from jeopardy.

The Service must analyze the habitat loss proposed by the HCP along with the effect of authorizing past and concurrent take of the Florida panther. A cursory review of the Service’s previous biological opinions addressing the Florida panther reveals that the Service has authorized the destruction of at least 96,850.95 acres of Primary Zone habitat, 20,205.76 acres of Secondary Zone habitat, and 27,760.56 acres of Dispersal and other panther habitat.²⁵⁵ The Service has authorized the destruction and fragmentation of at least 144,817.36 acres of panther habitat since 2000.

Date	Project Name	Project Type	Primary Zone	Secondary Zone	Dispersal Zone/Other Areas
2/19/99	Modified Water Delivery				
6/9/00	Naples Reserve	Development	688		
7/14/00	BCNP ORV Management Plan	ORV Trails			
1/30/02	Ft. Myers Mine #2	Mining	5269		
10/8/02	Winding Cypress	Development	1928		
4/1/03	Everglades National Park 2003-05 Prescribed Burn	Burn plan			
1/18/05	Bonita Springs Utilities Wastewater Treatment Plant	Development			78.92
2/22/05	Ave Maria University DRI	Development	2125	2902	
3/9/05	Mirasol Development	Development	709.77		

²⁵³ Frakes, et al., 2015. Landscape Analysis of Adult Florida Panther Habitat pp. 15-16. (Emphasis added.) This report constitutes best available science, and is supplemented by the Frakes report submitted with these comments, which are “the best scientific and commercial data available” under ESA section 7(a)(2).

²⁵⁴ Frakes 2018 Report attached, at p. 23.

²⁵⁵ See Exhibit “Florida Panther Biological Opinions”.

5/9/05	Worthington Holdings Southwest	Development		2,329.96	
6/29/05	Wentworth Estates	Development			917.19
9/8/05	Parklands Collier	Development			301.02
1/4/06	Collier County Airport Authority	Airport			66.95
1/4/06	Logan Blvd. Extension	Road Expansion			40.2
1/12/06	Tamiami Trail Portion of the Modified Water Deliveries	Bridge	9.28		
1/13/06	Journey's End	Development			65.87
1/26/06	The Orchard	Development			92.71
2/9/06	Firano at Naples	Development			40.48
2/22/06	Corkscrew Widening	Road Widening	62.5		
2/23/06	Summit Church	Development	10.03		
3/31/06	Coral Keys	Development	5.36		35.6
4/14/06	EAA Reservoir A-1	Reservoir			15456
4/16/06	Sabal Bay	Development			1017.62
11/2/06	USAF JIFE				
3/9/07	Airport Interstate Commerce Park	Development	273.44		
3/26/07	Alico Airpark Center	Development	165.5		
7/23/07	West Basin Storage Reservoir Project	Reservoir	144	5,236	4,955
8/28/07	Terafina (Saturna Falls)	Development	437		
10/15/07	Big Cypress Regional General Permit-83				
6/26/08	Immokalee Master Plan	Development	345.8	13.7	146.04
7/2/08	Kaicasa	Development	71.9		
7/23/08	Premier Airport Park LLP	Development	179.81		
12/17/08	McMullen Parcel	Development	40.4		
2/12/09	Florida Rock Industries Fort Myers Mine No. 2	Development	1,738	582	
2/26/09	Oil Well Road Widening	Road Widening	328.6		
3/12/09	Picayune Strand Restoration		8185		
3/16/09	C-111 Spreader Canal Western Phase 1 Project				
3/30/09	Citygate Development, LLC and GG II, LLC	Development	240		
4/17/09	L-30 Seepage Management Pilot Project				
8/21/09	Babcock Ranch Independent Special	Development	9367.91		
12/22/09	Decompartmentalization Physical Model				

5/21/10	Biscayne Bay Coastal Wetlands Project Phase 1				
10/18/10	Tamiami Trail Modifications: Next Steps Project				
11/18/10	Big Cypress National Preserve Final General Management Plan - Addition		16,808		
1/6/11	Big Cypress Seminole Indian Reservation Prescribed Burn Plans		26,611		
4/5/11	Big Cypress Seminole Indian Reservation Programmatic Home Site Plan	Development	12783	7507	4516
4/5/11	FWC Funding Assitance RCW Translocations				
6/28/11	Interstate 75 Recreation Area at the L-28 Canal		14.88		
8/4/11	State Road 80 from U.S. Highway 27 to County Road 833	Road Widening	78.35		
10/19/11	Hogan Island Quarry	Mining	967.65		
1/25/12	University Highlands	Development	208.42		
2/7/12	Atlantic Civil, Incorporated Mine	Mining	494.1		
3/6/12	I-75 Interchange and Access Road at SW FL Int. Airport	New Road	134.78	4.16	
4/30/12	Section 20 Mine	mining	670.85		
6/1/12	SR 80 Widening from Birchwood Parkway to Dalton Lane	Road Widening		39.58	
6/5/12	Alligator Alley Recreation Area at Mile Marker 63		7		
7/18/12	Hacienda Lakes	Development	672.42		
8/13/12	Off Road Vehicle Trail Heads and US Highway 41 Turn Lanes Project		14		
8/17/12	Seminole Tribe of Florida Rock Mine Expansion		205		
11/9/12	Big Cypress Seminole Indian Reservation Native Area Prescribed Burn Plan				
12/17/12	South Central Florida Express Citrus Rail Extension Project	road expansion		75.73	
5/7/13	Central Everglades Planning Project				

7/23/13	Florida City Prison	Development	37.9		
8/16/13	USDA Natural Resources Conservation Service Statewide Prescribed Fire Program				
2/19/14	Collier County Resource Recovery Park	Development	344.2		
6/22/14	Cemex Alico North Quarry - Phase 3C Expansion	Development	2262.58		
12/10/14	Seminole Tribe of Florida's 10 Year Plan				
2/4/15	State Road 80 from Indian Hills Drive to County Road 833	Road Widening		156.23	
6/29/15	State Road 80 Widening from Dalton Lane to Indian Hills Drive	Road Widening		169.75	
6/30/15	Everglades National Park Fire Management Plan				
9/21/15	WildBlue Residential Development	Development	800.33		
11/5/15	Argo Warm Springs Single-family Residential Development	Development		99.43	14.24
11/18/15	Treeline Distribution Center	Development		17.33	
1/28/16	State Road 29 widening from State Road 82 to County Road 80A	Road Widening	210.38	180.03	
3/16/16	I-75 Construction at mile marker 63	Road	10.61		
5/20/16	Golden Gates Estates Bridge	Road improvements		100.97	
8/9/16	The Place				
8/26/16	Rockedge Residential Development	Development	82.47		
9/19/16	Extension of Tree Farm Road and Woodcrest Drive	Road construction		4.49	5.92
2/2/17	Richmond Park Residential Development	Development		15.89	
2/28/17	New Runway 6R-24L at Southwest Florida International Airport	Airport	560.16		
3/22/17	Alico Road Widening from Ben Hill Griffin Road to east of Airport Haul Road	Road Widening	31.14		
4/6/17	San Marino	Development	136.98		7.79

5/9/17	Golf Club of the Everglades	Development		7.11	3.01
6/19/17	Addie's Corner Development	Development	23.3		
6/23/17	Florida Power and Light Nuclear Plants Units 6 and 7	Development	179.72		
1/23/18	Argo Corkscrew Crossing	Development	177.43		
3/26/18	Immokalee Sand Mine	Mining		764.4	
6/15/18	Lake Okeechobee Watershed Restoration Project				
6/18/18	Fire Management Plans Big Cypress Preserve and Florida Panther NWR				
TOTAL: 144,517.27 acres of panther habitat impacted			96850.95	20205.76	27760.56

The Service must take into account the tens of thousands of acres it has already allowed to be fragmented and destroyed in evaluating whether the additional 45,000 acres of destruction, plus more than 100,000 acres of uses supposedly more compatible-than-residential uses, will jeopardize the Florida panther. The Service must perform this analysis for every species covered in its intra-agency consultation on the HCP, but especially the Florida panther and eastern indigo snake.²⁵⁶

**b. The Increased Traffic Caused by the HCP Will
Lead to an Increase in Panther/Vehicle
Collisions and Jeopardize the Panther**

According to the DEIS: FWC data “reveals that vehicle strike mortalities are the number one cause of panther mortality”; and there have been 28 vehicle strike mortalities within the HCP area from 2013 to present (approximately 5.7 per year).²⁵⁷ There have been 77 panther mortalities due to vehicle strikes in the RLSA area from 1981 to December 2017 (see Attachment I).

Just as there is no estimate of the numbers of panthers that will be “taken” as a result of the land-use changes from the HCP, there is no estimate of the numbers of panthers that will be killed or harmed by the increased roads and traffic that will result from the HCP. A valid BiOp must supply this analysis.²⁵⁸

²⁵⁶ Exhibit “Eastern Indigo Snake Biological Opinions”.

²⁵⁷ DEIS at 60; *see also*, HCP at 69 (citing USFWS 2009; FWS 2017a, Appendix IV): “Panther-vehicle collisions and intraspecific aggression are the leading cause of panther mortalities.”

²⁵⁸ The Service is capable of providing such an analysis. See, e.g. the BiOp for the Corkscrew Crossing project in Lee County, Florida (attached) as Ex. _____. Even if the Service determines the number of likely injuries and deaths and devises an amount of acres to “offset” this, in this case it must deny the HCP and ITPs because: 1) they do not allow for any adjustment to their acreage or other alternatives (as they are outside the scope of the project); and 2) this would not be an alternative considered in the DEIS.

The DEIS addresses transportation issues by noting there will be long-term changes due to the HCP. The HCP would “generate additional traffic on local and regional roadways.”²⁵⁹ Vehicle miles would increase 6-6.8% annually over 50 years.²⁶⁰ As a result, roadways would be “at much higher volumes.”²⁶¹ Under the HCP alternative, “most roadways within the TAA [Transportation Analysis Area] will operate at much higher volumes,” and “[a]dditional roadway capacity will be required to support projected future travel demand in the [HCP] area.”²⁶² The HCP traffic increases “are anticipated to be greater than the No Action-Alternative.”²⁶³ It also notes increased resulting potential for panther-vehicle collisions.²⁶⁴ But like the HCP, the DEIS does not analyze or project actual numbers of panther deaths or injuries in any way.

The Applicants have tried to skirt this issue by not specifying the increased number of roads and road-widening projects necessary to support this increase in residences and population, the increase in vehicles, or the resulting panther injuries and deaths. The HCP notes the Services’ 5 year Endangered Species Act review for the Florida panther described the role of highways in the loss and fragmentation of panther habitat, as a barrier to movement and a significant source of panther mortalities²⁶⁵; that over time panther mortality has increased from vehicle collisions, as a function of increased panther population and increased traffic in the panther’s range²⁶⁶; and that four crossings have been constructed in the HCP area (two where deaths occurred previously).²⁶⁷ Nevertheless, the Applicants assert panther injuries and deaths due to increased car strikes are not part of the project or permits under review: “[T]he permits and Plan do not anticipate that the Covered Activities will cause, and therefore do not cover, panther-vehicle collisions.”²⁶⁸ The Service should deny the ITPs on this ground alone.²⁶⁹

²⁵⁹ DEIS at 4.

²⁶⁰ *Id.*; By 2050, the PRT estimated 400,000 additional daily trips on existing roads + 425,000 daily trips on new roads.

²⁶¹ *Id.*

²⁶² DEIS at 78; *see also* HCP at 149: “Housing and commercial developments . . . are accompanied by the development of roads.”

²⁶³ DEIS at 78. The attached Frakes Report at Figure 2 also shows the increased roads that are “reasonably certain to occur” if the HCP is approved. Figure 2(a) is based on a Stantec analysis of roads necessary to support 45,000 acres of development. He also notes there will be new roads in the preserved areas. *Id.* at 12. Not only will roads increase in the HCP area, the increased population and commercial development will lead to increased roads, widenings and traffic outside the HCP area to access and serve the new development.

²⁶⁴ DEIS at 89, 91.

²⁶⁵ HCP at 65.

²⁶⁶ *Id.* at 66.

²⁶⁷ *Id.*

²⁶⁸ HCP at 66 (emphasis added).

²⁶⁹ Regardless of whether the applicant considered this impact as part of the “action” for which they seek incidental take authorization, it must be considered as part of the Service’s NEPA analysis since it is reasonably foreseeable and interrelated with the Plan. *Klamath-Siskiyou Wildlands Center v. NOAA*, 99 F. Supp. 3d 1033,1060 (N.D. Cal. 2015) (finding pesticide use related to forestry action had to be considered). Additionally, the panther-strikes resulting from the increased traffic and construction of roadways contemplated by the Plan should be part of the impacts covered by the ITPs and ITS, which must be minimized or mitigated under section 10 and section 7. Also, because the “Covered Activities” are an “essential cause” of the roadbuilding and subsequent panther/vehicle collisions which are “reasonably certain to occur.” they should have been included in the action for which incidental take authorization is sought. See 50 CFR 402.02 (definition of “effects of the action”). *And see Babbitt v. Sweet Home Chapter of Communities for a Great Oregon* 515 U.S. 687 (1995) (the term “harm” in “take”

The Applicants' failure to consider increased panther deaths and injuries due to the increased roadbuilding and traffic as part of the HCP, and the DEIS failure to project and quantify these impacts, renders those documents arbitrary and capricious and contrary to the ESA and NEPA.²⁷⁰ A BiOp similarly limiting the action would be in violation as well. The ESA's implementing regulations define the phrase “[j]eopardize the continued existence of” as “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.”²⁷¹ The Service is required to evaluate the “[e]ffects of the action,” meaning “the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline.”²⁷²

Thus, the Applicants' failure to consider increased panther deaths and injuries due to the increased roadbuilding and traffic as part of the HCP, (like the DEIS failure to project and quantify these impacts), not only renders those documents arbitrary and capricious in violation of the ESA and NEPA, it means a BiOp similarly limiting the scope of the action would be in violation of the ESA and the Administrative Procedure Act²⁷³ as agency action that is arbitrary and capricious.²⁷⁴

The increased traffic that will result from this project and the inevitable increase in car strikes of panthers would also cause jeopardy.²⁷⁵ Under Fish and Wildlife regulations, an action that

“encompasses indirect as well as direct injuries . . . [and] § 10(a)(1)(B), strongly suggests that Congress understood § 9 to prohibit indirect as well as deliberate takings.”) The Applicants' omission of this effect makes its application incomplete and inadequate since Service regulations require the applicant to include a “complete description of the activity sought to be authorized.”” 50 C.F.R. § 17.22(b)(1)(i); 17.32(b)(1)(iii)(A).

²⁷⁰ ESA Section 10 and Section 7 require a specific determination of impacts. The HCP and DEIS, however, do not provide enough information for this determination, and leave it to the future. Applicants have not provided the configuration of the residential and commercial development, *see* HCP at 77; and without this information the Service cannot know the configuration of all the roads, their number or location, and hence cannot fully assess traffic volumes or threats to the panthers. This applies to roads in the HCP area as well as access roads, and roads to the mining sites. This site-specific information is necessary in advance for a valid BiOp and ITS, as well as valid HCP/ITPs and NEPA analysis, and the Service is responsible for obtaining it. *See* 50 C.F.R. § 402.14 (the agency must use the best scientific and commercial data available “or which can be obtained during the consultation for an adequate review of the effects”; and 40 C.F.R. § 1502.22 (agency duty to obtain information and required showing for incomplete or unavailable information).

²⁷¹ 50 C.F.R. § 402.02.

²⁷² *Id.*

²⁷³ 5 U.S.C. § 706(2)(a).

²⁷⁴ Furthermore, any mitigation measures purported to offset the take, e.g. habitat preservation or requiring fencing and crossings, whether in the HCP, NEPA documents, RPAs or RPMs, would have to consider the extent of the impact to be offset, *i.e.* the number of panthers likely killed or injured (by traffic or otherwise). Without this analysis, the efficacy of the off-set would be speculative and arbitrary. To justify a no-jeopardy finding, such measures must also be mandatory and enforceable. *See, See Ctr. for Bio. Diversity v. FWS*, 807 F.3d 1031, 1046 & n.12 (9th Cir. 2015); ; see also Endangered Species Consultation Handbook at 4-19 (1998) (“Since conservation measures are part of the proposed action, their implementation is required under the terms of the consultation.”).

²⁷⁵ Road construction associated with development does not just fragment habitat. It increases the likelihood of panther roadkills as traffic increases. The Service has stated that “[n]ew and expanded highways are likely to increase the threat of panther mortality and injuries due to collisions.” Fish and Wildlife Service, Florida Panther 5-Year Review: Summary and Evaluation at 18 (Mar. 27, 2009) (hereinafter ‘Five-Year Review’). For example, of the 24 panthers that died in 2009, 17 of those deaths were roadkills. *Scientific American*, Extinction Countdown,

reduces “appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species,” will jeopardize the species.²⁷⁶ Here, the *status quo* in the area is 5.7 panthers per year of mortality out of a population of as few as 120 total panthers. The Service should find the increased kills and injuries to panthers that will result from the project appreciably reduces the numbers of panthers and hence their chances for survival and recovery.

The Service cannot assume that other government programs, habitat acquisition, fencing or crossings will prevent jeopardy. The HCP notes the Florida Panther Recovery Plan calls for identifying current and planned roads that could be eliminated and retrofitted, and identifies several state and federal agencies involved, but does not state the applicant will do this or when it will occur.²⁷⁷ And it does not establish that the funding will be sufficient. Instead it indicates the cost of retrofits is site-specific.²⁷⁸

The Service cannot rely on the Marinelli Fund for its BiOp or as mitigation because the ESA requires federal agencies to “insure” that their actions do not jeopardize species.²⁷⁹ Adhering to the ESA’s text, courts have recognized that the measures an agency relies upon to insure against jeopardy must be: reasonably specific, certain to occur, and capable of implementation; they must be subject to deadlines or otherwise-enforceable obligations; and most important, they must address the threats to the species in a way that satisfies the jeopardy and adverse modification standards.²⁸⁰ Because the Marinelli Fund’s administration is discretionary, the Service cannot tell what specific measures it will take, whether and when, or whether these will be tied to, or sufficient to, mitigate specific impacts.²⁸¹

In *National Wildlife Federation v. NMFS*, for example, the Ninth Circuit invalidated a no-jeopardy BiOp that relied on the government’s intent to install “future...structural improvements to aid safe passage” of salmon through dams.²⁸² The court held that “such improvements” may

Motored Down: Record number of manatee, panther deaths in 2009 (Jan. 6, 2010). These deaths included a three- or four-month old kitten killed on New Year’s Eve. *Id.* There were 24 roadkill mortalities (out of 30 total) in 2017, and 34 roadkill mortalities (out of 42 total) in 2016. This information is available through FWC here: <http://myfwc.com/wildlifehabitats/managed/panther/pulse/>.

²⁷⁶ 50 C.F.R. § 402.02.

²⁷⁷ HCP at 106.

²⁷⁸ *Id.*

²⁷⁹ 16 U.S.C. § 1536(a)(2).

²⁸⁰ *Ctr. for Biological Diversity v. Rumsfeld*, 198 F. Supp.2d 1139, 1152 (D. Ariz. 2002); and see, e.g., *NWF v. NMFS*, 524 F.3d 917, 936 (9th Cir. 2008); *NRDC v. Kempthorne*, 506 F. Supp.2d 322, 357 (E.D. Cal. 2007); *NWF v. NMFS*, 254 F.Supp.2d 1196, 1211-12 (D. Or. 2003); *Pacificans for a Scenic Coast v. Cal Dep’t of Transp.*, 2016 U.S. Dist. LEXIS 119479 (N.D. Cal. Sept. 2, 2016); *Nat’l Audubon Soc’y., Inc. v. FWS*. 55 F. Supp.3d 316, 354 (E.D.N.Y. 2014).

²⁸¹ See e.g., HCP at 105: the Marinelli Fund is “expected to generate approximately 150,000,000 over the 50-year term of the ITP, which *may* be dedicated for high-recovery actions (e.g., wildlife crossing design and construction; habitat restoration.)(emphasis supplied). The use of “*may*” indicates it *may* be spent on other actions. There is also no indication when the amounts will be accrued sufficiently to take certain actions such as multi-million dollar road-crossings. There is no commitment to do this before the roads are built and operating. Moreover, a mere “expectation” is not sufficient on which to base a no-jeopardy finding. See, *CWIS v. U.S. Environmental Protection Agency*, 905 F.3d 49, 72 (2d Cir. 2018).

²⁸² 524 F.3d at 935.

not be considered “without more solid guarantees that they will actually occur.”²⁸³ The court explained, “[Not] even a sincere general commitment to future improvements may be included in the proposed action in order to offset its certain immediate negative effects, absent specific and binding plans.”²⁸⁴

Similarly, in *NRDC v. Kempthorne*, the court held that a process, even if mandatory, cannot be relied upon to support a no-jeopardy finding where there is no substantive obligation, “defined mitigation goals … [or] time for implementation prescribed.”²⁸⁵ The court explained “[a]lthough the *process* must be implemented by holding meetings and making recommendations, nothing requires that any *actions* ever be taken.”²⁸⁶

*Klamath-Siskiyou Wildlands Center v. NOAA*²⁸⁷ involved a 50 year ITP for owl and salmon. The court held NOAA could not factor in a non-applicant’s conservation efforts into the analysis of the company’s mitigation efforts because this relied on factors Congress did not intend it to consider. Mitigation is limited to actions by the “applicant.”²⁸⁸ Similarly, the Service here cannot factor in the projected efforts of the state and federal agencies, or the Marinelli Fund, on road crossings and other mitigation. Also, mitigation must be enforceable and specific, and consider the time-factors involved.²⁸⁹

Finally, there is no evidentiary support in the HCP or DEIS that the increased roads, traffic and panther deaths will *not* appreciably reduce the likelihood of the panther’s continued survival. There is no population viability analysis or other science-based assessment to back up such a conclusion.²⁹⁰ Nor can the Service assume that preserving habitat or foregoing development on certain lands is a sufficient offset for the panther injuries and deaths that will occur. As explained in the Frakes Report,²⁹¹ fencing and underpasses may not remedy the barriers associated with roadways which may prohibit free movement and expansion of the species (which the Recovery

²⁸³ *Id.* at 936.

²⁸⁴ *Id.*

²⁸⁵ 506 F. Supp. 2d at 355.

²⁸⁶ *Id.* at 356.

²⁸⁷ 99 F. Supp. 3d 1033 (N.D.Cal. 2015).

²⁸⁸ *Id.* at 1049; 16 U.S.C. § 1539(a)(2)(B)(ii).

²⁸⁹ 99 F. Supp. 3d at 1058.

²⁹⁰ The Service cannot rely on the absence of numbers of panthers that will be killed to claim there is no evidence the project will cause jeopardy. *See NRDC v. Kempthorne*, 506 F. Supp. 2d 322, 360 (E.D. Cal. 2007) (“an agency cannot abdicate its responsibility to evaluate the impacts of an action on a species by labeling available information ‘uncertain,’ because doing so violates Congress’ intent that the agencies ‘give the benefit of the doubt to the species.’”). As explained in the legislative history of the ESA:

If the biological opinion is rendered on the basis of inadequate information then *the federal agency has a continuing obligation to make a reasonable effort to develop that information*. This language continues to give the benefit of the doubt to the species, and it would continue to place the burden on the action agency to demonstrate to the consulting agency that its action will not violate Section 7(A)(2). Furthermore the language *will not absolve federal agencies from … developing adequate information on which to base a biological opinion*.

H.R. Rep. No. 96–697, at 12 (Conf. Rep.), *reprinted in* 1979 U.S.C.C.A.N. at 2576 (emphasis added). A no-jeopardy opinion based on a purported lack of information on increased panther injuries and deaths would be arbitrary and capricious.

²⁹¹ Frakes, RA, Impacts to Panther Habitat from the Proposed Eastern Collier Multiple Species Habitat Conservation Plan: A Quantitative Analysis (Oct. 7, 2018) at 22.

Plan finds critical to recovery); and even with them road kills can occur. The preservation of habitat simply does not compensate for the panther deaths and injuries that will result from the roads and traffic associated with the proposed 45,000 acre development.²⁹²

c. Climate Change

Another impact that the Service failed to analyze in the HCP and the DEIS, and hence cannot serve as the basis of a valid BiOp, is the compounding relation of the proposed intensified urban development of primary habitat with climate change impacts. The HCP mentions climate change in the context of whether it is an “unforeseen circumstance” that could require additional measures over the 50-year life of the HCP, and concludes it does not.²⁹³ It also alleges that because the HCP area is 12 ft. above sea-level it will not be impacted, and that the HCP development actually helps mitigate the adverse impacts of climate change by providing in-land residences for population shifts away from the coast that will occur due to climate change.²⁹⁴ It also alleges that by preserving 107,000 acres of panther habitat it mitigates the climate change impacts.

The DEIS includes a brief discussion at section 3.1.4 on climate change that notes sea level rise will not impact the HCP area because of its elevation. However, the DEIS, like the HCP, ignores completely the fact that because other habitat outside the HCP area will be lost and so it is desirable to preserve this higher ground as habitat. The U.S. Global Change Research Program projects that average sea levels will rise by 1 m or more by the end of the century. (Karl et al. 2009 at 24). And researchers have shown that a 1 meter rise in sea level would inundate 29% of existing panther habitat. (Whittle et al. 2008). Since a portion of this area is presumably primary panther habitat, protecting the primary habitat in the HCP is even more important. In other words, both the HCP and DEIS fail to analyze the fact that this development would be destroying more primary habitat, the loss of which is already threatened through a combination of rising seas, strong hurricanes, flooding, and other environmental disruptions caused by climate change.

Strong storms can also significantly damage inland habitat and bring floods which can kill the white-tailed deer, which is prey upon which panthers primarily feed. The loss of panther prey

²⁹² The Service includes panther deaths due to increased traffic as “indirect” impacts of development in the 2012 Panther Habitat Assessment Methodology (at 2). But its use of acres to offset panther deaths is limited to projects “that may not have habitat loss factors but will have traffic generation factors.” This project involves habitat loss factors, hence the methodology is inapplicable. Even if applicable here, it applies a “habitat surrogate” of 500 acres per year of habitat loss not to exceed 2,500 acres over a 5 year period. The HCP here lasts 50 years, hence acreage is not a proper surrogate for this HCP. Moreover, there is no basis for finding acres can offset roadway related mortality. The value of an individual panther death must be measured against the total population and the populations necessary for recovery, which this analysis does not do. Even adding 28 acres per panther to the base to give 32,951 acres per panther is arbitrary since it does not take into account these factors. The Service justifies this since it supposedly “could provide an incentive to implement crossings,” but this is not explained and mitigation measures that only “could” happen are insufficient to satisfy section 10 or section 7, much less on which to base a no-jeopardy finding. In short, there is no biological connection between the amount of habitat preservation in the HCP and the actual foreseeable impact to panthers from the increased roads, vehicles and deaths. *See* Noss Report, attached.

²⁹³ *See* HCP at 275-76.

²⁹⁴ *Id.*

base due to the effects of climate change was not analyzed by the Service in the HCP and DEIS.²⁹⁵

In sum, the BiOp cannot simply rely on the HCP and DEIS since their analyses are inadequate and omit analyses of impacts to habitats from the effects of climate change. The combined stresses of climate change and development on the already small panther population and its shrinking habitat, especially the primary habitat, pose a dire threat to the species. The solution is not to approve another 45,000 acres of intense development. Rather, the Service should deny the HCP and protect the panther's remaining primary habitat to give the species a better chance of surviving and recovering and adapting to the effects of climate change.

3. Reasonable and Prudent Alternatives

If the Service determines that a proposed action is likely to result in jeopardy or loss of critical habitat, the Service must set forth reasonable and prudent alternatives (RPAs) to the action, if any.²⁹⁶ Because they are intended to prevent jeopardy, these RPAs must be binding and enforceable.²⁹⁷ And, the RPAs should not be limited to the alternatives presented in the HCP or the EIS. In this case, however, the Applicants have declared that no alternative would be acceptable because it would not meet its financial objectives. Thus if jeopardy is found by the Service it must deny the application altogether.²⁹⁸

A. If the Service Finds the Project Will Not Jeopardize Listed Species, It Must Prepare an Incidental Take Statement

If the Service determines that a proposed action will result in incidental take of listed species but that the action and associated incidental take will not violate the ESA Section 7 jeopardy standard, the Service must attach an incidental take statement to the biological opinion.²⁹⁹ The incidental take statement sets forth the predicted impact to listed species, the reasonable and prudent measures that are necessary to minimize take, and the terms and conditions for the implementation of those measures.³⁰⁰ If the action agency complies with the

²⁹⁵ The FWS has acknowledged these dangers elsewhere, writing that “[c]limate change in south Florida could exacerbate current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management.” U.S. Fish and Wildlife Service, Biological Opinion for the Construction and Operation of the Fort Myers Mine No. 2 Project at 17-19 (Feb. 12, 2009); *see also* U.S. Fish and Wildlife Service, Biological Opinion for the Widening of Oil Well Road (Feb. 26, 2009). The FWS emphasizes that climate change’s consequences “would be particularly dire for the panther[,] which has no populations outside of lowlying South Florida.” *Id.*

²⁹⁶ 16 U.S.C. § 1536(b)(3)(A).

²⁹⁷ *See Forest Service Employees for Environmental Ethics v. U.S. Forest Service*, 726 F. Supp. 2d 1195, 1226 (D. Mont. 2010).

²⁹⁸ The Service should deny the HCP and ITPs; however as an example of an alternative see the Conservancy’s 2016 scoping comments and Exhibit C thereto. This reflects the recommendations made by the PRT, Kautz et al., and Frakes et al., that all urban development and mining be directed to the Secondary Zone. The Service’s omission of this alternative from the DEIS makes the NEPA analysis arbitrary. *See, CEC v. Salazar*, 875 F.Supp.3d 1233,1247 (D.Colo. 2012).

²⁹⁹ 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(1).

³⁰⁰ 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(1).

terms and conditions of the incidental take statement, the expected take is exempted from the take prohibition set forth in ESA Section 9.³⁰¹

With regard to actions over which the federal agency remains in control or with which the federal agency has discretionary involvement, re-initiation of formal consultation is required in the following instances:

- a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- d) If a new species is listed or critical habitat designated that may be affected by the identified action.³⁰²

1. The Service Must Specify the Impact, Including All Direct and Indirect Impacts, Including Habitat Effects, the Number of Expected Florida Panther Injuries and Deaths, and the Effect on Recovery

If the Service finds no-jeopardy, and issues an ITS, it must specify, i.e. limit, the permissible “take” of the listed species as required by the Act. Under the Act’s implementing regulations, an “incidental take statement” must set a numerical limit on the number of individuals of the listed species that may be taken, or, alternatively, use a surrogate measure, such as acres of habitat impacted, in which case it must describe “the causal link between the surrogate and take of the listed species, explain[] why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of individuals of the listed species, and set[] a clear standard for determining when the level of anticipated take has been exceeded.”³⁰³

Service guidance similarly requires “a specific number” or, at the very least, “some detectable measure of effect” or a “sufficient causal link” that “can establish a measure of the impact on the species or its habitat and provide the yardstick for reinitiation” of consultation.³⁰⁴

³⁰¹ 16 U.S.C. §§ 1538(a)(1)(B), 1536(o)(2).

³⁰² 50 C.F.R. § 402.16.

³⁰³ 50 C.F.R. § 402.14(i)(1)(i).

³⁰⁴ Consultation Handbook at 4-50; *see also Oregon Natural Resources Council v. Allen*, 476 F. 3d 1031, 1037 (9th Cir. 2007) (explaining that, if the Service uses a non-numerical measure for take, it must choose a surrogate “able to perform the functions of a numerical limitation” by “set[ting] forth a ‘trigger’ that, when reached, results in an unacceptable level of incidental take . . . and requir[es] the parties to re-initiate consultation”).

In the absence of a specific numerical value, the Fish and Wildlife Service must establish that no such numerical value could be practically obtained.³⁰⁵ It is not enough for the Service to rely on a vague analysis of surrogate indices might be used in place of specific numbers.³⁰⁶

Even in those rare situations where take cannot be expressed numerically a surrogate *must* be developed that is “able to perform the functions of a numerical limitation” – *i.e.*, setting a meaningful trigger for reinitiation of consultation.³⁰⁷ In *Miccosukee Tribe of Indians v. Bureau of Land Management*,³⁰⁸ the Eleventh Circuit held an ITS to be invalid precisely because the Service had failed to demonstrate why a numerical ITS was impractical *and* because the chosen habitat-based surrogate was arbitrary and capricious.

Here, the HCP fails to identify any numerical limit on the number of panthers that are expected to be killed or harmed through increased vehicle-collisions or any threshold that will trigger re-initiating consultation if the fatalities are higher than anticipated. The HCP describes the acres of impacted habitat, but harm to the panther from habitat destruction is separate from harm through increased vehicle-related fatalities. Without providing the requisite numeric limit on vehicle-related panther deaths, the Service would be violating its obligations under the Endangered Species Act.

Nor should the Service skirt this requirement as the Applicants have attempted in the impact designation in the HCP. The Applicants claim they are seeking ITP protection from the prohibition on “take” only in regards to the construction of the roads in the project area, not from the increased traffic and panther deaths and injuries that will result from creating these roads, which are necessary for the increased tens of thousands of residences and related population increase in the area. The increased roads, population and traffic are an obvious direct (or indirect) effect of the project, and will cause a greater risk of increased panther deaths. Although the Service should quantify the expected deaths from construction, it should not stop there. It should not segment the ITS to address the construction impacts only, and should quantify all the expected panther car strikes and deaths that would result from this development.

In this case, the habitat developed and purported to be preserved cannot serve as a surrogate for numbers of panthers killed or harmed, whether by habitat loss and/or car strikes, since this would violate the rule that an ITS cannot be coextensive with the scope of the project. In *Oregon Natural Resource Council v. Allen*,³⁰⁹ for example the Service had issued an ITS that allowed for the take of “all spotted owls associated with” the agency proposal, which meant that the ITS could not be exceeded until the project itself is complete. As the court explained, even if the actual number of taking was higher than anticipated, the ITS would not halt the project because

³⁰⁵ *Arizona Cattle Growers' Ass'n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F. 3d 1229, 1249 (9th Cir. 2001).

³⁰⁶ *Id.*

³⁰⁷ See, 50 C.F.R. §§ 402.14(i)(4) and 402.16 (setting out triggers for re-initiation of consultation); Interagency Cooperation—Endangered Species Act of 1973, as Amended; Incidental Take Statements, 80 Fed. Reg. 26,832-01 (May 11, 2015) (“an additional purpose [of an ITS] is to identify reinitiation triggers that provide clear signals that the level of anticipated take has been exceeded and would, therefore, require reexamination through a reinitiated consultation (H.R. REP. No. 97-567, at 26-27 (1982); 50 C.F.R. § 402.14(i))”).

³⁰⁸ 566 F.3d 1257, 1275 (11th Cir. 2009).

³⁰⁹ 476 F. 3d 1031 (9th. Cir. 2007).

the ITS was coextensive with the scope of the biological opinion. As a result the “Incidental Take Statement and BiOp are rendered tautological, as they both define and limit the level of take using the parameters of the project.”³¹⁰ In addition, the ITS could not require that the operation of the project cease upon reinitiation of consultation, which violates the requirement that when an agency reinitiates consultation, the Services must issue a new BiOp *before* the agency action may continue.³¹¹

2. The Service Must Specify Reasonable and Prudent Measures and Terms and Conditions

To comply with ESA Section 7(b)(4)(ii), the Services must specify in the ITS those “reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize” the impact of incidental taking on the species.³¹² Further, ESA Section 7(b)(4)(iv) requires that the ITS:

sets forth the terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency or applicant (if any), or both, to implement the [reasonable and prudent measures].³¹³

At a minimum, these should reflect and comply with the Florida Panther Recovery Plan. An HCP should not be in conflict with recovery plans established for the species and must utilize the best available science. Because an HCP must not “appreciably reduce the likelihood of the survival and recovery of the species in the wild” or “jeopardize the continued existence”³¹⁴ of a species, “contribution to recovery is often an integral product of an HCP”³¹⁵. Contribution to recovery should be the goal of this HCP with it fully supporting all Recovery Plans goal and objectives. For the panther, that means protecting the quality, quantity, and full spatial extent of the Primary Zone and fully analyzing, avoiding, minimizing and mitigating any traffic-related impacts. Regarding these latter impacts, reasonable and prudent measures should require foregoing several of the roadways consistent with the PRT study, limiting the number and location of roads, and firm fencing and crossing protections (e.g. underpasses), in place before the construction and operation of the roads. This would require actual studies to determine where, when and how many of these protections are constructed and utilized. The Service cannot leave this to future State or Federal road programs or to the vague and unenforceable Marinelli Fund projects.

³¹⁰ *Id.* at 1039.

³¹¹ *Env'l. Prot. Ctr. v. Simpson Timber Co.*, 255 F. 3d 1073, 1076 (9th Cir. 2001) (citing *Mt. Graham Red Squirrel v. Madigan*, 954 F. 2d 1441, 1451 (9th Cir. 1992)

); *see, e.g.*, U.S. Dep’t of the Interior, Fish and Wildlife Service, 4-1-98-F628, Programmatic Biological Opinion: Central and Southern Florida Project Comprehensive Review Study Initial Draft Plan 1, 27 (Aug. 7, 1998) (stating that if take amount exceeded, all actions causing such take must cease pending reinitiation of consultation).

³¹² 16 U.S.C. § 1536(b)(4)(C)(ii); *see* 50 C.F.R. § 402.14(i)(1)(ii).

³¹³ 16 U.S.C. §1536(b)(4)(C)(iv).

³¹⁴ HCP at 3-20.

³¹⁵ *Id.*

B. The Service Will Violate its ESA Section 7 Duty to Not Jeopardize the Continued Existence of the Species if it Approves the Take Caused by the Project

The Service may permit incidental “takes” as long as the requirements of Section 10 are satisfied, including that those takes “will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.”³¹⁶

The plain language of Section 7(a)(2) requires that “[e]ach Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any agency action . . . is not likely to jeopardize the continued existence of any endangered species or threatened species.”³¹⁷ The plain intent of Congress in enacting this statute “was to halt and reverse the trend toward species extinction, whatever the cost. This is reflected not only in the stated policies of the Act, but in literally every section of the statute.”³¹⁸

Applying these principles we request that the Service deny the HCP. It provides for intense development in panther primary habitat, which will cause direct and indirect panther mortality and inhibit the recovery called for by the Recovery Plan, without adequate mitigation, and even the mitigation proposed is not sufficiently defined or certain to occur.

VI. The Draft EIS Fails to Meet the Requirements of NEPA

The DEIS fails to meet the minimum requirements of NEPA. First, the Service has undermined public involvement by denying the public enough time or meaningful opportunities to ask questions and provide information. Next, the Service’s alternatives analysis is inadequate because it fails to analyze a reasonable range of alternatives, and distorts the comparison of alternatives between the two alternatives it does analyze. The Service’s chosen alternative then fails to meet the Service’s stated purpose and need. Furthermore, the Service fails to evaluate whether the HCP’s mitigation measures are adequate and fails to take an independent, hard look direct, indirect, and cumulative impacts. Finally, the Service improperly limits the scope of analysis.

A. The Service Has Subverted Meaningful Public Participation on the Draft EIS

NEPA regulations provide that “public scrutiny [is] essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). “Federal agencies shall to the fullest extent possible . . . encourage and facilitate public involvement in decisions which affect the quality of the human environment,” “[m]ake diligent efforts to involve the public in preparing and implementing their NEPA procedures,” and provide “public notice of . . . the availability of environmental documents so as to inform those persons . . . who may be interested or affected.” 40 C.F.R. §§ 1500.2(d), 1506.6(a), 1506.6(b). NEPA regulations require that agencies “involve . . . the public, to the extent practicable...” 40 C.F.R. § 1501.4(b); *see also* *Diné CARE v. Klein*, 747 F. Supp. 2d 1234, 1261 (D. Colo. 2010) (accord). The agency must make “a meaningful effort to provide

³¹⁶ 16 U.S.C. § 1539(a)(1)(B)(iv).

³¹⁷ 16 U.S.C. § 1536(a)(2)(emphasis added).

³¹⁸ *TVA v. Hill*, 437 U.S. 153 at 183.

information to the public affected by an agency’s actions.” *Klein*, 747 F. Supp. 2d at 1262; *see also Bering Strait Citizens v. COE*, 524 F.3d 938, 953 (9th Cir. 2008) (recognizing that “[a]n agency, when preparing an EA, must provide the public with sufficient environmental information, considered in the totality of circumstances, to permit members of the public to weigh in with their views and thus inform the agency decision-making process.”).

The Service has subverted meaningful public participation on the DEIS by denying the public accurate documents, enough time to review the documents, and a public hearing to ask questions and provide information.

The most recent version of the HCP made available to the public is dated August 2018. The Service included this latest version as a supporting document on its regulations.gov docket for the HCP DEIS.³¹⁹ However, the DEIS itself analyzes an April 2018 version of the HCP submitted by the Applicants in support of its application for ITPs.³²⁰ This earlier version is not attached to the Service’s regulations.gov docket, nor has the Service provided the public with information about the differences between the two versions. In the interest of meaningful public comment, the Service should have analyzed the latest version of the HCP in its DEIS – the same August 2018 version provided to the public. Additionally, the version that was released on October 19, 2018 was missing a page regarding the PRT alternative; a version with the missing page available was posted well into the comment period.

Furthermore, the DEIS and HCP are inconsistent with each other. The assertion in the DEIS that the impacts will only be partially offset by preservation of lands is in conflict with the HCP’s repeated assertion that the area designated as Preserve/Plan-Wide Activities and Very Low Density Use will more than fully offset impacts.³²¹ The DEIS’s analysis of wildlife impacts is also in conflict with the HCP. For example, the HCP clearly identified an Audubon’s crested caracara communal roost within the HCP Area that could be impacted by Covered Activities.³²² However, the DEIS states the communal roost area is located in “preservation” areas, and thus fails to analyze the impacts to the species resulting from the loss of this communal roost to intensive development under the HCP Alternative.³²³

Finally, the Service only provided the public 45 days to review these inconsistent documents and provide substantive comments. The Service denied the public’s request for additional time even though the Service also denied requests for a public hearing, which would have given the public, the Applicants, and the Service another opportunity to meaningfully share information about this project. The CEQ has determined that prescribed universal time limits for the entire NEPA process are too inflexible; an agency is encouraged to set time limits that are appropriate to the action.³²⁴ The Service may consider the following in determining time limits: (1) potential for

³¹⁹ Regulations.gov, Docket ID FWS-R4-ES-2018-0079

³²⁰ DEIS at 11

³²¹ Compare HCP at 36 with DEIS at 89.

³²² HCP at 215.

³²³ DEIS at 83.

³²⁴ 40 C.F.R. 1501.8.

environmental harm; (2) size of the proposed action; (3) number of persons and agencies affected; (4) degree to which relevant information is known and if not known the time required for obtaining it; and (5) degree to which the action is controversial, among other things.³²⁵ The HCP area contains critical public lands, flowways and wildlife corridors, and large swaths of habitat for listed species. The rural land in Eastern Collier is vital to countless imperiled species and would impact the scrub jay, caracara, wood stork, red cockaded woodpecker, snail kite, eastern indigo snake, bonneted bat, and the Florida panther, amongst other species.

This HCP proposal has an extreme potential for environmental harm. It is the largest HCP east of the Mississippi River, and would impact the human environment far beyond the boundary of the HCP boundary area into adjacent municipalities and counties.

There will be many impacts beyond that those to wildlife, including to water resources, water supply, sensitive public lands, and loss of prime productive agricultural lands. The HCP is not within the public interest. The DEIS and HCP are controversial and warranted additional time for public and stakeholder review, involvement, and commenting.

Furthermore, additional time was warranted since the Service did not allow for adequate public commenting opportunities. The Service denied requests for a public hearing. NEPA's implementing regulations require that a public hearing be held "whenever appropriate" such as "substantial environmental controversy concerning the proposed action or substantial interest in holding the hearing."³²⁶ Given the 'standing room only' attendance at the 2016 scoping meeting, the substantial amount of detailed comments received by the Service on this issue, and significant issues raised by the public during scoping, it is evident that the Service should have held a public meeting.

A comment period of 45 days was entirely inadequate for interested stakeholders to provide meaningful comments on a project that will have unprecedented impacts of this magnitude. The Service's decision on this HCP will forever shape the future of Collier County, southwest Florida, and imperiled species covered by the HCP. Because of these deficiencies, the Service has failed in achieving NEPA's dual purpose: to inform decision making, and to disclose information to the public about how a federal action will affect the environment and public health.³²⁷

B. The Draft EIS's Alternatives Analysis is Inadequate

1. The Draft EIS Fails to Analyze a Reasonable Range of Alternatives

³²⁵ 40 C.F.R. 1501.8(b).

³²⁶ 40 C.F.R. 1506.6(c)(1).

³²⁷ 40 C.F.R. §§ 1500.1(b), (c); *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371 (1989) ("NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.").

Under NEPA, agencies must consider “alternatives to the proposed action.”³²⁸ The analysis of alternatives is “the heart of the environmental impact statement.”³²⁹ In considering alternatives, the Service shall “[r]igorously explore and objectively evaluate *all* reasonable alternatives.”³³⁰ An agency must follow the “rule of reason” when preparing an EIS, and “this rule of reason governs ‘both *which* alternatives the agency must discuss, and the *extent* to which it must discuss them.’”³³¹

Agencies “should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public,” including a “no-action” alternative ... Agencies must “rigorously explore and objectively evaluate” these alternatives “so that reviewers may evaluate their comparative merits.” ... “Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded.”

Wildearth Guardians v. BLM, 870 F.3d at 1226-27 (internal citations omitted).

“An agency must look at every reasonable alternative” within the “nature and scope of the proposed action.” *Western Organization of Resource Councils v. BLM*, 2018 WL 1475470, at *7 (D. Mont. 2018) (citing *Friends of Yosemite Valley, v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir. 2008) (quoting *Alaska Wilderness Recreation & Tourism Ass’n v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995)). The agency must evaluate a broader range of alternatives where a proposed action constitutes “an integral part of a coordinated plan to deal with a broad problem.” *‘Ilio’ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1098 (9th Cir. 2006) (internal citations omitted).

The Court limits its review of the sufficiency of alternatives considered to whether the agency considered alternatives “necessary to permit a reasoned choice.” *California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982). Whether the agency’s “selection and discussion” of the alternatives “fosters informed decision-making and informed public participation” provides the “touchstone” for the Court’s analysis of the sufficiency of alternatives considered by the agency. *Id.*

An agency first violates this provision of NEPA where it considers “essentially identical” alternatives. *Friends of Yosemite Valley*, 520 F.3d at 1039. An agency also may violate NEPA when it fails to examine all reasonable alternatives. *‘Ilio’ulaokalani Coal.*, 464 F.3d at 1095. The Court admittedly should afford the agency “considerable discretion in defining the scope of an EIS.” *Nw. Res. Info. Ctr. v. Nat’l Marine Fisheries Serv.*, 56 F.3d 1060, 1067 (9th Cir. 1995). Statutory objectives “serve as a guide” to determine the reasonableness of objectives outlined in

³²⁸ 42 U.S.C. § 4332(2)(C)(iii).

³²⁹ 40 C.F.R. § 1502.14.

³³⁰ *Id.* at § 1502.14(a) (emphasis added).

³³¹ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 195 (citation omitted).

an EIS. *Westlands Water Dist. v. U.S. Dep’t of Interior*, 376 F.3d 853, 866 (9th Cir. 2004); *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683 (10th Cir. 2009).

Federal agencies must also “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4332(2)(E); 40 C.F.R. § 1508.9(b). This alternatives analysis is characterized as the “heart” of an EIS, 40 C.F.R. § 1502.14, and alternatives must be given full and meaningful consideration. *Ctr. for Biol. Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008). An EIS “must provide a rigorous and objective evaluation of all reasonable alternatives” and provide “a clear basis for choice among options.” *Fla. Wildlife Fed’n*, 401 F. Supp. 2d at 1331. “The existence of a viable but unexamined alternative renders an EA inadequate.” *W. Watersheds Project v. Abbey*, 719 F.3d 1035, 1050 (9th Cir. 2013) (internal quotation marks and alterations omitted).

The Service has failed to analyze additional alternatives that would have less severe impacts on the listed species they are charged to protect (e.g., Panther Review Team (PRT) alternative and Conservancy of Southwest Florida vision map alternative) (see Attachment C which depicts differences between the PRT and Conservancy alternatives). These alternatives have been available to the Service for at least 8 years, since 2010,³³² and was the major recommendation in the comments provided to the Service in the scoping process.³³³ Furthermore, the Service stated its intention to “consider a range of alternatives, including the proposed action... a no-action alternative... and alternative to consider variations in the scope and location of the covered activities.”³³⁴ Yet, no alternatives were analyzed beyond the HCP and No Action Alternatives.

The PRT Alternative is not “very similar” to the HCP Alternative, as stated in the DEIS.³³⁵ The PRT Alternative identified almost 25,000 acres of lands more suitable for development within the lands the applicant owns (see Attachment F). The Service and the PRT should share the goal of “enhancing panther conservation,”³³⁶ and should consider the science-based alternatives provided by the PRT, Conservancy, as well as recommendations provided in the Frakes analysis of the HCP Alternative.

Furthermore, the claim that some of the PRT’s recommendations are “no longer available due to planning and permitting activities that have occurred”³³⁷ in subsequent years is vague. It is unclear what activities the Service is referencing. The Immokalee Sand Mine has not yet been

³³² Conservancy of Southwest Florida, 2010. Letter to USFWS regarding Proposed Eastern Collier Multi-Species Habitat Conservation Plan. July 8, 2010.

³³³ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. Final Scoping Report.

³³⁴ US Fish and Wildlife Service. Eastern Collier Multiple Species Habitat Conservation Plan Environmental Impact Statement project webpage. <www.easterncollierhcpeis.com> Accessed November 13, 2018.

³³⁵ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 19.

³³⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 20.

³³⁷ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 23.

permitted based on the Conservancy's recent FOIA with the US Army Corps of Engineers regarding this project.³³⁸

2. The Draft EIS Improperly Distorts the Comparison of Alternatives

a. The So-called “Preserve” Area

The DEIS bases its alternatives analysis on a best-case scenario for the HCP Alternative by assuming all 107,000 acres that would be designated for Preservation/Plan-Wide Activities and Very Low Density Use would be used solely for preservation. The DEIS inexplicably calls this a “conservative assumption,” even after acknowledging the “uncertainties in the proposed types, locations, and intensities of traditional rural use” that would still be allowable uses in the “preserve” area. These allowable land uses include: crop cultivation, ranching/livestock operations, forestry and silviculture, oil and gas exploration and development. Assuming that lands with such allowable uses will be solely used for preservation can hardly be said to be a conservative assumption, and basing an alternatives analysis on this unsupported assumption leads to skewed results in the DEIS.

A true conservative approach would only consider the acres that will be placed under conservation easement to generate the Panther Habitat Unit credits (perhaps 86,716 acres³³⁹); more appropriately, the Service would only consider lands that are actually vulnerable to development and not already protected by other programs (14,805 acres, as seen in Attachment A).

The Service raises concerns that rural activities could “continue indefinitely” under the No Action Alternative.³⁴⁰ However, these activities (crop cultivation, ranching/livestock, forestry/silviculture, recreation, oil and gas exploration and production, etc.) are the types of activities proposed in the Preserve/Plan-Wide Activities under the HCP Alternative.³⁴¹ Further, it is unclear if more intense land uses could be allowed on the Preserve/Plan-Wide Activities areas. The DEIS states that “activities that could occur on the 107,000 acres would be deed restricted and no more intensive than the types of agricultural, ranching, and other traditional rural land use activities that have occurred historically throughout the ECMSHCP area.”³⁴² There is no mention of deed restrictions in the HCP. The Service fails to ensure that no parcel of land would be allowed to intensify beyond the current use; it is not enough to state that traditional rural land use activities will continue in the area. Changing from pasture to row crops on one acre of land, for

³³⁸US Army Corps of Engineers, 2018. ORM Status Report. Created July 19, 2018. Provided October 19, 2018 through Freedom of Information Act request.

³³⁹ Eastern Collier Property Owners, 2018. Eastern Collier Multiple Species Habitat Conservation Plan. August 2018. Prepared by Stantec Consulting Services. P. 90.

³⁴⁰ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 17.

³⁴¹ Eastern Collier Property Owners, 2018. Eastern Collier Multiple Species Habitat Conservation Plan. August 2018. Prepared by Stantec Consulting Services. P. 29.

³⁴² US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 2, 18 80, 120.

example, will have impacts to species that would need to be considered by the Service. The HCP proposes Low Density development (1 unit/50 ac) over 2,087 acres of the Preserve/Plan-Wide area, as well as Base Zoning (or Development) on 2,431 acres of the Half Circle L Ranch.³⁴³ Frakes et al 2015 states that “in excellent (high P value) panther habitat, when human density increased from 0 to 10 people per km², the model predicted a 0.3 decrease in the probability of panther use.” (Frakes et al. 2015 at 11). Developing 1 unit (typically 2.58 people per household) per 50 acres (meaning 4.94 units per square kilometer) would be about 12.75 people per km² (247 acres). Developing at 1 unit per 5 acres would equate to about 127.45 people per km². There appears to be no consideration of activities in the Preserve/Plan-wide area as potential impacts to the Florida panther or any of the covered species.

b. The DEIS Unlawfully Assumes that Individual Permitting Will Authorize Full Development Allowable Under the Rural Lands Stewardship Area (RLSA) and Rural Lands Stewardship Program (RLSP)

The DEIS unlawfully inflates the impacts of the No Action Alternative by presuming that ESA requirements imposed on “piecemeal” authorization of development will impose no meaningful restrictions on the location or extent of such development.

In its initial description of the No Action Alternative, the DEIS states that there are two possible scenarios under which development may occur under the RLSA—base zoning development, whereby lands are developed at a density of 1 residence per a five acre lot, and voluntary participation in the RLSP, which would allow some areas to be developed at a higher density (up to 2.5 dwelling units per acre) in exchange for setting aside other lands within the HCP area from residential or commercial development. *See* DEIS at 17–18. In light of these possible scenarios, the DEIS states “the No Action Alternative would allow for a mixture of base zoning and optional RLSP-based development.” DEIS at 18. The DEIS provides no quantitative assessment of what it anticipates that mixture would likely be, nonetheless, it appears to assume throughout that the full amount of development that could possibly occur under the RLSA and RLSP will indeed take place regardless of whether the Service grants the ITPs associated with the proposed ITPs, and regardless of the ESA obligations that would apply to “piecemeal” permitting of such development.

For example, in the section of the DEIS assessing impacts of the alternatives on traffic, the DEIS assumes that the No Action Alternative will result in full development of all possible lands at the base zoning density of 1 residence per five acres. *See* DEIS at 75. The analysis of the traffic impacts of the No Action Alternative turns on the assumption that 30,000 new residences will be developed by 2060 at the base zoning density. *See id.* The DEIS states that it arrived at this figure by assuming that all land within the HCP area available for development at the base

³⁴³ Eastern Collier Property Owners, 2018. Eastern Collier Multiple Species Habitat Conservation Plan. August 2018. Prepared by Stantec Consulting Services. P. 25.

zoning density would indeed be developed, and that 112,000 acres are available within the HCP area for such development. *Id.*³⁴⁴

Other sections of the DEIS similarly assume that the HCP area will be completely developed through a mixture of base zoning and denser RLSP development regardless of the Service’s approval of the ITPs ultimately at issue here, and regardless of the ESA requirements that would apply to individual permitting of such development. Despite cursory acknowledgment that regulatory requirements would apply, the DEIS apparently assumes that the required compliance of each individual project with ESA requirements would not impose any meaningful restraint on the extent or location of development under the No Action Alternative.

Notably, there is no rational basis for presuming that full development permissible under the RLSA program would also be permissible under the ESA. Most obviously, the RLSA program was adopted in 2002, prior to Kautz et al 2006, Frakes et al 2015, and the 2008 Florida Panther Recovery Plan. Consequently, its identification of lands open to residential development in no way reflects the available science about the habitat needs for the Florida panther.

Essentially, the “No Action Alternative” here impermissibly presumes that one way or another, the HCP applicants will be able to develop all of their land. *See, e.g., Conservation Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1236–37 (D. Haw. 2015) (“no action alternative” violated NEPA where it presumed applicant’s activities requiring authorization would occur).³⁴⁵ It assumes that all of the take and related impacts from the full development scenarios under the “No Action Alternative” will be authorized by the Service through individual actions anyway. As a result of this error, the DEIS fails to evaluate an alternative that accurately or realistically reflects the extent of development and other activities that will occur if the ITPs sought here are denied.

As a consequence of this error, the DEIS obscures the impacts of the HCP Alternative. Throughout the evaluation of effects, the DEIS discusses the impacts of the HCP Alternative relative to the purported “No Action Alternative” rather than against the present baseline where no take has yet been authorized. This persistently undermines the purpose of the EIS by providing an assessment of the incremental difference between the HCP Alternative and a hypothetical worst case development scenario where sprawled development in vitally important

³⁴⁴ Notably, fully developing 112,000 acres of land the base zoning density would actually only result in a maximum of 22,400 new residences (112,000 acres/ 5 acres per residence = 22,400 residences). The DEIS nonetheless states that it used socioeconomic data to project that there would somehow be 30,000 new residences under the base zoning scenario. *See* DEIS at 75; *see also* DEIS Appendix F (“Base Zoning Scenario”) (providing cursory summary of socioeconomic modeling). The DEIS fails to provide adequate information to explain this apparent discrepancy, the effect of which would be improperly inflating the traffic impacts of the No Action Alternative.

³⁴⁵ Moreover, the DEIS also assumes that under the No Action Alternative the HCP proponents will continue other management activities on their lands that may actually reflect on-going ESA section 9 violations. For example, the No Action Alternative assumes the proponents will continue the same vegetation clearing and prescribed burning activities for which they have sought a shield from liability under the ITPs at issue here. *See* DEIS at 17-18 (describing continuation of agricultural activities, ranching, forestry/silviculture, and invasive species control); HCP at 285 (saying that applicants have already been conducting vegetation clearing and prescribed burning activities); HCP at 34 (seeking take coverage for land management activities).

habitat somehow proceeds unchecked by the ESA, rather than providing a full assessment of the impacts of authorizing the enormous amount of take encompassed by the sought ITPs. *See e.g.*, DEIS at 92 (stating that impacts on Florida panther under the HCP Alternative would be “limited” and “likely be less adverse than the No Action Alternative”).

The No Action Alternative analysis repeatedly assumes that without the HCP, developers will not opt into the voluntary RLSP. This assumption is also unfounded, as it is clear developers must opt in to the program to achieve the level of and types of development the Applicants are seeking under the HCP. Similarly, the DEIS assumes that sprawling ranchette development (1 house per 5 acres) will occur instead if developers are not issued an ITP. However, ranchette development still must comply with the ESA, so it is unclear why the Service assumes ranchette development would occur rather than more concentrated, dense development under the No Action Alternative.

The DEIS fails to account for the reality that the RLSA largely dictates the same contours for preserve versus development as the proposed HCP, so that there is no real conservation benefit for the HCP. The DEIS also fails to account for how ITP will actually expedite the development that would otherwise occur under the RLSA. The Service states that under the HCP Alternative, “large expanses of land would be set aside...”, yet the Service fails to acknowledge that participation in the RLSA program under the No Action Alternative would secure largely the same area, and that protections exist for much of these lands regardless of participation in the RLSA program. In order to build a town or village (a Stewardship Receiving Area) under the RLSA program, regardless of HCP approval, development credits are needed through the local program. Furthermore, the RLSA area is within the consultation area for all of the proposed Covered Species; consultation with the Service for panther impacts would likely utilize the same Panther Habitat Assessment Methodology that is utilized in the HCP to require lands set aside in preserve to provide compensatory Panther Habitat Units (PHUs).

The DEIS assumes under the No Action Alternative that the result will be a “lack of additional planned preserved areas within the ECMSHCP area”³⁴⁶ and that “future land use regulations including the County’s RLSP allow for future land use that ranges in intensity from conservation to surface mining.”³⁴⁷ It further incorrectly assumes “The No Action Alternative would likely result in permanent change of land use from the present mostly agricultural use to other uses (such as earth mining, oil and gas exploration, residential and commercial development), resulting in urban or suburban sprawl.”³⁴⁸ In fact, the RLSA program, regardless of approval of the HCP, has layers of protections over all but about 15,000 acres of the Preserve area (see Attachment A). Even if development is proposed outside of participation in the RLSA program, the local land use code regulates development on the designated Flowway Stewardship Areas, Habitat Stewardship Areas, and Water Retention Area³⁴⁹ (seen in green at Attachment A). These

³⁴⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 79.

³⁴⁷ *Ibid.* P. 2.

³⁴⁸ *Ibid.* P. 3.

³⁴⁹ See Conservancy of Southwest Florida , 2016. Letter to US Fish and Wildlife Service. Eastern Collier HCP and

designated areas make up the majority of the HCP Preserve. Additionally, the state designated Area of Critical State Concern also further protects lands within the Preserve/Plan-Wide area (see Attachment A).³⁵⁰ Many Stewardship Sending Areas (SSAs) have been designated thus far and account for about 50% of the Preserve/Plan-Wide area, and the remainder is largely within the Area of Critical State Concern which minimizes the removal of native vegetation clearing (see Attachment B).

The Service provides no details on how it projects development to occur over time in the No Action Alternative, and what proportion will be ranchette development or more intensive development under the RLSA program overlay.

The DEIS incorrectly claims that “the ECMSHCP was designed to work in concert with the current RLSP.”³⁵¹ In fact, the amount of development proposed in the HCP hinges on changes to the local land use comprehensive plan. The current RLSA program only allows for 43,312 acres of new towns and villages with 100% participation³⁵² (and note this is a much higher amount of development than was originally contemplated when the program was adopted; the amount of intensification anticipated at that time was 16,800 acres).³⁵³ Yet the HCP requests incidental take permit authorization for 45,000 acres.³⁵⁴ Additional developments such as the currently proposed Winchester Lakes SRA³⁵⁵, and additional mines that are likely to be converted to residential uses in the future, notably Hogan Island Quarry, are also proposed outside of the HCP mechanism, adding additional acreage beyond the 45,000 sought through the HCP.

The Service states that the No Action Alternative would not facilitate community-scale stormwater infrastructure, resulting in increased risk of flooding.³⁵⁶ However developments participating in the RLSA program, regardless of HCP issuance, would have stormwater management systems and most would meet the criteria requiring the issuance of Environmental Resource Permits, pursuant to Part IV of Chapter 373, Florida Statutes, and implementing regulations.

C. The Service’s Chosen Alternative Fails to Meet the Service’s Stated Purpose and Need

In its Purpose and Need statement, the Service states that in order to fulfill its responsibilities under Section 10 of the ESA it will:

EIS scoping. April 25, 2016. Citing Collier County Growth Management Plan. Future Land Use Element. RLSA Overlay.

³⁵⁰ See Conservancy of Southwest Florida , 2016. Letter to US Fish and Wildlife Service. Eastern Collier HCP and EIS scoping. April 25, 2016. Citing Florida Administrative Code.

³⁵¹ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 2, 18, 80.

³⁵² Memo from Wilson Miller to Collier County (September 18, 2018) “Rural Lands Stewardship Area ‘Maturity.’”

³⁵³ See Conservancy of Southwest Florida , 2016. Letter to US Fish and Wildlife Service. Eastern Collier HCP and EIS scoping. April 25, 2016. Citing Report and Recommendations of the Collier County Rural Lands Assessment Area Oversight Committee for the Immokalee Area Study page 40. Created by WilsonMiller. 2002. And Collier County Board of County Commission Adoption Hearing Executive Summary. October 22, 2002. Page 3.

³⁵⁴ Eastern Collier Property Owners, 2018. Eastern Collier Multiple Species Habitat Conservation Plan. August 2018. Prepared by Stantec Consulting Services. P. 32.

³⁵⁵ <http://cvportal.coliergov.net/CityViewWeb/Planning/Status?planningId=25239> .

³⁵⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 68.

- Ensure the issuance of any ITPS and implementation of the ECMSHCP achieve long-term conservation objectives for the covered species and affected ecosystems in southern Florida.
- Ensure that the conservation actions approved with issuance of any IPS occur within a landscape-scale conservation design capable of maintaining ECMSHCP conservation for the covered species indefinitely
- Ensure that the ECMSHCP would not jeopardize listed species or result in destruction or adverse modification of critical habitat prior to any issuance of any ITPs.³⁵⁷

For the reasons stated in this comment letter, including the HCP’s failure to minimize or reduce and mitigate species impacts to the maximum extent practicable, the Service chosen alternative fails to meet these objectives.

D. The Draft EIS Fails to Evaluate Whether the HCP’s Mitigation Measures Are Adequate or Effective

The Service attributes wildlife corridor conservation only to the HCP Alternative.³⁵⁸ However, Dr. Robert Frakes’ modeling of the HCP Covered Activities area (utilizing modeling published in the study Landscape Analysis of Adult Panther Habitat), found that the Camp Keais Strand and the Summerlin Swamp corridor areas would be severed and fragmented. (Frakes et al. 2015 at 18). The findings of Dr. Frakes demonstrate that the Service’s conclusion that “despite the narrower cross section of these two corridors proposed in Alternative 2 [the HCP Alternative] these corridors will be preserved and maintained to encourage wildlife movements towards planned wildlife under passes”³⁵⁹ is incorrect.

Additionally, in his 2018 review of the HCP, Dr. Frakes found that not only would significant losses of Adult Breeding Habitat occur via direct impacts (16,779 acres), but an additional 4,753 acres would be lost to use by adult panthers in the Preserve area, due to the adjacent Covered Activities area effects.³⁶⁰ These areas of Preserve should not be considered as minimization/mitigation, yet the DEIS improperly assumes –without analysis—that the Preservation/Plan-Wide Activities area will maintain linkage between core Florida panther population areas, including preservation of corridors.³⁶¹

³⁵⁷ DEIS at 10

³⁵⁸ DEIS at 4, 80.

³⁵⁹ The Summerlain Swamp corridor, and the northwest new corridor from CREW to Ok Slough. The Camp Keais Strand corridor is not addressed in this section of the DEIS.. US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 81.

³⁶⁰ Frakes, 2018. Impacts to Panther Habitat from the Proposed Eastern Collier Multiple Species Habitat Conservation Plan: A Quantitative Analysis (Oct. 7, 2018).

³⁶¹ DEIS at 89

While under both the No Action Alternative and the HCP Alternative ranchette low density development and RLSA-style villages and towns would be possible, it is worth noting that the ranchette development (typically 1 unit per 5 acres) provides a higher value to panthers than urban development such as is contemplated under the HCP (valued by biologists as a “3” out of 10 instead of “0” out of 10). This is acknowledged in the DEIS: “under the base zoning scenario, lower development density would be less of a deterrent to panther movement than more concentrated development.”³⁶²

Further, the RLSA program and Area of Critical State Concern already include protection for areas within the Camp Keais Strand and Okaloacoochee Slough corridor areas. Additional preservation, beyond what is offered in the HCP Alternative (such as those provided in the Conservancy of Southwest Florida and Panther Review Team alternatives that were not analyzed, as well as available literature such as the East Collier County Wildlife Movement Study (Noss et al. 2006)) would be needed to offset the impacts to existing corridors from adjacent development, as demonstrated in the report by Dr. Robert Frakes. (Frakes 2018).

The Service defies its own understanding of species’ needs when it states that “because the majority of the HCP area is used for agriculture, and these lands no longer support natural communities, development conducted under the RLSP would likely occur mainly on agricultural lands and would have lesser impacts on natural ecological communities.... The areas designated for Covered Activities would predominantly be located on agricultural lands, which no longer support natural ecological communities.”³⁶³ It is widely documented in the Service’s recovery plans and species best available science the importance of agricultural lands as part of the habitat matrix for species like the Florida panther, eastern indigo snake, and crested caracara (see Attachment H).³⁶⁴ New studies regarding the Florida bonneted bat also speak to the use of agricultural lands by this species. (Bailey et al. 2017).

The RLSA program, Collier County’s construct, allows development activities within the “Open” areas which includes agricultural lands. The RLSA program, however, was adopted in 2002, prior to Kautz et al 2006, Frakes et al 2015, and the 2008 Florida Panther Recovery Plan, and thus does not reflect the best available science. Therefore, the Service cannot rely on the RLSA program in its decision-making, and the DEIS fails to analyze the impacts of more intensive development on these agricultural lands.

E. The Service Failed to Take a Requisite “Hard Look”

The DEIS contains a number of inaccuracies and unsupported assumptions, often copied directly from the applicant’s HCP, that lead to skewed results in the DEIS’s alternatives analysis and

³⁶² US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 86.

³⁶³ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 79.

³⁶⁴ In example, see Kautz, et al, 2006. How much is enough? Landscape-scale conservation for the Florida panther. *Biological Conservation*: Vol. 130, p. 118-133. Jackson, S., 2013. Home Range Size and Habitat Use of the Eastern Indigo Snake at a Disturbed Agricultural Site in South Florida: A Thesis Presented to Florida Gulf Coast University. Morrison and Humphrey, 2001. Conservation Value of Private Lands for Crested Caracaras in Florida. *Conservation Biology*, Vol. 15, No. 3, Pages 675-684.

represents a failure of the Service to take an independent “hard look” at the HCP’s direct, indirect, and cumulative impacts as follows:

1. The Service Adopts the HCP’s Mischaracterization of Future Growth

The Service incorrectly claims that the HCP is “generally consistent with the SWFEIS.”³⁶⁵ The HCP is not consistent with any of the growth scenarios that the SWFEIS had projected. None of the five SWFEIS ensembles considered, which represent a range of conservative to aggressive growth projections, show eastern Collier County with the location or magnitude of development as proposed in the HCP. In all of the ensembles, only agricultural and preservation land uses were considered for the HCP area.

Furthermore, the DEIS fails to take a hard look at the HCP’s mischaracterization of the “Florida 2070” report. The HCP is severely out of step with smart growth principles and is more in alignment with the “Florida 2070 Trend” which would result in more development and sprawl (see Attachment D) than the “Florida 2070 Alternative” which would focus on more compact communities, protection of natural and agricultural lands. The Conservancy’s vision map is most in alignment with the Florida 2070 Alternative (see Attachment E).

2. The Service Inaccurately Describes Effects on Geology and Soils

The Service states “The RLSP does not place any restriction on where earth mining or oil and gas exploration can occur. Therefore, under the No Action Alternative, any landowner could pursue earth mining activities anywhere within the HCP area, regardless of habitat or connectivity.”³⁶⁶ As stated above, local and state protections provide protections for areas within the RLSA.³⁶⁷ For example, 31,100 acres of Flowway Stewardship Areas, even if not within a finalized Stewardship Sending Agreement (SSA), are protected from “residential uses, general conditional uses, earth mining and processing uses, and recreational uses (layers 1-4)....”³⁶⁸ Without rationale, the Service attributes more wetland impacts and future residential development after completion of mining activities to No Action Alternative, but not to the HCP Alternative.³⁶⁹

3. The Service Inaccurately Describes Effects on Land Use

³⁶⁵ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 9.

³⁶⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 18, 69, 73.

³⁶⁷ See Conservancy of Southwest Florida , 2016. Letter to US Fish and Wildlife Service. Eastern Collier HCP and EIS scoping. April 25, 2016. Citing Collier County Growth Management Plan. Future Land Use Element. RLSA Overlay.

³⁶⁸ Collier County Growth Management Plan. Future Land Use Element. RLSA Overlay. Group 5 Policies. Policy 5.1.

³⁶⁹ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 69.

The Service again inaccurately states that the No Action Alternative would allow land use conversion to other uses (earth mining, oil and gas exploration, residential and commercial development) “likely anywhere within the ECMSHCP.”³⁷⁰ Again, this is false. See above, as existing local and state protections provide restrictions on mining, commercial, and residential within all but 15,000 acres of the Preserve area.

4. The Service Inaccurately Describes Effects on Water Resources

The Service again erroneously attributes regional flowway protection only to the HCP Alternative.³⁷¹ Again, the RLSA program, regardless of HCP issuance, provides protection in the Flowway Stewardship Areas. Unfortunately, some wetlands and water resources are contained within the Covered Activities Areas – about 2,417 acres of wetlands and water (see Attachment G). The HCP Alternative includes the Rural Lands West project. This development has received a permit to destroy 543.39 acres of wetlands, including those within the Shaggy Cypress/Camp Keais Strand ecosystem.³⁷² The Rural Lands West project has an active application with the Army Corps of Engineers for its 404 Clean Water Act dredge and fill permit. Attachment G depicts wetlands that are within the Covered Activities areas.

5. The Service Inaccurately Describes Effects on Transportation, Air Quality, and Climate Change

The Service states that “land preservation through the ECMSHCP is expected to further help avoid and minimize transportation-related impacts to the [Florida panther] by … preventing development in areas that might otherwise result in increased traffic,”³⁷³ but in reviewing the transportation network necessary to service the development in the configuration seen in the HCP Alternative, the PRT estimated that about 200 miles of new and expanded roadways would be needed.³⁷⁴ It estimated that nearly 1 million daily vehicle trips would be added to the landscape by 2050 with development in the HCP Alternative configuration.³⁷⁵

The Service wrongly attributes increased air pollutant emissions to the No Action Alternative and states that the HCP Alternative is not expected to accelerate air pollution effects.³⁷⁶ According to the submitted report by Smart Growth America³⁷⁷, the HCP Alternative is very sprawling and “not self-contained”³⁷⁸ as the Service claims. The PRT analyzed the impacts of 45,000 acres of development in a footprint that is nearly identical to the submitted HCP; it found

³⁷⁰ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 68.

³⁷¹ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 3.

³⁷² South Florida Water Management District, 2018. Environmental Resource Permit No. 11-03949-P. Permittee Collier Enterprises Management Inc, et al. Rural Lands West. Date Issued April 3, 2018.

³⁷³ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 91.

³⁷⁴ Florida Panther Protection Program Technical Review Team, 2009. Technical Review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County, Florida. Final Report.

³⁷⁵ *Ibid.*

³⁷⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 71.

³⁷⁷ *Smart Growth America, 2018. The Fiscal Implications of Development Patterns: Rural Lands Stewardship Area, Collier County, Florida. September 2018.*

³⁷⁸ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 71.

that the HCP would increase daily traffic trips on one segment of SR 29 from 7,100 daily trips in 2011 to 23,686 by 2050,³⁷⁹ and on another segment of SR29 from 19,100 daily trips in 2011 to 44,499 by 2050;³⁸⁰ a magnitude increase of 3.8 and 2.9 respectively.³⁸¹ On Corkscrew Road, the daily traffic trips would increase by 23.5 times the magnitude, from 14,500 trips in 2011 to 44,886 in 2050.³⁸² The existing development Ave Maria, which is included in the HCP, has not demonstrated reduction in vehicle trip lengths.

No dispute remains that meaningful consideration of the environmental damage caused by greenhouse gas emissions is required as part of any NEPA review of direct, indirect and cumulative impacts of agency action.³⁸³

6. The Service Inaccurately Describes Effects on Cultural Resources

The Service states that cultural resources will be more vulnerable under the No Action Alternative.³⁸⁴ However, it falsely assumes that the 93,000 acres would be developed outside of a process that triggers cultural resource consultation. Developments, irrespective of approval of the HCP, would still be subject to state and federal cultural resource requirements.

7. The Service Inaccurately Describes Effects on Bald Eagles

The Service states that “bald eagle nests typically have not occurred within the Covered Activities area”³⁸⁵ and that the “two bald eagle nests documented... are located in areas designated for preservation.”³⁸⁶ The Service has not done its due diligence. There is at least one documented nest on the Rural Lands West property which is included in the HCP Alternative within the Covered Activities Area.³⁸⁷ The DEIS states that nests within the Covered Activities areas can “avoid incidental take... by providing a minimum 200-meter (660-foot) buffer.”³⁸⁸ However, that is not proposed at Rural Lands West, where new roadway, stormwater lakes, and homes are proposed within the 660 foot buffer area.³⁸⁹

³⁷⁹ Segment of SR29 north of SR82.

³⁸⁰ Segment of SR29 south of SR82.

³⁸¹ Florida Panther Protection Program Panther Review Team, 2009. Technical review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County. Table 6.3-1.

³⁸² *Ibid.*

³⁸³ See, e.g., *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”); *Sierra Club v. FERC*, 867 F.3d 1357, 1371 (D.C. Cir. 2017) (NEPA review must consider the direct and indirect effects of greenhouse gas emissions of the alternatives).

³⁸⁴ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 4.

³⁸⁵ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 82.

³⁸⁶ *Ibid.* P. 54.

³⁸⁷ Collier Enterprises, 2017. Rural Lands West Biological Assessment. Revised June 27, 2017. Provided to the USFWS on July 26, 2017.

³⁸⁸ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 82.

³⁸⁹ South Florida Water Management District, 2018. Environmental Resource Permit No. 11-03949-P. Permittee

8. The Service Inaccurately Describes Effects on Crested Caracara

The Service states that the three known nest locations and communal roost might not be protected from development under the No Action Alternative.³⁹⁰ Yet, the HCP *ensures* that they will be developed, as these areas would be converted to Covered Activities if the HCP Alternative is approved. The Service states that two of the three nests are within the Preserve/Plan-Wide area.³⁹¹ However, that does not appear to be accurate. The caracara nest and buffer zone near Immokalee Road appears to be mapped within the Covered Activities area.³⁹² Further, the known nest south of Oil Well Road is proposed to be converted to a roadway/viewing platform by the Rural Lands West development, a Covered Activities area.³⁹³ The juvenile gathering area is also within the Covered Activities Area.³⁹⁴ Furthermore, Rural Lands West had documented significant caracara activity on the property including on areas proposed to be converted to development.³⁹⁵

9. The Service Inaccurately Describes Effects on Florida Panther

The Service falsely assumes that mining operations will not be required to undergo federal ESA consultation process with no HCP in place.³⁹⁶ The entire RLSA is within the Florida panther consultation zone. Mines that are being pursued outside of the HCP mechanism by Barron Collier/CEMEX (Immokalee Sand Mine and Hogan Island Quarry) have been subject to federal consultation for the Florida panther and other species.³⁹⁷

The Service unbelievably states that “direct harm to the FP is not anticipated...”³⁹⁸ in its DEIS. Widespread take in the form of harm, harassment, and mortality are certain to occur as a result of the HCP Alternative and its interrelated and interdependent activities. Within a 25-mile action area of the RLSA, there have been 269 panther mortalities due to vehicle strikes, as of December 2017 (see Attachment I).

The Service attributes forest conservation to the HCP alternative.³⁹⁹ Regardless of HCP issuance, the RLSA program, as well as Collier County comprehensive plan and ACSC regulations, would

Collier Enterprises Management Inc, et al. Rural Lands West. Date Issued April 3, 2018.

³⁹⁰ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 83.

³⁹¹ *Ibid.*

³⁹² Eastern Collier Property Owners, 2018. Eastern Collier Multiple Species Habitat Conservation Plan. August 2018. Prepared by Stantec Consulting Services. P. 128, Figure 5-1.

³⁹³ South Florida Water Management District, 2018. Environmental Resource Permit No. 11-03949-P. Permittee Collier Enterprises Management Inc, et al. Rural Lands West. Date Issued April 3, 2018.

³⁹⁴ See map “20140108 Caracara gathering areas Collier....”

³⁹⁵ Collier Enterprises, 2017. Rural Lands West Biological Assessment. Revised June 27, 2017. Provided to the USFWS on July 26, 2017.

³⁹⁶ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 86.

³⁹⁷ US Fish and Wildlife Service, 2011. Hogan Island Quarry Biological Opinion. October 19, 2011. US Fish and Wildlife Service, 2010. Immokalee Sand Mine Request for Additional Information. June 17, 2010.

³⁹⁸ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 89.

³⁹⁹ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 89.

provide protections for forested areas, which are largely contained with the Flowway Stewardship Areas and Habitat Stewardship Areas.

Contrary to the Service discounting of the agricultural lands within the Covered Activities, they are in a configuration in which intensification as proposed in the HCP Alternative, would eliminate 16,779 acres of Adult Breeding Habitat, including 4,753 acres of loss from within the Preserve/Plan-Wide Activities area that would also be impacted from the Covered Activities area intensification.⁴⁰⁰

10. The Service Inaccurately Describes Effects on American Kestrel, and Sandhill Crane

The Service claims that American kestrel is not documented within the HCP area. It has been documented on Pepper Ranch.⁴⁰¹ The DEIS also claims that Florida sandhill cranes have not been documented. The Service has received the Rural Lands West Biological Assessment in which sandhill cranes have been documented.⁴⁰²

11. The Service Inaccurately Claims Development within the HCP Area Would be Capped

The HCP will not cap development as the Service states (“only 45,000 acres of land within the ECMSHCP area would be available for development”⁴⁰³) or preclude “future piecemeal development expected under base zoning.”⁴⁰⁴ There are lands outside of the HCP that are owned by the Applicants, as well as lands owned by non-applicants. Each will still be able to utilize the Collier County RLSA program to develop towns and villages. They will also be able to develop, as the local land use code allows, under the existing base zoning. More realistically, the amount and location of development will be increased and more sprawling with the HCP in place, since the HCP would streamline permitting, does not minimize impacts by directing development to more compact configurations or less impactful areas, and would require urbanization and infrastructure that would build up this portion of the County, drawing adjacent development interest.

12. The Service Inaccurately Claims the HCP Alternative Will Result in Better Fire Management

The Service states that the HCP Alternative would result in management of natural areas reducing fuel loads.⁴⁰⁵ However, the Florida Panther National Wildlife Refuge comment letter, provided during the scoping period, shared substantial concerns about reduced fire management

⁴⁰⁰ Frakes, 2018. Impacts to Panther Habitat from the Proposed Eastern Collier Multiple Species Habitat Conservation Plan: A Quantitative Analysis (Oct. 7, 2018).

⁴⁰¹ Collier County, 2009. *Conservation Collier Pepper Ranch Preserve Interim Management Plan, Final Draft.*

⁴⁰² Collier Enterprises, 2017. Rural Lands West Biological Assessment. Revised June 27, 2017. Provided to the USFWS on July 26, 2017.

⁴⁰³ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 4.

⁴⁰⁴ *Ibid.* P. 79.

⁴⁰⁵ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018. P. 68.

for the Refuge and other public lands as a result of the HCP: “Future development within the Covered Areas will encroach upon the current Conservation areas such as Florida Panther NWR. These conservation lands are intensely managed using prescribed burning to manage fire adapted ecosystems for the benefit of wildlife and to reduce high fuel loads that run the risk of more catastrophic harmful wildfires.... We often have to burn with a southerly or easterly wind direction.... The locations for high density residential and commercial developments in the HCP area are directly in the path of our current smoke management protocols.... I suspect the managers of Corkscrew Regional Watershed have similar prescriptions....”⁴⁰⁶ The location of the developments is problematic to continued resource management in our public lands, particularly lands that are managed to the benefit of listed species like the panther

13. The Service Fails to Analyze Effects on Socioeconomics and Environmental Justice

By not analyzing these issues in the DEIS, the Service doesn’t evaluate the effects of conversion of approximately 43,000 acres of productive agriculture that does have economic and social connections to the surrounding communities (such as the town of Immokalee), citizens working in the agricultural business, etc.

14. The Service Fails to Address Scoping Comments

The Service failed to address many issues raised by commenters in the scoping process, including timing of easements, drinking water supply, monitoring strategy, and jobs.⁴⁰⁷

F. The Service Improperly Limits the Scope of Analysis

The Service unlawfully limits the scope of analysis. For example, the DEIS’s transportation analysis failed to include in its roadway network many roads and roadway widening projects previously identified as necessary to support the level of intensive development contemplated by the HCP.⁴⁰⁸ These roads include:

- County Line Road (new road)
- Corkscrew Road (existing road widening)
- Little League Road (between SR 82 and county line) (new road)
- Grove Road (new road)
- Immokalee Cr (new road)
- Immokalee Loop Road (new road)
- Gopher Ridge (new road)

⁴⁰⁶ US Fish and Wildlife Service, Florida Panther National Wildlife Refuge, 2016. Letter regarding Public Comment Eastern Collier Multispecies Habitat Conservation Plan and EIS.

⁴⁰⁷ US Fish and Wildlife Service, 2018. Draft Environmental Impact Statement. September 2018.

⁴⁰⁸ Compare DEIS Appendix F, Table 4 with WilsonMiller, Inc., “Conceptual Build-Out Roadway Network” Map; see also WilsonMiller, Inc., Memorandum Re: Rural Lands Stewardship Area Conceptual Build-Out Roadway Network, December 2, 2008 (“The ‘Conceptual Build-Out Roadway Network’ map.... represents the roadways needed to support the potential development of a maximum of 45,000 acres....”).

- Lake Trafford (existing road widening)
- Little league road (between West Clox St and Immokalee Rd) (new road)
- CR 846 (between SR 29 and the eastern RLSA border) (existing road widening)
- Stockade (new road)
- Serenoa Cr (new road)
- Serenoa East (new road)
- Citrus West (new road)
- Immokalee Ext. (new road)
- Citrus East (new road)
- Immokalee Road (between intersection at Randall all the way to where it hits Camp Keais) (existing road widening)
- Ave Maria Blvd. (portions new road and portions existing road widening)
- Anthem Parkway (new road)
- Ave East (existing road widening)
- Horse Trial (new road)
- Oil well Rd: (portions new road and portions existing road widening)
 - (between Immokalee Rd and Everglades Blvd)
 - (between Oil Well Grade Road and Ave Maria Blvd)
 - (between Camp Keis and the eastern RLSA border)
- Randall Blvd and Randall Ext. (new road)
- Golden Gate Blvd. (existing road widening)

G. The Draft EIS Fails to Adequately Analyze Cumulative Impacts

The DEIS fails to adequately analyze cumulative impacts, including impacts from large-scale development and climate change.

1. Population growth and large-scale development

A leading cause of habitat loss is human population growth and corresponding land uses. A 2000 analysis of potential ecological connectivity in Florida found that only about half the land identified for habitat connectivity was publically owned and managed (Hoctor 2000 at 984-999). Meanwhile, *Florida 2060: A Population Distribution Scenario for the State of Florida* predicts Florida's population will grow by 49 percent by 2060. The Florida Fish and Wildlife Conservation Commission's *Wildlife 2060: What's at stake for Florida?* estimates that such population increases could result in the conversion of 7 million acres from rural and natural to urban uses (Cerulean 2008 at 2). It predicts that nearly 3 million acres of existing agricultural lands and 2.7 million acres of native habitat will be claimed by roads, shopping malls and subdivisions; 1.6 million acres of woodland habitat may be lost; wetland habitat may become more isolated and degraded; 2 million acres of lands bears depend on may disappear; and gopher tortoises may lose a fifth of their existing range (Cerulean 2008 at 4). While Florida is projected to increase its population statewide by 50% by 2060, Collier County is projected to grow from 251,377 residents in 2000 to 963,051 in 2060, and Hendry County is projected to grow from 36,210 residents in 2000 to 79,468 in 2060 – outpacing the expected statewide average at 73% and 54% respectively (Zwick 2006).

“A discussion of cumulative impacts is a necessary part of any assessment,” and the analysis “must identify (1) the area in which the effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions—past, present, and proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate.” *Great Old Broads For Wilderness v. Kempthorne*, 452 F. Supp. 2d 71, 84 (D.D.C. 2006) (*quoting Grand Canyon Trust v. FAA*, 290 F.3d 339, 345 (D.C. Cir. 2002)). Here, the Service failed to evaluate the cumulative impacts of other projects affecting wildlife and habitat in the same region, including at least 25 major development projects proposed in the habitat for endangered Florida panthers and other species. These projects will put increased pressure on the single population of Florida panthers and on other wildlife that use the area proposed for the HCP, and should have been included in the Service’s cumulative impact analysis of the HCP. *See Nat'l Wildlife Fed'n v. Souza*, No. 08-14115-CIV, 2009 WL 3667070, at *26 (S.D. Fla. Oct. 23, 2009) (agency required to discuss cumulative impacts from other developments where proposed project was “next to several other permitted proposed developments . . . and an existing development”).

Thus, the following large-scale development is planned for Hendry and Collier counties (and adjacent Lee County) must be included in the cumulative impacts analysis for the HCP:

- Florida Power and Light Hendry Clean Energy Center (proposed 3,750 MW gas-fired electrical power plant), Hendry County: The company purchased an initial 3,000 acres for this project and has recently acquired an additional 4,000 acres adjacent to the original purchase. The plant would be located in completely rural land known to be excellent Florida panther habitat. It is wholly inside the proposed “Panther Glades” Florida Forever Project. When completed, the Hendry power plant will be among the three largest fossil fuel power plants in the United States (Fleshler 2015b at 1-2, Beltz 2015 at 1).
- Rural Lands West (formerly Town of Big Cypress) in Collier County: This proposed 4,000-acre development is part of the 200,000-acre Rural Lands Stewardship Area (RLSA) of eastern Collier County. Other residential and commercial developments within the RLSA are likely as that is the purpose of the stewardship area. The Rural Lands West project is adjacent to and just west and north of the Florida Panther National Wildlife Refuge. Its southern boundary is just north of the Picayune Strand State Forest. This entire region is extremely important habitat for Florida panthers (Collier 2015 at 1-3).
- WildBlue (residential development) Lee County: These 2,960 acres of currently undeveloped land lie east of Florida Gulf Coast University between Corkscrew and Alico Roads (Private 2016 entire, Doane 2015 at 1-3).
- Corkscrew Farms (residential development) Lee County: This 1,300 acre development lies further east on Corkscrew Road from the WildBlue development referenced above. It is surrounded by the Corkscrew Regional Mitigation Bank to the north and the Corkscrew Regional Ecosystem Watershed Flint Pen Strand to the South. In addition to direct habitat destruction, both this project and WildBlue will greatly increase traffic on

Corkscrew Road and presumably Florida panther road mortality (Cameratta 2010 at 1-11, Smith 2015 at 1, Doane 2015 at 1-3).

- SR 82 widening: This project includes 23 miles of road widening in Lee and Collier Counties. The road runs north of and adjacent to important public lands such as the Wild Turkey Preserve, Corkscrew Mitigation Bank, and Pepper Ranch Preserve (FDOT 2016b at 1).
- SR 29 widening: An 18 mile expansion from Collier County to Hendry County, this road widening project is adjacent to or near major public lands— e.g. Spirit of the Wild Wildlife Management Area and the Okaloacoochee Slough State Forest —both of which constitute important Florida panther habitat. The project report provides the following projection of increased traffic: “Traffic volumes on S.R. 29 are projected to increase from a current volume of 6,200 vehicles per day to 23,800 vehicles per day by the year 2035 as documented in the project traffic report” (FDOT 2016a at 1).
- Snake Road widening, Hendry County: This plan is for an approximately 8-mile expansion inside the Big Cypress Seminole and Big Cypress Miccosukee Indian Reservations. This road cuts across an important wildlife corridor connecting the Big Cypress National Preserve to public and private lands in Southeast Hendry County and the Southwest corner of Palm Beach County (e.g. the Rotenberger and Holey Land Wildlife Management Areas) (Blackhouse 2011 at 1).
- Town of Babcock Ranch: This project covers 18,000 acres just north of the Caloosahatchee River and east of SR 31, and it proposes approximately 20,000 new homes. The project, coupled with additional development that is likely to occur in the future, could severely restrict potential expansion of the Florida panther beyond the Caloosahatchee River. The project lies at the nexus of the Babcock-Webb Wildlife Management Area, the Babcock Ranch Preserve, and the Fisheating Creek Wildlife Management Area. This is a currently existing wildlife corridor that connects (or could connect) Florida panther habitat. Its functionality as a corridor could be greatly diminished by the completion of this project now in progress (Kitson 2016 at 1-2).
- Burnett Oil Company, Inc. Nobles Grade 3-D Seismic Survey (Burnett 2014 at 1-7): This first phase of four planned phases of oil exploration is currently underway throughout 110 square miles of the Big Cypress National Preserve. The four-phased oil exploration would ultimately impact 366 square miles of Big Cypress National Preserve.⁴⁰⁹ Burnett Oil has driven 33-ton “vibroseis” vehicles and other supporting vehicles off-road through wetlands and Florida panther habitat to generate seismic signals to map oil and gas

⁴⁰⁹ Burnett Oil Company, Inc., *Nobles Grade 3-D Seismic Survey Big Cypress National Preserve and Big Cypress National Preserve Addition Plan of Operations* (2014), available at:

<https://parkplanning.nps.gov/document.cfm?parkID=352&projectID=53498&documentID=66527>; National Park Service, *Revised 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.* (2016), available at: <https://parkplanning.nps.gov/document.cfm?parkID=352&projectID=53498&documentID=71803>.

located beneath the Preserve. The first phase of oil exploration has already caused damage to “primary zone” habitats, which are habitats essential for the survival of the endangered Florida panther, and this damage has not been restored.⁴¹⁰ Impacts have primarily resulted from vibroseis vehicles and other vehicles driving off-road through wetlands, damaging mature cypress trees and other vegetation, causing extensive soil rutting and compaction, leading to changes to localized hydrology. Seismic survey crews also cut down cypress trees in the paths of the vibroseis vehicles. Seismic survey activities are impacting the habitat quality for panthers by fragmenting and degrading natural plant compositions, in turn making the impacted areas less suitable for habitation. Panther dens are not being adequately mapped within the seismic survey area and any dens which have been identified do not have adequate protection based on the recommended amount of buffer area between seismic survey activities and dens. Additionally, the potential for the dispersal of and impacts to the panther’s prey species may reduce the amount of food available to panthers. Avoidance of the seismic survey area in Big Cypress by panthers may result in more frequent crossings of roads, putting panthers at increased risk for death or injury by vehicular collision. Impacts to panther habitat caused by the oil exploration have not been restored or mitigated as of the date of these comments.⁴¹¹ Further oil and gas development would increase vehicular traffic in the area. In the event oil is found, impacts from oil development will be even more severe, including the construction and operation of oil pads, drill rigs, and miles of new roads and other infrastructure, including wastewater disposal facilities, and vehicular traffic. In addition to the impacts of oil exploration, further development will cause even greater impacts to wildlife, including habitat fragmentation and degradation, mortality or injury from collisions with vehicles and stress from noise and other human disturbance, as well as water, air, and climate pollution.

- Tocala, LLC Seismic Survey (Passarella 2013 entire): This proposed oil exploration encompasses 103,000 acres on state- and private- owned lands in Hendry and Collier Counties and would create over 8,000 shot holes to generate seismic signals to map oil and gas beneath the surface using “pentolite” explosives. Located just north of the Big Cypress National Preserve and the Florida Panther National Wildlife Refuge, the proposed oil exploration also includes over 2,000 acres of the Dinner Island Wildlife Management Area. This entire proposed seismic survey area consists of is extremely important Florida panther habitat, including primary habitat. The impacts will be severe and similar to those that have occurred as a result of the seismic survey taking place in Big Cypress National Preserve, but could cause even greater harm due to the use of explosives. Oil and gas development and increased habitat loss and human disturbance are expected to follow in the event oil is discovered.

⁴¹⁰ See Quest Ecology, *Preliminary Evaluation of Potential Effects of Seismic Survey for Oil and Gas In and Near the Big Cypress National Preserve on the Florida Panther* (October 2018), available at: https://www.nrdc.org/sites/default/files/preliminary-evaluation-of-potential-effects-of-seismic-surveying-for-oil-and-gas-on-the-endangered-florida-panther_2018-10-16.pdf; see also Quest Ecology, *Seismic Survey Inspection Report Big Cypress National Preserve* (May 2018), available at: <https://assets.nrdc.org/sites/default/files/seismic-survey-inspection-big-cypress-20180531.pdf?ga=2.64474735.1368414805.1534966676-1336211018.1533580820>

⁴¹¹ *Id.*

- Corkscrew Crossing: Proposed development in Lee County just south of Wildblue development. The site is entirely Primary Zone panther habitat, and if developed would result in nearly 200 acres being lost (including 166 acres of wetlands within a regional flowway). This area is a wildlife corridor and would facilitate Florida panthers to a planned underpass at Corkscrew Road that is considered minimization and mitigation measures for constructed road projects. As proposed, the development would destroy the functionality of this existing corridor and increase the likelihood of wildlife-human interactions.
- The HCP also expressly does not include in its project area (despite being in the project area) the Hogan Island Quarry and the Immokalee Sand Mine. The Hogan Island Quarry is a 1,000 acre planned sand and limestone mine and Immokalee Sand Mine is an approximately 900 acre site that would be converted to a sand mine in Collier County off of State Road 82. Development of this parcel would sever a Florida panther Least Cost Pathway (LCP) that shows likely routes of this species as it moves across the landscape. A proposed “wildlife corridor” on site is very narrow, only about 600 feet wide, which is far narrower than biologists believe would be functional.
- Argo Manatee (residential development), Collier County: A residential development will impact about 75 acres of land adjacent to the Primary Zone and where numerous roadkills have occurred on east US41
- Hacienda Lakes (residential development), Collier County: A residential development adjacent to the Picayune Strand State Forest which contained about 800 acres of Primary Zone habitat.
- Immokalee Road South (residential development), Collier County: A residential development that will impact 550 acres is nearby Corkscrew and a regional wildlife corridor.
- Pepperland (residential development) Lee County: A 637.5 acre development along Lee County’s Corkcrew Road and within the Lee County Density Reduction/Groundwater Resource (DR/GR) area. The project is located primarily within Secondary Zone habitat with telemetry points from radio-collared panthers documented nearby.
- Verdana (residential development) Lee County: A 1,460 acre development along Lee County’s Corkcrew Road and within the DR/GR. It is composed of Primary Zone and Secondary Zone panther habitat, some of which is Frakes Adult Breeding Habitat.
- Timbercreek (residential development) Lee County: A development of 695 acres of primary and secondary panther habitat on the southwest corner of SR 82 and Daniels Rd, also within the DR/GR.
- Troyer Brothers (mine) Lee County: A proposed limerock mine along Corkscrew Road and within the DR/GR. Of the 907 acres proposed for mining, 841 acres (93%) is Primary

panther habitat and 66 acres (7%) is Secondary panther habitat. When looking at the Frakes et al., 828 acres (91%) of the site is considered Adult Breeding Habitat.

- Old Corkscrew Plantation (mine), Lee County: A proposed limerock mine that would result in 1,837 acres destroyed. The land at issue is composed of Primary Zone and Secondary Zone panther habitat and is heavily utilized by panthers as documented through telemetry data. It is within the DR/GR.
- FFD/6Ls mine (mine) Lee County: A proposed limerock mine would destroy 2,585 acres of panther habitat for mining pits adjacent to a major flowway. It is within the DR/GR area.
- Lost Grove Mine (mine) Collier County: A proposed limerock mine adjacent to the Corkscrew Regional Ecosystem Watershed, would impact over 1,300 acres of panther habitat, including Adult Breeding Habitat.
- The Keri Road Sand Mine (mine), Hendry County: A proposed mine at over 850 acres of panther habitat directly adjacent to the Okaloacoochee Slough State Forest and Wildlife Management Area, a major panther corridor as documented by Least Cost Pathways and numerous road mortalities.
- In 2010, the Army Corps of Engineers had determined that mining projects in the DR/GR and adjacent lands may have a significant impact on the human environment and explored the need for an Environmental Impact Statement under the National Environmental Policy Act (NEPA) given its proximity to ecologically critical areas and Florida panther habitat. The Corps also determined that a separate Environmental Impact Statement was appropriate for similar reasons in the North Belle Meade area of Collier County when the East Naples Mine (810 acres of panther habitat impacted) and Section 20 Mines (567 acres of Primary Zone lost) were proposed.
- Even the most remote rural lands in Hendry County are also threatened with additional large scale residential development and mining. This includes the Southwest Hendry (King's Ranch) Sector Plan was approved in 2014 by Hendry County. It would allow 23,600 acres of urban development on the other side of the Collier-Hendry line. The Rodina Sector Plan was approved in 2012 by Hendry County. It provided local authorization of 10,089 acres of development north of the Southwest Hendry Sector Plan.
- Hydrologic restoration of the Lone Ranger property (a.k.a. American Prime) in Glades County would put more water on this main corridor through the Dispersal Zone to lands north of the Caloosahatchee River, which may restrict upland portions of the property to a mere 150 foot wide swath.
- Local roads: A number of local road widening projects also threaten to impact Florida panthers: including widening of Corkscrew Road (which runs through the middle of Lee County's most environmentally sensitive lands), an extension of Randall Blvd. in Collier County (portions of this study area are considered to significantly fragment important

Florida panther habitat and corridors), and an extension into the North Belle Meade area of Collier County called the Wilson Benfield Extension. FWC has begun to review the Wilson Benfield Extension and determined that this road would have adverse impacts and would be inconsistent with species protection strategies.

- I-75 Interchange: There continues to be a push for another I-75 Interchange off of Alligator Alley, even though the wildlife agencies have expressed great concerns for the proposal.

Many of these projects and areas are depicted on Attachments J and K. The Service failed to adequately consider or analyze the cumulative effects of the foregoing present and reasonably foreseeable development projects, along with all past land use projects, in violation of NEPA.⁴¹²

2. Climate Change and Sea Level Rise

The Service failed to analyze the impacts of climate change on the HCP and the species affected by the proposed development.⁴¹³

The DEIS incorrectly concludes that “habitats are not expected to change” within the ITP timeframe due to sea level rise because the Service alleges that the proposed project area is too far inland to be inundated.⁴¹⁴ The Service also fails to consider the increased habitat demands of these inland areas as more coastal areas outside the HCP area are inundated with water.

Coastal species face significant risks from coastal squeeze that occurs when habitat is pressed between rising sea levels and coastal development that prevents landward movement (Scavia 2002 at 17-18, Fitzgerald 2008 at 601-634, Defeo 2009 at 6-7, LeDee 2010 entire, Menon 2010 entire, Noss 2011 entire). Human responses to sea-level rise including coastal armoring and landward migration pose significant risks to the ability of species threatened by sea-level rise to move landward, if other suitable habitats were even available (Defeo 2009 at 1-9). Projected human population growth and development in Florida may thus threaten the species with coastal squeeze (Zwick 2006 entire).

The Service failed to consider the loss of habitat sea-level rise and climate change will cause and the pressure that will place on human and non-human populations and habitat, and how that will be affected by the proposed project in violation of NEPA.

VII. Conclusion

The Applicants’ proposed HCP has the potential to impact eight federally-protected

⁴¹² 40 C.F.R. § 1508.7.

⁴¹³ See, e.g., *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”); *Sierra Club v. FERC*, 867 F.3d 1357, 1371 (D.C. Cir. 2017) (NEPA review must consider the direct and indirect effects of greenhouse gas emissions of the alternatives).

⁴¹⁴ DEIS at 27.

species, three candidate species, and eight state-protected species in a variety of ways: it will further fragment, degrade, and destroy important habitat for these species making it difficult for each of them to shelter, feed, and reproduce; it may disrupt the slow and fragile recovery of the species—such as the critically endangered Florida panther; it may increase the mortality of these species as the result of vehicular collisions; it may increase the tension between these species and the area’s human population—such as with the northern crested caracara, eastern indigo snake, and Florida panther; and it could lead to other unforeseen and unexpected impacts to species we have such little information about—such as the Florida bonneted bat. For these reasons and many others stated above, we request that you do not authorize the take of any of these species as proposed in the HCP.

Sincerely,

/s/ Jaclyn Lopez

Jaclyn Lopez
Florida Director
Center for Biological Diversity
P.O. Box 2155
St. Petersburg, Florida 33731
(727)490-9190
jlopez@biologicaldiversity.org

/s/ Amber Crooks

Amber Crooks
Environmental Policy Manager
Conservancy of Southwest Florida
1495 Smith Preserve Way
Naples, FL 34102
(239) 262-0304 ext. 286
amberc@conservancy.org

/s/ Eric E. Huber

Eric E. Huber
Managing Attorney
Sierra Club
Environmental Law Program
1650 38th St. Ste. 102W
Boulder, CO 80301
(303) 449-5595 ext. 101
eric.huber@sierraclub.org

/s/ Alison Kelly

Alison Kelly
Senior Attorney, Lands
Nature Program
Natural Resources Defense Council
1152 15th Street NW, Suite 300
Washington, DC 20005
T 202.717.8297
akelly@nrdc.org

Literature Cited

Andrews, K.M. and J.W. Gibbons. 2005. How Do Highways Influence Snake Movement? Behavioral Responses to Roads and Vehicles. *Copeia* 2005(4): 772–782.

Andrews, K. M., J. W. Gibbons, and D. M. Jochimsen. 2006. Literature Synthesis of the Effects of Roads and Vehicles on Amphibians and Reptiles. Federal Highway Administration (FHWA), U.S. Department of Transportation, Report No. FHWA-HEP-08-005. Washington, D.C. 151 pp.

Andrews, K.M., J.W. Gibbons and D.M. Jochimsen. 2008. Ecological effects of roads on amphibians and reptiles: a literature review. In *Urban herpetology. Herpetological Conservation*. Vol. 3. Jung, R.E. & Mitchell, J.C. (Eds). Salt Lake City, UT: Society for the Study of Amphibians and Reptiles.

Bailey, A.M., H.K. Ober, A.R. Sovie, and R.A. McCleery. 2017. Impact of land use and climate on the distribution of the endangered Florida bonneted bat. *Journal of Mammalogy*, 98(6): 1586-1593.

Breininger, D.R., M.J. Mazerolle, M.R. Bolt, M.L. Legare, J.H. Drese, and J.E. Hines, 2012. Habitat fragmentation effects on annual survival of the federally protected eastern indigo snake. *NASA Publications*. Paper 106.

Brody, A. and M. Pelton. 1989. Effects of roads on black bear movements in western North Carolina. *Wildl Soc Bull*, 17: 5-10.

Cale, P. 2003. The influence of social behavior, dispersal and landscape fragmentation on population structure in a sedentary bird. *Biol Conserv*, 109: 237-248.

Clark, R.W., W.S. Brown, R. Stechert, and K.R. Zamudio. 2010. Roads, Interrupted Dispersal, and Genetic Diversity in Timber Rattlesnakes. *Conservation Biology* 24(4):1059–1069.

Coffin, A. 2007. From roadkill to road ecology: a review of the ecological effects of roads. *Journal of Transport Geography*, 15(5): 396-406.

Defeo, O., A. McLachlan, D.S. Schoeman, T.A. Schlacher, J. Dugan, A. Jones, M. Lastra, and F. Scapini. 2009. Threats to sandy beach ecosystems: a review. *Estuarine, Coastal and Shelf Science*, 81: 1-12.

DeGregorio, B.A., E.J. Nordberg, K.E. Stepanoff, and J.E. Hill. 2010. Patterns of Snake Road Mortality on an Isolated Barrier Island. *Herpetological Conservation and Biology* 5(3):441–448.

Dixon, J.D., M.C. Wooten, J.W. McCown. 2007. Genetic consequences of habitat fragmentation and loss: the case of the Florida black bear (*Ursus americanus floridanus*). *Conserv Genet*, 8: 455-464.

Ebert, D. C. 2002. A selective advantage to immigrant genes in a *Daphnia* metapopulation. *Science*, 295, 485-488.

Enge, K.M., and K.N. Wood. 2002. A Pedestrian Road Survey of an Upland Snake Community in Florida. *Southeastern Naturalist* 1(4):365–380.

Ernest, H.B., W.M. Boyce, V.C. Bleich, B. May, S.J. Stiver, and S.G. Torres. 2004. Genetic structure of mountain lion (*Puma concolor*) populations in California. *Conserv Genet*, 4: 353-366.

Fahrig, L. and R. Rytwinski. 2009. Effects of roads on animal abundance: an empirical review and synthesis. *Ecology and Society* 14(1): 21.

Fitzgerald, D.M., M.S. Fenster, B.A. Argow, and I.V. Buynevich. 2008. Coastal impacts due to sea level rise. *Annual Review of Earth and Planetary Science*, 36: 601-647.

Flather, C.H and M. Bevers. 2002. Patchy reaction-diffusion and population abundance: the relative importance of habitat amount and arrangement. *Am Nat*, 159(1): 40-56.

Florida Panther Protection Program Panther Review Team, 2009. Technical review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County.

Frakes R.A., R.C. Belden, B.E. Wood, and F.E. James. 2015. Landscape Analysis of Adult Florida Panther Habitat. *PLoS ONE* 10(7): e0133044. Accessed at:

<https://doi.org/10.1371/journal.pone.0133044>

Frakes, 2018. Impacts to Panther Habitat from the Proposed Eastern Collier Multiple Species Habitat Conservation Plan: A Quantitative Analysis (Oct. 7, 2018).

Frankham, R. 1996. Relationship of genetic variation to population size in wildlife. *Conser Biol*, 10: 1500-1508.

Gerlach, G. and K. Musolf. 2000. Fragmentation of landscape as a cause for genetic subdivision in bank voles. *Conser Biol*, 14: 1066-1074.

Harrison, S. and E. Bruna. 1999. Habitat fragmentation and large scale conservation: what do we know for sure? *Ecography*, 22(3): 225-232.

Hostetler, J.A., J.W. McCown, E.P. Garrison, A.M. Neils, M.A. Barrett, M.e. Sunquist, S.L. Simek, and M.K. Oli. 2009. Demographic consequences of anthropogenic influences: Florida black bears in north-central Florida. *Biological Conservation*, 142: 2456-2463.

Hubbard, K.A., and A.D. Chalfoun. An Experimental Evaluation of Potential Scavenger Effects on Snake Road Mortality Detections. *Herpetological Conservation and Biology* 7(2):150–156.

Ims, R.A. and H.P. Andeassen. 1999. Effects of experimental habitat fragmentation and connectivity on root vole demography. *J. Anim Ecol*, 68(5): 839-852.

Jochimsen, D.M. 2006. Factors influencing the road mortality of snakes on the Upper Snake River Plain, Idaho. IN: Proceedings Proceedings of the 2005 International Conference on Ecology and Transportation, Eds. Irwin CL, Garrett P, McDermott KP. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC: pp. 351-365.

Johnson, W.E., E. Eizirik, M. Roelke-Parker, and S.J. O'Brien. 2001. Applications of genetic concepts and molecular methods to carnivore conservation. In J.L. Gittleman et al. (Eds.), *Carnivore Conservation*. New York: Cambridge University Press. Pp. 335-358.

Jules, E.S. 1998. Habitat fragmentation and demographic change for a common plant trillium in old-growth forest. *Ecology*, 79(5): 1645-1656.

Karl, T.R., J.M. Melillo, and T.C. Peterson. 2009. *Global Climate Change Impacts in the United States*. Global Change Research Program. New York: Cambridge University Press.

Kautz, R., R. Kawula, T. Hoctor, J. Comiskey, D. Jansen, D. Jennings, J. Kasbohm, F. Mazzotti, R. McBride, L. Richardson, and K. Root. 2006. How much is enough? Landscape-scale conservation for the Florida panther. *Biological Conservation*, 130:118-133.

Keller, I. and C.R. Largiader. 2003. Recent habitat fragmentation caused by major roads leads to reduction of gene flow and loss of genetic variability in ground beetles. *The Royal Society*, 270: 417-423.

Kramer-Schadt, S., E. Revilla, T. Wiegand, and U. Breitenmoser. 2004. Fragmented landscapes, road mortality and patch connectivity: modeling influences on the dispersal of Eurasian lynx. *Journal of Applied Ecology*, 41: 711-723. Lindenmayer, D. and J. Fisher. 2006. *Habitat Fragmentation and Landscape Change: An Ecological and Conservation Synthesis*. Washington, D.C. Island Press.

Kyle, C.J. and C. Strobeck. 2001. Genetic structure of North American wolverine (*Gulo gulo*) populations. *Mol Ecol*, 10, 337-347.

LeDee, O.E. K.C. Nelson, and F. Cuthbert. 2010. The challenge of threatened and endangered species management in coastal areas. *Coastal Management*, 38(4): 337-353.

Lu, Z., W.E. Johnson, M. Menotti-Raymond, N. Yuhki, J.S. Martenson, S. Mainka, H. Shi-Qiang, Z. Zhihe, G. Li, W. Pan, X. Mao, and S.J. O'Brien. 2001. Patterns of genetic diversity in remaining giant panda populations. *Conserv Biol*, 15(6): 1596-1607.

Mader, H. 1984. Animal habitat isolation by roads and agricultural fields. *Biol Conserv*, 29: 81-96.

Menon, S., J. Soberon, X. Li, and A.T. Peterson. 2010. Preliminary global assessment of terrestrial biodiversity consequences of sea level rise mediated by climate change. *Biodiversity and Conservation*, 19(6): 1599-1609.

Noss, R. 2011. Between the devil and the deep blue sea: Florida's unenviable position with respect to sea level rise. *Climate Change*, 107(1): 1-16.

Noss, R. 1996. Conservation biology and carnivore conservation in Rocky Mountains. *Conserv Biol*, 10(4): 949-963.

Noss, Smith, and Main, 2006. East Collier County Wildlife Movement Study: SR29, CR846, and CR858 Wildlife Crossing Project, Final Report.

Paetkau, D. and C. Strobeck. 1994. Microsatellite analysis of genetic variation in black bear populations. *Mol Ecol*, 3(5): 489-495.

Paetkau, D., L.P. Waits, P.L. Clarkson, L. Craighead, and C. Strobeck. 1997. An Empirical Evaluation of Genetic Distance Statistics Using Microsatellite Data from Bear (Ursidae) Populations. *Genetics Society of America*, 147:1945-1957.

Peters, R.L. and J.D.S. Darling. 1985. The greenhouse effect and nature reserves. *Bioscience*, 35(11), 707-717.

Proctor, M.F., B.N. McLellan, and C. Strobeck. 2002. Population fragmentation of grizzly bears in southeastern British Columbia, Canada. *Ursus*, 13, 153-160.

Reed, D. & R. Franham. 2003. Correlation between fitness and genetic diversity. *Conservation Biology*, 17(1): 230-237.

Roelke, M.E., J.S. Martenson, and S.J. O'Brien. 1993. The consequences of demographic reduction and genetic depletion in the endangered Florida panther. *Curr Biol*, 3(6), 340-350.

Row, J.R., G. Blouin-Demers, and P.J. Weatherhead. 2007. Demographic effects of road mortality in black ratsnakes (*Elaphe obsoleta*). *Biological Conservation* 137:117–124.

Ruiz-Gutierrez, V., T.A. Gavin, and A.A. Dhondt. 2008. Habitat fragmentation lowers survival of a tropical forest bird. *Ecological Application*, 18(4): 838-846.

Saccheri, I., M. Kuussaari, M. Kankare, P. Vikman, W. Fortelliu, and I. Hanski. 1998. Inbreeding and extinction in a butterfly metapopulation. *Nature*, 392: 491-494.

Santos S.M., Carvalho F., and Mira A. (2011) How Long Do the Dead Survive on the Road? Carcass Persistence Probability and Implications for Road-Kill Monitoring Surveys. *PLoS ONE* 6(9): e25383. doi:10.1371/journal.pone.0025383

Scavia, D. et al. 2002. Climate change impacts on U.S. coastal and marine ecosystems. *Estuaries*, 25: 149-164.

Schlierf, R., R. Hight, S. Payne, J. Shaffer, B. Missimer, and C.G. Willis. Undated. Kennedy Space Center (KSC) Launch Pad Avian Abatement Efforts Including Related KSC Road Kill Reduction Effort. 22 pp.

Seager, R., A. Tzanova, and J. Nakamura. 2009. Drought in the Southeastern United States: causes, variability over the last millennium, and the potential for future hydroclimate change. *Journal of Climate*, 22: 5021-5045.

Seiler, A. and J-O Helldin. 2006. Mortality in Wildilfe Due to Transportation. IN: The Ecology of Transportation: Managing Mobility for the Environment, Eds. Davenport, J. and J.L. Davenport. Springer, Netherlands: pp. 165-189.

Shepard, D.B., M.J. Dreslik, B.C. Jellen, and C.A. Phillips. 2008. Reptile Road Mortality around an Oasis in the Illinois Corn Desert with Emphasis on the Endangered Eastern Massasauga. *Copeia*, 2:359-359

Shepherd, D.B., A.R. Kuhns, M.J. Dreslik, and C.A. Phillips. 2008. Roads as barriers to animal movement in fragmented landscapes. *Animal Conservation*, 11:289-296.

Sherwin, W.B. and C. Moritz. 2000. Managing and monitoring genetic erosion. In A. a. Young, *Genetics, demography, and viability of fragmented populations*. New York: Cambridge University Press. pp. 9-34

Shwiff, S.A., H.T. Smith, R.M. Engeman, R.M. Barry, R.J. Rossmanith, and M. Nelson. 2007. Bioeconomic analysis of herpetofauna road-kills in Florida state park. *USDA National Wildlife Research Center – Staff Publications*. Paper 623. http://digitalcommons.unl.edu/icwdm_usdanwrc/623

Srikwan, S. and D.S. Woodruff. 2000. Genetic erosion in isolated small-mammal populations following rainforest fragmentation. In A. a. Young, *Genetics, Demography, and Viability of Fragmented Populations*. New York: Cambridge University Press. pp. 149-172.

Trombulak, S. and C.A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology*, 14, 18-30.

U.S. Fish & Wildlife Service. 1999. Multiple Species Recovery Plan for South Florida: Eastern Indigo Snake *Drymarchon corais couperi* 4-567, available at <http://www.fws.gov/verobeach/msrppdfs/easternindigosnake.pdf>.

U.S. Fish and Wildlife Service, 2008. Florida Panther Recovery Plan, 3rd Revision. Voss, C.C., A.G. Antonisse-De Jong, P.W. Goedhart, and M.J. Smulders. 2001. Genetic similarity as a measure for connectivity between fragmented populations of the moor frog (Rana arvalis). *Heredity*, 86, 598-608.

Walker, C.W., C. Vila, A. Landa, M. Linden, and H. Ellegren. 2001. Genetic variation and population structure in Scandinavian wolverine (*Gulo gulo*) populations. *Mol Ecol*, 10, 53-63.

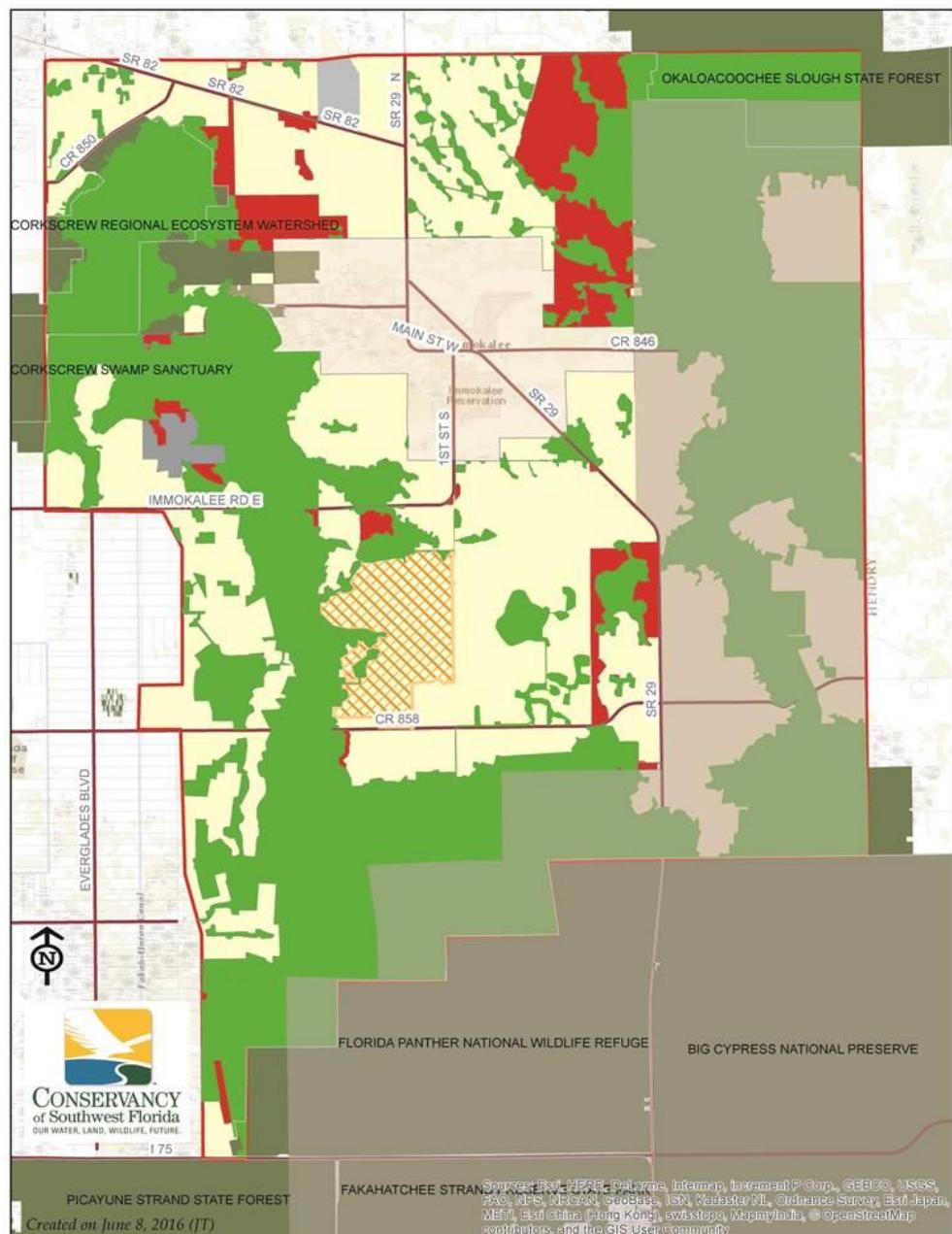
Westemeier, R.L., J.D. Brawn, S.A. Simpson, T.L. Esker, R.W. Jansen, J.W. Walk, E.L. Kershner, J.L. Bouzat, and K.N. Paige. 1998. Tracking the long-term decline and recovery of an isolated population. *Science*, 282, 1695-1698.

Whittle, A., D.S. Maehr, S. Fei, and J. Cox. 2008. Global climate change and its effect on large carnivore habitat in Florida. Poster presentation at “Florida’s Wildlife: On the Front Lines of Climate Change.” Orlando, FL, October 1-3.

Woodroffe, R. and J.R. Ginsberg. 1998. Edge effects and the extinction of populations inside protected areas. *Science*, 280, 2126-2128.

Zwick, P.D. and M.H. Carr. 2006. *Florida 2060: a population distribution scenario for the state of Florida*. Gainesville, FL: University of Florida, GeoPlan Center.

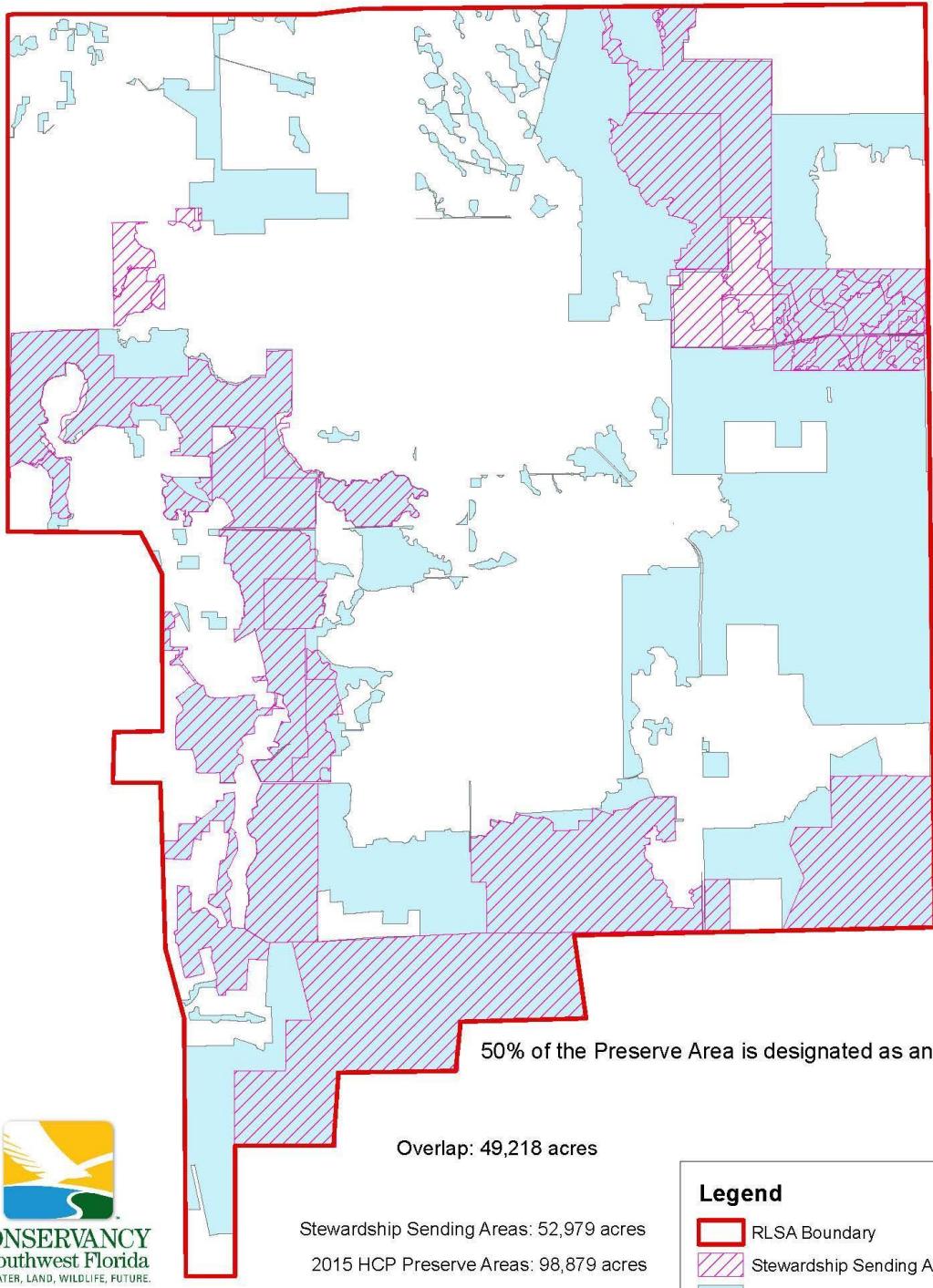
Attachment A⁴¹⁵



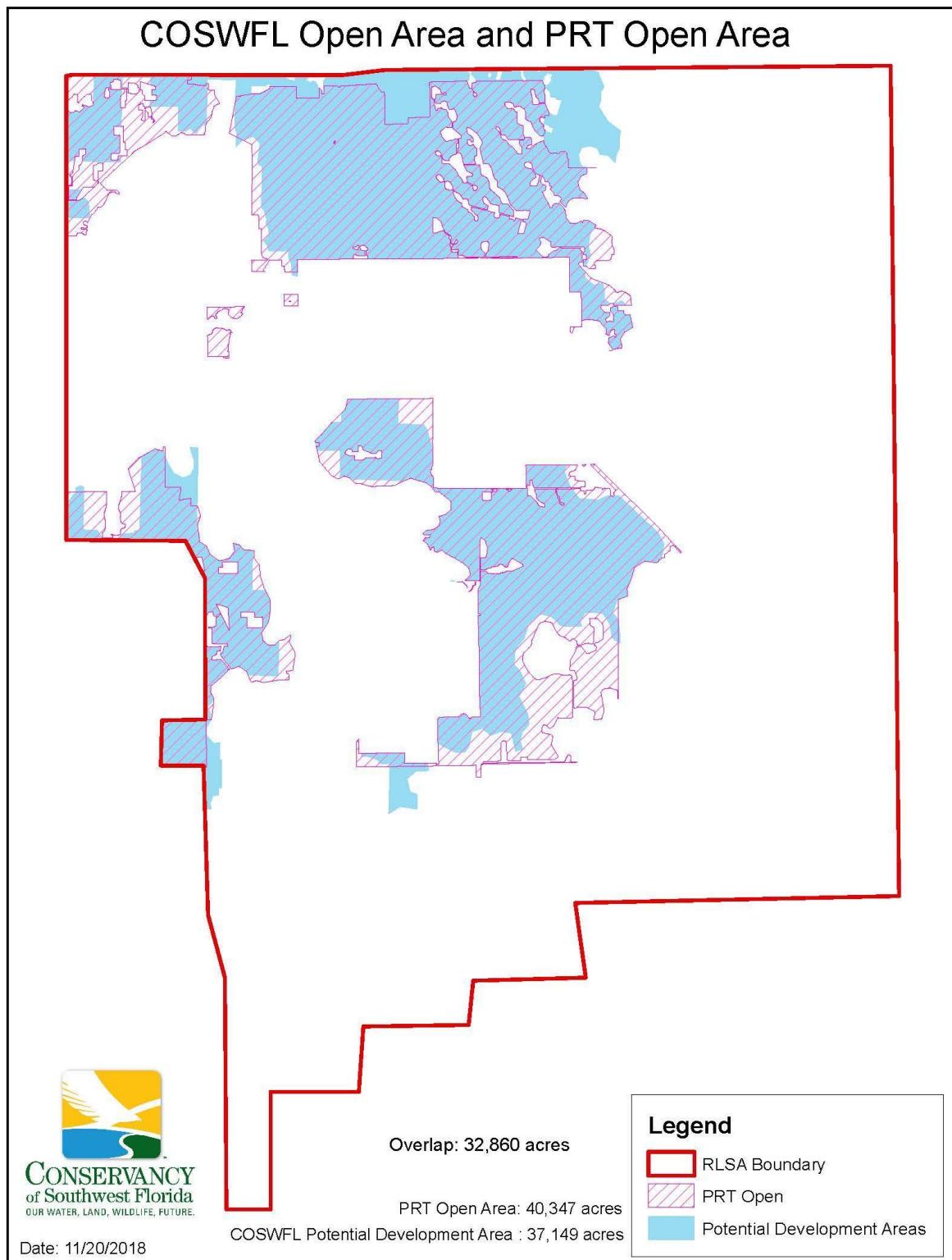
⁴¹⁵ Areas in red depict the lands outside of the RLSA program's FSA, HSA, WRAs(in green) and ACSC (in gray).

Attachment B

HCP Preserve Area overlay with SSA

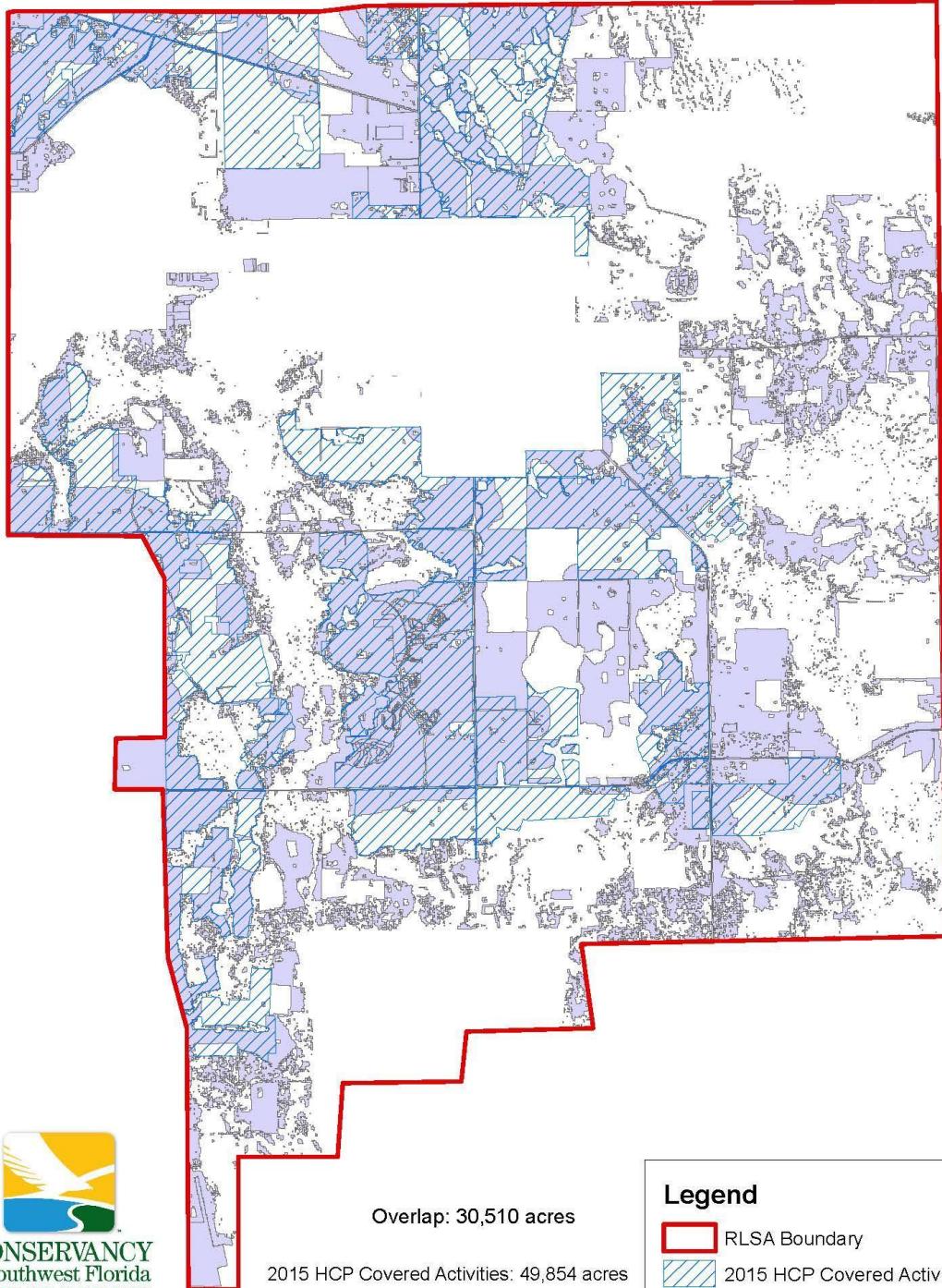


Attachment C



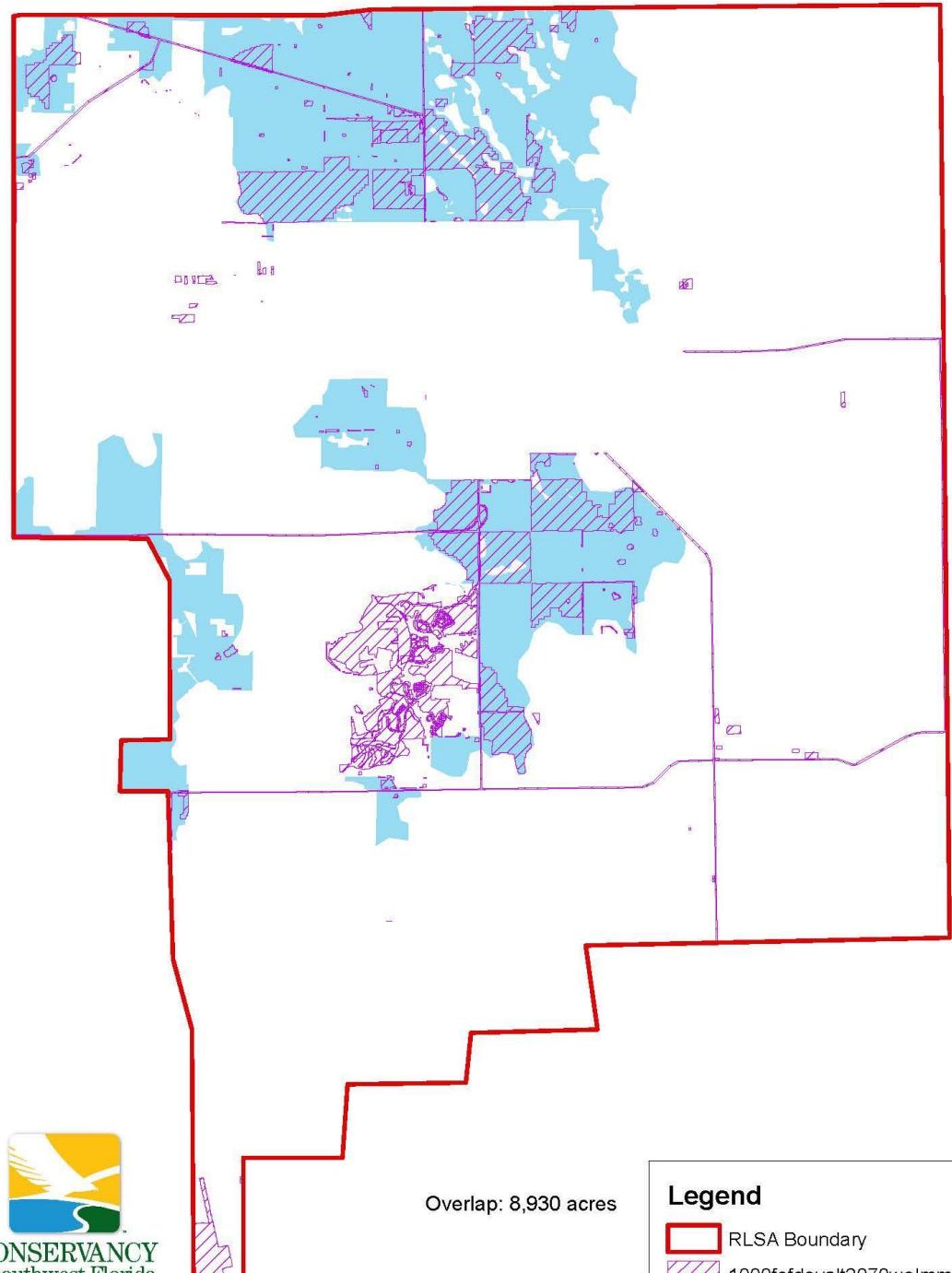
Attachment D

HCP Open Area and 1000 FOF 2070 Trend Analysis



Attachment E

COSWFL Open Area and 1000 FOF 2070 ALT Analysis

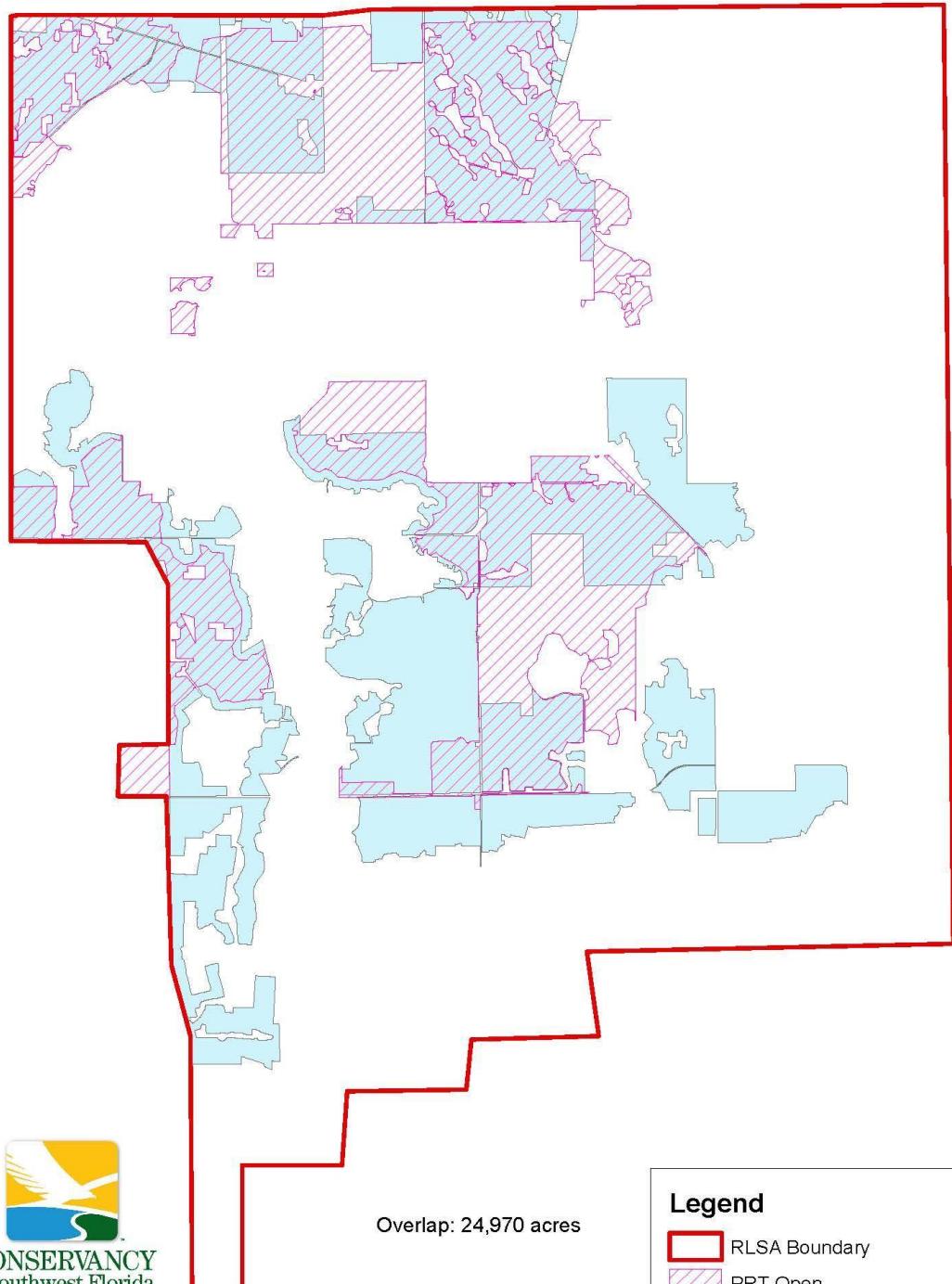



CONSERVANCY
of Southwest Florida
OUR WATER, LAND, WILDLIFE, FUTURE.

Date: 11/21/2018

Attachment F

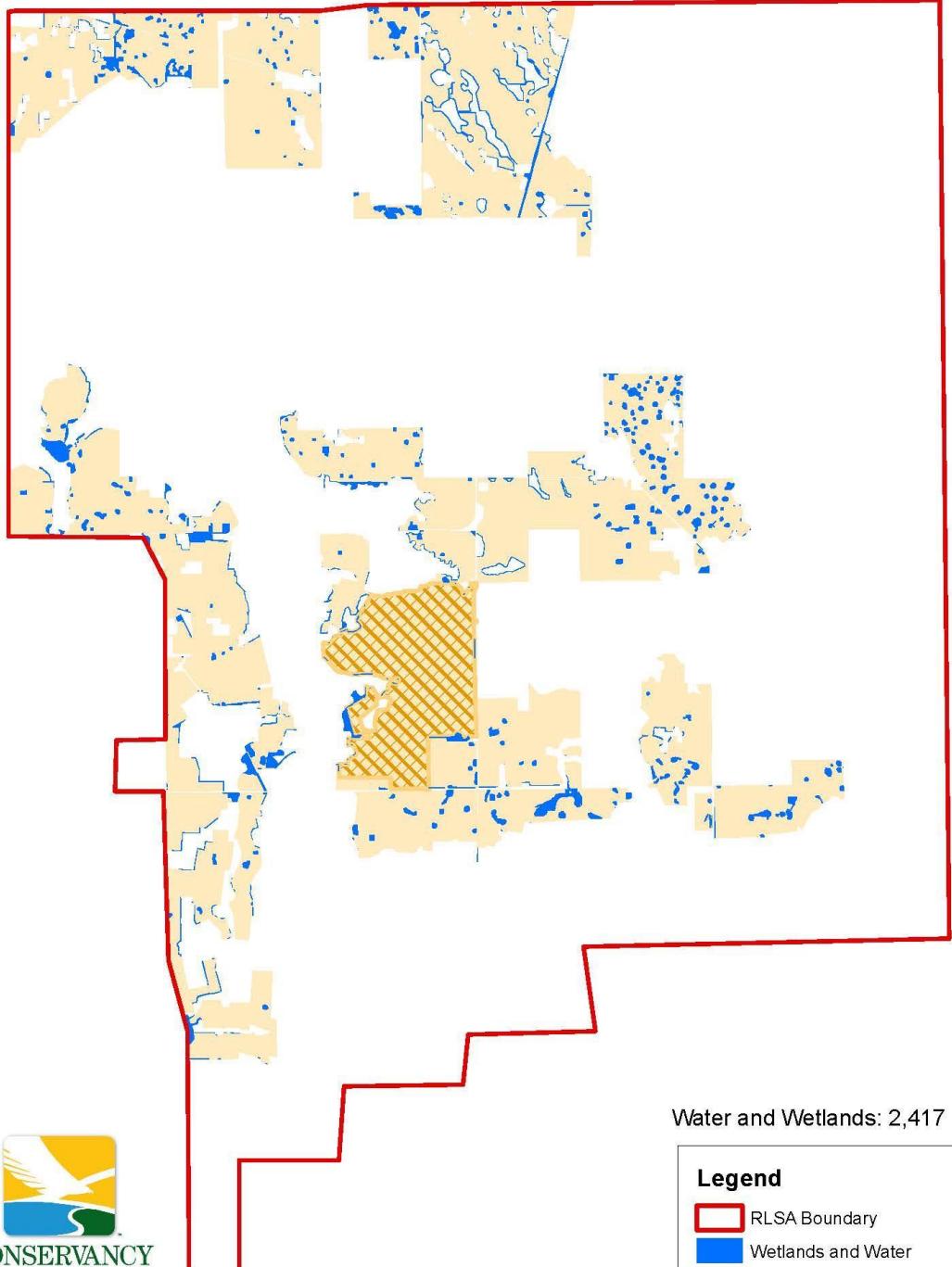
HCP Open Area and PRT Open Area



Date: 11/20/2018

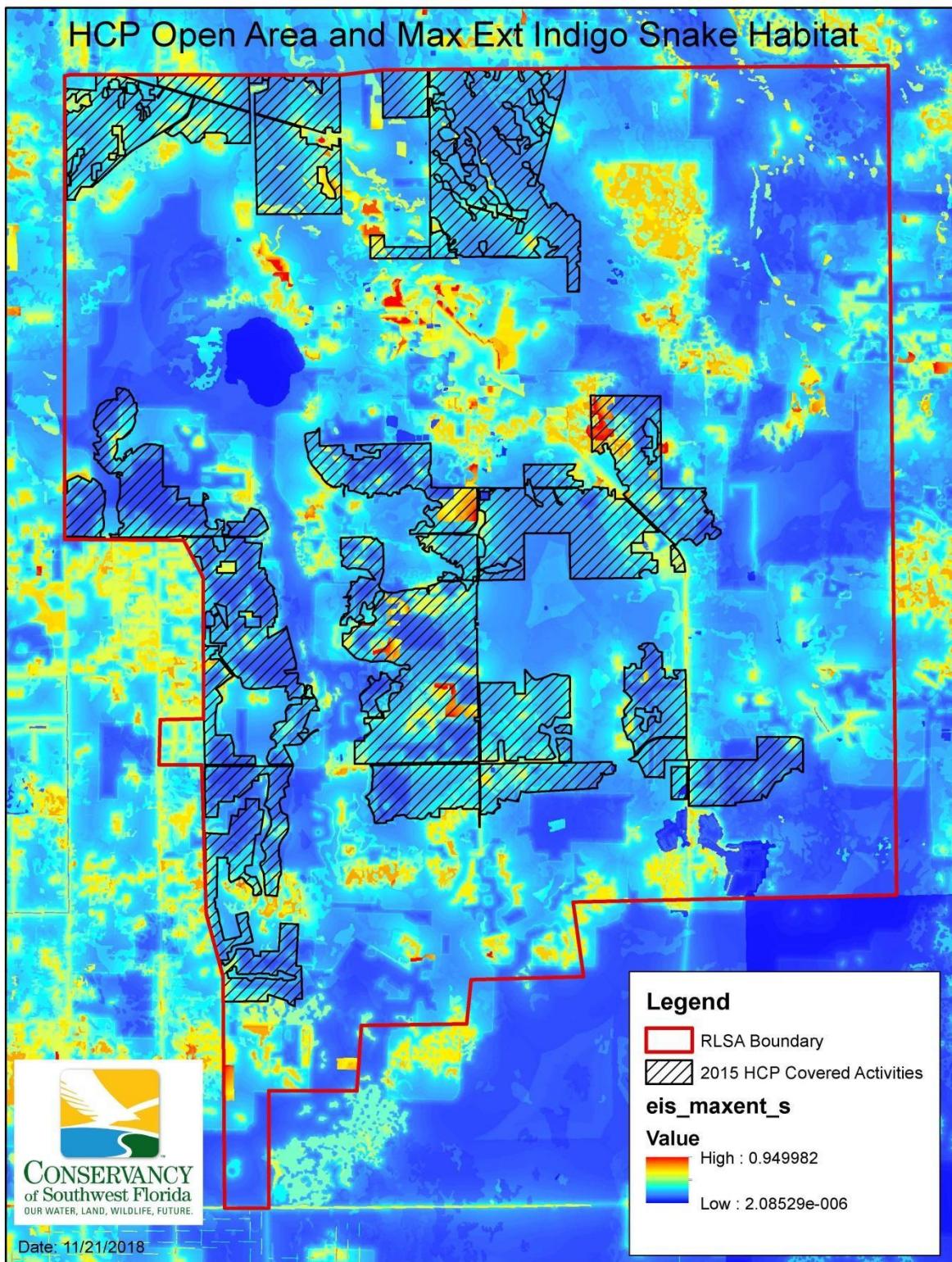
Attachment G

HCP Open Areas FLUCCS - Water and Wetlands

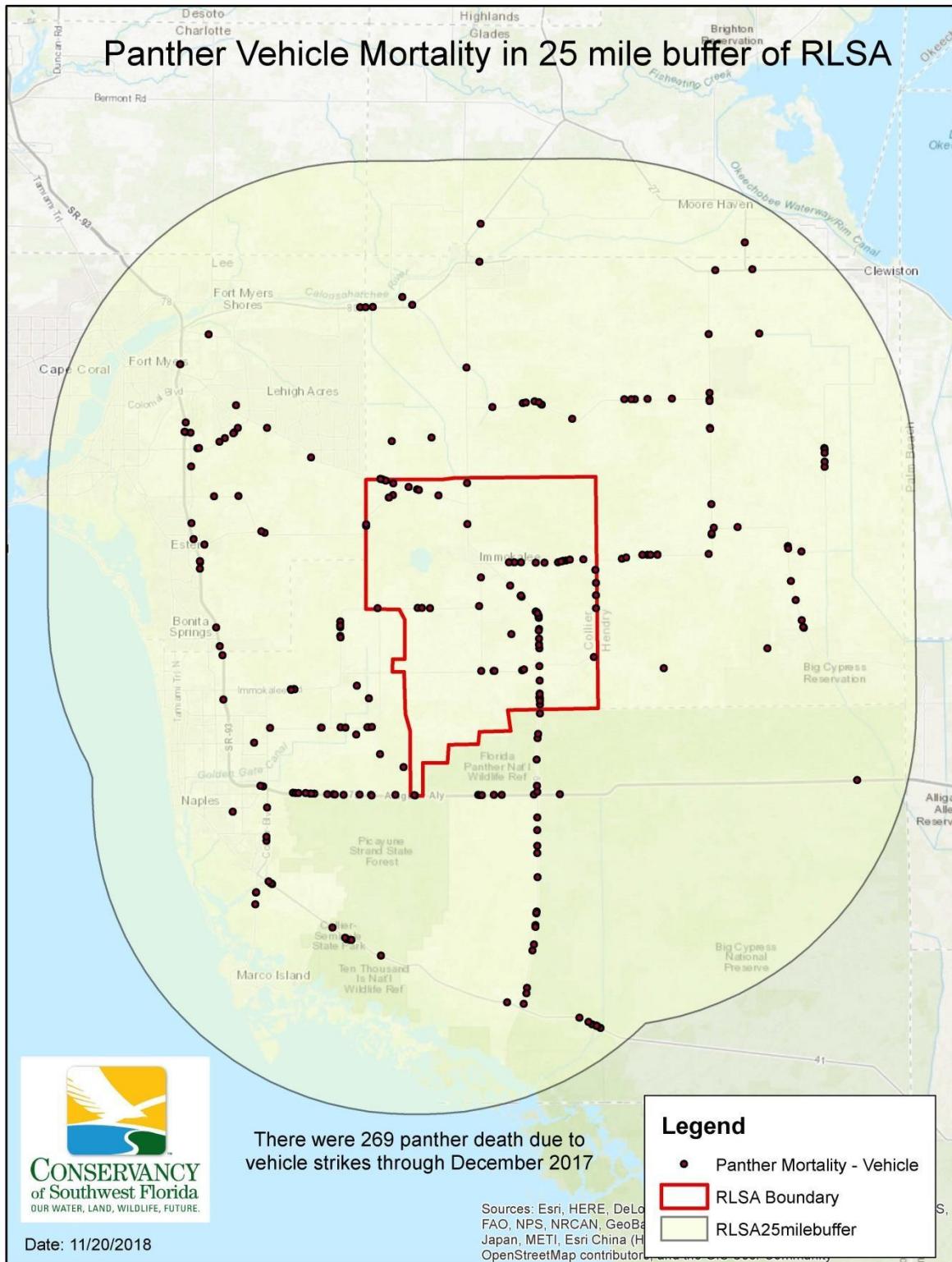


Date: 11/27/2018

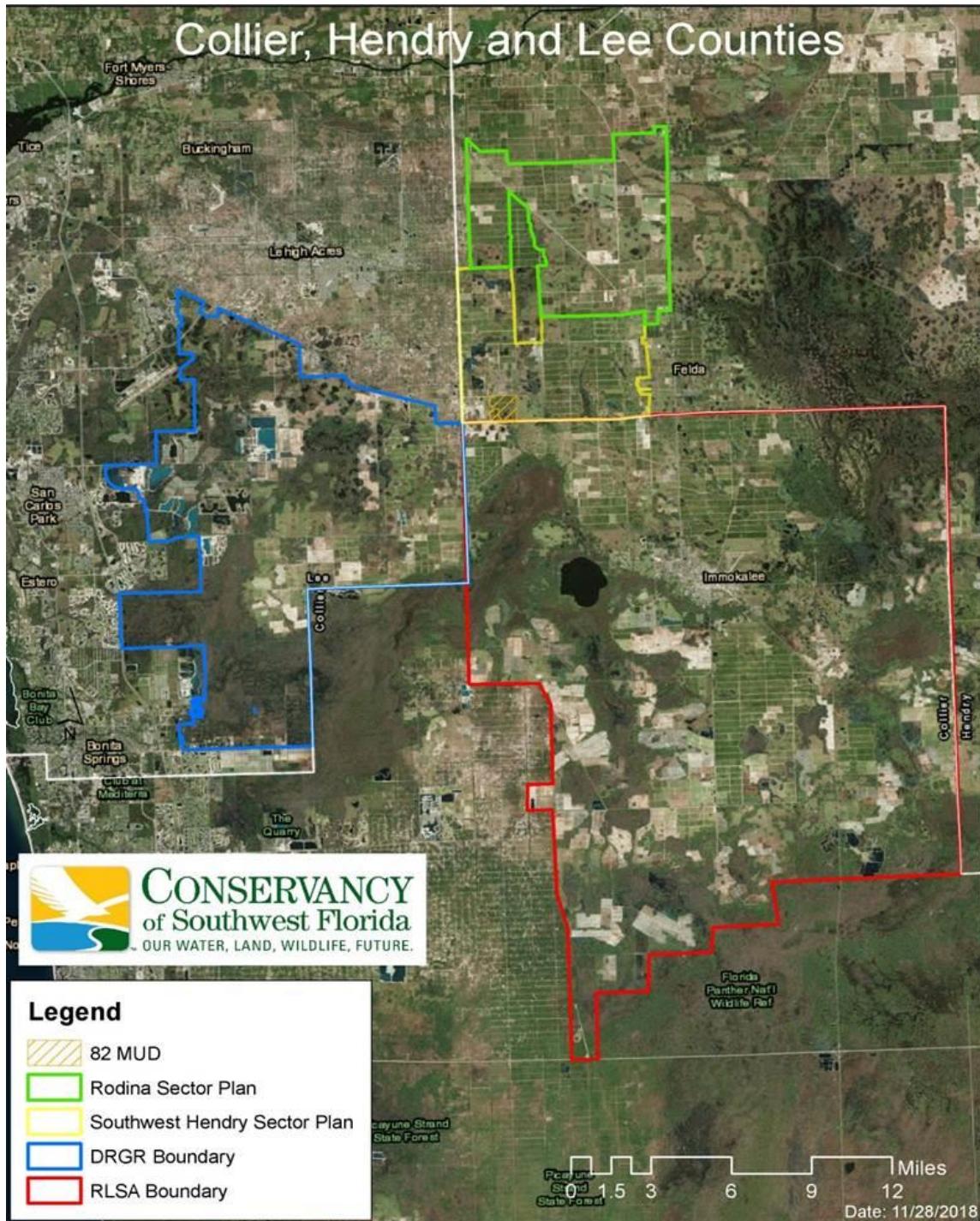
Attachment H



Attachment I



Attachment J



Attachment K

DR/GR Area Mining Activity & Residential Communities

February 2018

