October 16, 2024

U.S. Army Corps of Engineers
Fort Myers Permit Section
701 San Marco Boulevard
Jacksonville, FL 32207
ATTN: District Engineer and Michael Ornella

RE: Comments on Rural Lands West Mixed-Use Community (Clean Water Act Section 404 Permit Application No. SAJ-2008-02431 (SP-MAO); Request for Public Hearing

Submitted via

Dear District Engineer,

Sierra Club, the Conservancy of Southwest Florida, and the Center for Biological Diversity write to provide public comments regarding the Clean Water Act Section 404 permit application for the "Rural Lands West" mixed-use development in response to application notice SAJ-2008-02431 (SP-MAO), dated September 19, 2024.[1] For inclusion in the administrative record, the materials cited in this comment letter are included on the attached DVD.[2]

Due to the significant effects that the proposed development will have on wetlands and wetlands ecosystems, specifically, cumulative effects on the endangered Florida panther, the U.S. Army Corps ("Corps") should prepare an Environmental Impact Statement ("EIS") to comply with the National Environmental Policy Act ("NEPA") and properly inform its decision regarding the permit application. The Corps must also complete Endangered Species Act formal consultation with the U.S. Fish and Wildlife Service ("FWS") regarding species impacts, including impacts to the Florida panther, crested caracara, and bonneted bat. Furthermore, the Corps must determine that the project is in the public interest and complies with requirements to avoid and minimize impacts, and to select the "least environmentally damaging practicable alternative," as required by the Clean Water Act ("CWA"), before issuing a permit. In light of the available information about the cumulative effects on the Florida panther, the Corps should

[1] *See* US Army Corps of Engineers Jacksonville District Website, Public Notices, Permit Application No. SAJ-2008-02431 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3910899/.

[2] In response to a query from Sierra Club, Michael Ornella indicated that the Corps would accept materials on a CD or DVD. *See* Email message from Michael Ornella, US Army Corps of Engineers, to Karimah Schoenhut, Sierra Club (Sept. 24, 2024). [Attached].

deny the application. Our organizations also request a public hearing, for the reasons detailed below.

The Sierra Club was founded in 1892 and is the nation's oldest grassroots environmental organization. The Sierra Club is incorporated in California, and has approximately 636,380 members nationwide, with about 30,600 members in its Florida Chapter alone. The organization is dedicated to the protection and preservation of the environment. The Sierra Club's mission 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. One of the Sierra Club's main national initiatives, the Conservation Campaign, tackles pressing environmental problems including climate change and threats to wildlife. Sierra Club has long advocated for protections for Florida species under the Endangered Species Act, including litigation to ensure the U.S. Fish and Wildlife Service meets its obligations.

The Conservancy of Southwest Florida is a regional non-profit corporation headquartered in Naples, serving Collier, Lee, Hendry, Glades, and Charlotte counties in Florida. The Conservancy has more than 4,500 members and supporters who enjoy the quality of life afforded by southwest Florida's natural resources. The mission of the Conservancy is to protect land, water, and wildlife through programs in science and research, policy and advocacy, environmental education, and wildlife rehabilitation. The Conservancy has been engaged in advocacy for the protection of rural landscapes, wetland ecosystems, and wildlife habitat for decades. In eastern Collier County, the Conservancy of Southwest Florida has had active involvement in local land-use planning, as well as engagement in state and federal permitting processes for projects within Florida panther habitat. As we celebrate our 60th anniversary, we continue to protect southwest Florida's unique natural environment and quality of life… now and forever.

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, more than 99,000 of whom live in Florida and care about the species who 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, Everglade snail kite, and gopher tortoise.

For the reasons detailed in this letter, at this time our organizations object to the issuance of the proposed permit.

The Rural Lands West Development will destroy and degrade thousands of acres of Florida panther habitat, which experts have identified as essential for the panther's survival and recovery into its historical range, reducing the population that can be supported. In light of a current panther population estimated at only 120–230 adults and subadults, and the best available scientific information indicating that the population is no longer growing and may be in decline,

these impacts plainly rise to the level of significance. Furthermore, the cumulative effects on the Florida panther from habitat loss and vehicle impacts induced by the Rural Lands West Project, along with the effects of other reasonably foreseeable development projects in Collier County appear to rise to the level where they would reasonably be expected to reduce the panther's ability to survive and recover. These significant effects must be evaluated in an EIS. Moreover, the Rural Lands West Project is likely to result in the permanent loss of reproductive capacity for at least two breeding pairs of Florida crested caracara, even with the proposed mitigation described in available documents, as well as "domino effects" on other breeding pairs—another significant adverse impact that should be evaluated in an EIS.

Additionally, because of the adverse species impacts described herein, the Corps must engage in thorough, formal consultation with the U.S. Fish and Wildlife Service (FWS) to minimize the species impacts and ensure issuing this permit will not jeopardize the Florida panther or any other federally protected species.

Finally, the Corps should deny the permit because it is contrary to the public interest.

LEGAL BACKGROUND

Clean Water Act ("CWA") Section 404

The CWA is designed to "restore and maintain the chemical, physical and biological integrity of the Nation's waters."[3] The CWA generally prohibits the discharge of pollutants, including dredged or fill material, into the waters of the United States unless authorized by a permit.[4] Section 404 of the CWA authorizes the Corps to issue permits for the discharge of dredge or fill material into waters of the United States.[5]

A section 404 permit must satisfy regulations promulgated by the Corps and the Environmental Protection Agency ("EPA").[6] The regulations under section 404(b)(1) of the CWA provide that adverse impacts to wetlands must be avoided to the extent that practicable alternatives are available which will result in less adverse impacts.[7] A "practicable" alternative is one that is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."[8] "[A]n applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable."[9] Whether an alternative is practicable also depends on the weight of the potential harm.[10]

The 404(b)(1) Guidelines establish that, for prospective impacts to special aquatic sites

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[3] 33 U.S.C. § 1251(a).
[4] *See id*. § 1311(a).
[5] 33 U.S.C. § 1344.
[6] *Friends of the Earth v. Hintz*, 800 F.2d 822, 831 (9th Cir. 1986).
[7] 40 C.F.R. § 230.10(a).
[8] *Id.* § 230.10(a)(2).
[9] *Sylvester v. U.S. Army Corps of Engin'rs*, 882 F.2d 407, 409 (9th Cir. 1989).
[10] *See, e.g*., *Alameda Water & Sanitation Dist. v. Reilly*, 930 F. Supp. 486, 492 (D. Colo. 1996) (upholding EPA determination that practicable alternatives existed even though the record showed "very substantial regulatory and legal obstacles to these alternatives" such as moving an entire town and obtaining a Presidential exemption, because "the impacts [of the proposed project] were much greater" than the impacts of those alternatives).

like wetlands,[11] when an activity or project "does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (*i.e.*, is not 'water dependent')," there is a presumption that practicable alternatives that do not involve impacting those sites are available, "unless clearly demonstrated otherwise."[12] Furthermore, all practicable alternatives that do not involve impacts to a special aquatic site like a wetland are presumed to have less adverse impact than the alternative that does impact a special aquatic site, "unless clearly demonstrated otherwise."[13]

To determine whether a practicable alternative exists, the Corps must undertake a multi-step analysis.[14] The Corps must first determine whether the project is water dependent. A water-dependent project is one that "requires access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose."[15] If the Corps determines that the project is not water-dependent, it then must presume that practicable alternatives not involving wetlands exist.[16] The Corps may not grant a permit unless the presumption is rebutted by a clear contrary demonstration by the Project applicant.[17] Where no practicable alternative sites exist that would avoid filling or have a less adverse impact on wetlands, the Corps must consider whether "appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem."[18]

The Corps has also adopted regulations, known as the "public interest" factors, to implement its permitting authority.[19]

> "The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity *and its intended use* on the public interest. Evaluation of the probable impact which the proposed activity may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefits which reasonably may be expected to accrue from the proposal

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[11] *Id.* at § 230.3(m) (defining "special aquatic sites" as "those sites identified in Subpart E," which contain "special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values"); *id.* § 230.41 (a section in Subpart E describing wetlands and explaining that "[t]he discharge of dredged or fill material in wetlands is likely to damage or destroy habitat and adversely affect the biological productivity of wetlands ecosystems by smothering, by dewatering, by permanently flooding, or by altering substrate elevation or periodicity of water movement," by "chang[ing] the wetland habitat value for fish and wildlife," and through "disruptions in flow and circulation patterns" where "apparently minor loss of wetland acreage may result in major losses through secondary impacts").
[12] *Id.* § 230.10(a)(3).
[13] *Id.*
[14] 40 C.F.R. § 230.5.
[15] *Id.* § 230.5(a), (c), (f); *id.* § 230.10(a)(3).
[16] *Id.* at §§ 230.10(a)(3); 230.5.
[17] *Id.*
[18] *Id.* at § 230.10(d); *see also Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 544 (11th Cir. 1996) (indicating that where "filling of wetlands cannot be avoided, the 'appropriate and practicable steps' must be taken to minimize the potential adverse impacts of the discharge on wetlands").
[19] 33 C.F.R. §§ 320 *et seq*.

> must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur, are therefore determined by the outcome of this general balancing process. That decision should reflect the national concern for both protection and utilization of important resources."[20]

The Corps must consider a broad range of potential relevant impacts as part of its public interest review, including "conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people."[21]

The Environmental Protection Agency, in conjunction with the Corps, also developed guidelines to implement the policies expressed by Congress in the CWA.[22] The Corps must follow these guidelines in deciding whether to issue a Section 404 permit.[23] As the Corps' public interest review regulations explain, "[f]or activities involving 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines."[24]

The Corps reviews all proposed Section 404 permits under both the Corps' public interest factors and EPA's 404(b)(1) Guidelines.[25] A permit must be denied if it is either contrary to the public interest or does not comport with the Section 404(b)(1) Guidelines.[26]

To ensure these mandatory CWA requirements are satisfied, the Corps must fully evaluate the direct, secondary, and cumulative impacts of the activity, including impacts to endangered species, the aquatic environment, fish and wildlife, and human impacts.[27] The 404(b)(1) Guidelines also set forth particular restrictions on discharges, described more fully below.[28] The Corps must set forth its findings in writing on the short-term and long-term effects of the discharge of dredge or fill activities, as well as compliance or non-compliance with the restrictions on discharge.[29]

The "loss of values" that the Corps must consider in evaluating the impact of a discharge on the biological characteristics of an aquatic ecosystem includes, with respect to threatened and endangered species, "[t]he impairment or destruction of habitat to which these species are limited. . . includ[ing] adequate good quality water, spawning and maturation areas, nesting

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[20] *Id*. § 320.4(a)(1) (emphasis added).
[21] *Id*.
[22] *See* 40 C.F.R. § 230.1; 40 C.F.R. § 230.2.
[23] *See* 33 U.S.C. § 1344(b); 40 C.F.R. § 230.2.
[24] 33 C.F.R. §§ 320.4(a)(1).
[25] 33 U.S.C. § 1344(b)(1); 33 C.F.R. § 320.2(f).
[26] 33 C.F.R. §§ 320.4, 323.6; 40 C.F.R. §§ 230.10, 230.12.
[27] *See, e.g*., 33 C.F.R. §§ 320.4(a)(1), 336.1(c)(5) (endangered species), 336.1(c)(8) (fish and wildlife); 40 C.F.R. §§ 230.11(a)- (h), 230.20-23 (aquatic ecosystem), 230.30 (threatened and endangered species), 230.31 (fish and wildlife), 230.51 (recreational and commercial fisheries), 230.52 (water-related recreation), 230.53 (aesthetics).
[28] 40 C.F.R. §§ 230.10, 230.12.
[29] 40 C.F.R §§ 230.11, 230.12(b).

areas, protective cover, adequate and reliable food supply, and resting areas for migratory species [which] can be adversely affected by changes in either the normal water conditions for clarity, chemical content, nutrient balance, dissolved oxygen, pH, temperature, salinity, current patterns, circulation and fluctuation, or the physical removal of habitat."[30] The Corps must also evaluate whether the discharge could kill individuals of an endangered or threatened species.[31]

EPA's 404(b)(1) Guidelines prohibit the Corps from authorizing an application for dredge and fill activities if, inter alia: (1) the activity "jeopardizes the continued existence" of an endangered species under the ESA;[32] (2) there is a practicable alternative which would have less adverse impact on the aquatic ecosystem and does not have other significant adverse environmental consequences;[33] (3) the discharge will result in significant degradation to waters of the U.S.;[34] or (4) there does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with the Corps' Guidelines for permit issuance.[35] The Corps must document its findings of compliance or noncompliance with these restrictions.[36]

"Fundamental to [404(b)(1)] Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern."[37]

The burden of proof to demonstrate compliance with the 404(b)(1) Guidelines rests with the applicant.[38] The Corps must deny a permit where the proposed discharge fails to comply with the Guidelines or there is insufficient information to determine compliance.[39]

Endangered Species Act ("ESA") Requirements

The ESA is "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation[,]" and "[t]he plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost."[40] To achieve this

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[30] 40 C.F.R. § 230.30(b)(2).
[31] 40 C.F.R. § 230.30(b)(1).
[32] 40 C.F.R. §§ 230.10(b)(3), 230.12(a)(3)(ii). The 404(b)(1) Guidelines indicate that the Corps must consider both direct *and indirect* impacts to ESA listed species from the dredge or fill activities. 40 C.F.R. § 230.30(b) ("The major potential impacts on threatened or endangered species from the discharge of dredged or fill material include . . . *[f]acilitating incompatible activities*.") (emphasis added). The 404(b)(1) Guidelines mandate that the Corps' determination of whether an activity "jeopardizes the continued existence" of an ESA endangered species is determined by the outcome of the formal consultation process under the ESA. 40 C.F.R. § 230.30(c).
[33] 40 C.F.R. §§ 230.10(a), 230.12(a)(3)(i).
[34] 40 C.F.R. § 230.10(c), 230.12(a)(3)(ii).
[35] 40 C.F.R. § 230.12(3)(iv).
[36] 40 C.F.R. § 230.12(b).
[37] 40 C.F.R. § 230.1(c).
[38] 40 C.F.R. § 230.1(c); *Utahns v. United States DOT*, 305 F.3d 1152, 1187 (10th Cir. 2002) (citing 61 Fed.Reg. 30,990, 30,998 (June 18, 1996) (citing 40 C.F.R. § 230.12(a)(3)(iv)).
[39] 40 C.F.R §§ 230.10, 230.12(a).
[40] *Tenn. Valley Authority v. Hill*, 437 U.S. 153, 180, 184 (1978).

goal, the ESA "provides both substantive and procedural provisions designed to protect endangered species and their habitats."[41] For instance, under section 9 of the ESA, it is unlawful for any person to "take" an endangered species.[42] The ESA defines "take" in the "broadest possible manner to include every conceivable way" a person could harm or kill fish or wildlife."[43] Accordingly, the ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[44] The ESA's prohibition against take applies to all "persons," including federal and state government officials.[45]

"Conservation," also referred to as "recovery," is at the heart of the ESA. Conservation is defined as "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided [by the ESA] are no longer necessary." [46] The ESA's conservation purpose "is reflected not only in the stated policies of the Act, but in literally every section of the statute."[47]

When a federal agency plans to authorize, fund, or carry out an action that may affect species protected under the ESA, section 7 mandates that the federal "action agency" must consult with FWS 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 destruction or adverse modification of [critical] habitat of such species."[48] Jeopardize means "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."[49] "To 'insure' … means '[t]o make certain, to secure, to guarantee'" that jeopardy will not occur.[50]

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[41] *Am. Rivers v. Nat'l Marine Fisheries Serv.*, 126 F.3d 1118, 1121 (9th Cir. 1997).
[42] 16 U.S.C. § 1538(a)(1)(B).
[43] S. Rep. No. 307, 93rd Cong., 1st Sess. 1, *reprinted in* 1973 U.S. Code Cong. & Admin. News 2989, 2995.
[44] 16 U.S.C. § 1532(19). FWS defines harm to mean "an act which actually kills or injures wildlife." 50 C.F.R. § 17.3. FWS defines "harass" to mean "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering." *Id.*
[45] 16 U.S.C. § 1532(13).
[46] *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d at 438 (citing 16 U.S.C. § 1532(3)). "Recovery" is defined as the "improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act." 50 C.F.R. § 402.02.
[47] *Babbitt v. Sweet Home Chapter of Cmties. for a Great Or.*, 515 U.S. 687, 699 (1995) (quoting *Hill*, 437 U.S. at 184).
[48] 16 U.S.C. § 1536(a)(2).
[49] 50 C.F.R. § 402.02.
[50] *Nat'l Ass'n of Home Builders v. Defs. of Wildlife*, 551 U.S. 644, 666–67 (2007) (cleaned-up) (discussing ESA section 7(a)(2)).

Until the consultation concludes, an agency cannot commit to an action in a way that would foreclose alternatives to avoid jeopardy.[51]

During consultation, the action agency must ask FWS and/or National Marine Fisheries Service (NMFS)[52] whether any listed or proposed species may be present in the area of the agency action.[53] If listed or proposed species may be present, the agency must prepare a "biological assessment" to determine whether the listed species may be affected by the proposed action.[54] If an agency determines that its action "may affect" but is "not likely to adversely affect" a listed species or its critical habitat, it may complete "informal consultation," during which FWS must concur in writing with the agency's determination.[55] If the agency determines that its action is "likely to adversely affect" a listed species or critical habitat, or if FWS does not concur with the agency's "not likely to adversely affect" determination, the agency must engage in "formal consultation."[56] An agency is relieved of the obligation to consult on its actions only where the action will have "no effect" on listed species or designated critical habitat.

Effects determinations are based on the direct, indirect, and cumulative effects of the action when added to the environmental baseline.[57] "Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."[58] "Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action but that are not part of the action."[59] "Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action."[60] "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."[61]

These effects are then added to the environmental baseline, which "refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences

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[51] 16 U.S.C. § 1536(a), (d), 50 C.F.R. § 402.09; *see, e.g.*, *Conservation L. Found. v. Ross*, 422 F. Supp. 3d 12, 29 (D.D.C. 2019) (following "may effect" determination, and absent a concurrence from consulting agency, "only a biological opinion … [reaching a no jeopardy conclusion] will … permit the action to carry forward."); *Oregon Wild, v. Constance Cummins*, 239 F. Supp. 3d 1247, 1262 (D. Or. 2017) ("…the Forest Service must complete a new ESA consultation prior to issuing grazing permits."); *cf. Defs. of Wildlife v. Jackson*, 791 F. Supp. 2d 96, 110 (D.D.C. 2011) ("It is 'well-settled that a court can enjoin agency action pending completion of section 7(a)(2) requirements.'" (quoting *Wash. Toxics Coal. v. EPA,* 413 F.3d 1024, 1034 (9th Cir.2005)).

[52] The FWS has jurisdiction primarily over terrestrial and freshwater species, whereas NMFS has jurisdiction primarily over marine species.

[53] 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12.

[54] *Id.*

[55] 50 C.F.R. § 402.14(a)-(b).

[56] *Id.* §§ 402.02, 402.14(a).

[57] *Id.* §§402.14(g); 402.02.

[58] *Id.* § 402.02.

[59] *Id.*

[60] *Id.*

[61] *Id.*

to the listed species or designated critical habitat caused by the proposed action."[62] It "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."[63]

In satisfying the obligations of section 7(a)(2), federal agencies must utilize the best available scientific information. The requirement to use the best available scientific and commercial data available "is to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise."[64] While FWS "can draw conclusions based on less than conclusive scientific evidence, it cannot base its conclusions on *no* evidence."[65] The ESA section 7 consultation process concludes when FWS and/or NMFS either affirmatively concurs in a determination that the action is "not likely to adversely affect" any listed species or completes a Biological Opinion determining whether the action is "not likely to jeopardize" any listed species or result in adverse modification or destruction of critical habitat.[66] If the Biological Opinion determines that substantive obligations imposed by section 7(a)(2) will not be met, the action agency must either terminate the action (e.g., not issue the permit), implement an alternative proposed in the Biological Opinion, or seek an exemption from the Cabinet-level Endangered Species Committee.[67] In sum, an action that may affect a listed species and would irreversibly commit resources, such as issuance of a permit authorizing destruction of habitat, cannot lawfully be undertaken absent an affirmative determination from FWS and/or NMFS that the action either is not likely to adversely affect any listed species or its critical habitat or that the action is "not likely to jeopardize" any listed species or adversely modify or destroy critical habitat.

Violations of the ESA are reviewed under the Administrative Procedure Act's standard of review, which invalidates "agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[68] A decision is "arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[69]

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[62] *Id.*
[63] *Id.*
[64] *Bennett v. Spear*, 520 U.S. 154, 176 (1997) (discussing requirement in context of section 7(a)(2) consultation).
[65] *Pac. Coast Fed'n of Fishermen's Associations v. U.S. Bureau of Reclamation*, 426 F.3d 1082, 1094–95 (9th Cir. 2005) (citing *Nat'l Ass'n. of Home Builders v. Norton*, 340 F.3d 835, 847 (9th Cir. 2003) (emphasis added).
[66] 16 U.S.C. § 1536(a)(2).
[67] *Weyerhaeuser Co. v. U.S. Fish & Wildlife Serv*., 139 S. Ct. 361, 366, 202 L. Ed. 2d 269 (2018).
[68] 5 U.S.C. § 706(2)(A).
[69] *Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

The State 404 Programmatic Biological Opinion and FWS's "Technical Assistance Process" Determinations

This comment letter refers to statements made by the U.S. Fish and Wildlife Service (FWS) in "Technical Assistance Process" documents for other proposed developments, purportedly in compliance with a process set forth in FWS's Biological Opinion for EPA's approval of the Florida State 404 permitting program.[70] The following discussion of that Biological Opinion, which was subsequently vacated, is intended to provide context for the discussion below of the analysis FWS included in such Technical Assistance Process forms ("TA Forms").[71]

FWS issued a "no jeopardy" conclusion in its Biological Opinion for EPA's approval of the Florida State 404 permitting program ("State 404 Programmatic BiOp"), which relied on a "structured process" established pursuant to a Memorandum of Understanding (MOU) between FDEP, the Florida Fish and Wildlife Conservation Commission (FWC), and FWS.[72] The State 404 Programmatic BiOp characterized that structured process as being "as protective" as ESA section 7 consultation,[73] though a federal district judge later found that it was not.

With regard to how cumulative effects would be considered in making the effects determinations pursuant to the "structured process," the 404 Programmatic BiOp stated: "The USFWS evaluation of the likelihood that a permit action may jeopardize a species or adversely modify critical habitat will take into account the effects of any unrelated non-federal actions occurring in the project area, similar to the way a cumulative effects analysis is conducted under section 7 of the ESA."[74] The State 404 Programmatic BiOp stated that State 404 permit applications must include: "Analysis of any cumulative effects, which are the effects of future State or private activities that are reasonably certain to occur within the project area."[75] It defined "project area" to mean: "a portion of the State-assumed waters where specific dredging or filling activities are permitted and consist of a bottom surface area, any overlying volume of water, and any mixing zones," but specified that, "[i]n the context of the review of State 404

[70] U.S. Fish and Wildlife Service, Programmatic Biological Opinion for U.S. Environmental Protection Agency's Approval of FDEP's Assumption of the Administration of the Dredge and Fill Permitting Program under Section 404 of the Clean Water Act (hereafter "State 404 Programmatic BiOp").

[71] The State 404 Programmatic BiOp was held unlawful on ESA grounds and vacated in April 2024 in litigation brought by plaintiffs including the Center and Sierra Club. *Ctr. for Biological Diversity v. Regan*, No. CV 21-119 (RDM), 2024 WL 1602457, at *28 (D.D.C. Apr. 12, 2024), *judgment entered*, No. CV 21-119 (RDM), 2024 WL 1591671 (D.D.C. Apr. 12, 2024). Appeals are pending.

[72] State 404 Programmatic BiOp at 68–69.

[73] State 404 Programmatic BiOp at 56.

[74] State 404 Programmatic BiOp at 20. *See also id*. at 25 ("The USFWS evaluation of the likelihood that a permit action may jeopardize a species or adversely modify critical habitat will take into account the effects of any unrelated non-federal actions occurring in the project area, similar to the way a cumulative effects analysis is conducted under section 7 of the ESA.").

[75] State 404 Programmatic BiOp at 16.

permit applications for endangered and threatened species, also includes those areas outside the immediate area of activity which may affect listed species using those areas."[76]

With regard to how jeopardy would be evaluated as part of the "structured process," the State 404 Programmatic BiOp stated that "the USFWS's project-specific, species-specific, review of the likelihood that a permit action may jeopardize a species or adversely modify critical habitat will take into account the effects of any unrelated non-federal actions occurring in the project area, similar to the way a cumulative effects analysis is conducted under section 7 of the ESA."[77] "Assessment of adverse cumulative impacts must be considered during the review of State 404 permit applications; the assessment of expected impacts to species that may be caused from a particular project must be considered along with the impacts that may have been caused from past authorized projects, as well as those future projects that are reasonably certain to occur."[78]

National Environmental Policy Act ("NEPA") Requirements

Under NEPA, every federal agency that takes a major federal action "significantly affecting the quality of the human environment" is required to prepare a detailed statement discussing: (i) the reasonably foreseeable environmental effects of the proposed action; (ii) any reasonably foreseeable adverse environmental effects which cannot be avoided should the proposal be implemented; (iii) a reasonable range of 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 Federal resources which would be involved in the proposed action should it be implemented.[79] For proposed actions with significant adverse environmental effects, the agency must complete an environmental impact statement (EIS). "Significant effects" means adverse effects that an agency has identified as significant based on the criteria in 40 C.F.R. § 1501.3(d).[80]

Section 1501.3(d) in turn provides: "In considering whether an adverse effect of the proposed action is significant, agencies shall examine both the context of the action and the intensity of the effect. In assessing context and intensity, agencies should consider the duration of the effect. Agencies may also consider the extent to which an effect is adverse at some points in time and beneficial in others (for example, in assessing the significance of a habitat restoration action's effect on a species, an agency may consider both any short-term harm to the species during implementation of the action and any benefit to the same species once the action is complete). However, agencies shall not offset an action's adverse effects with other beneficial effects to determine significance (for example, an agency may not offset an action's adverse effect on one species with its beneficial effect on another species).

> (1) Agencies shall analyze the significance of an action in several contexts. Agencies should consider the characteristics of the geographic area, such as proximity to unique or sensitive resources or communities with environmental justice concerns. Depending on

[76] State 404 Programmatic BiOp at vii.
[77] State 404 Programmatic BiOp at 66 (discussing cumulative effects of EPA assumption decision).
[78] State 404 Programmatic BiOp at 21.
[79] 42 U.S.C. § 4332(2)(C)(i)–(v).
[80] 40 C.F.R. § 1508.1(mm) (effective July 1, 2024).

the scope of the action, agencies should consider the potential global, national, regional, and local contexts as well as the duration, including short-and long-term effects.
(2) Agencies shall analyze the intensity of effects considering the following factors, as applicable to the proposed action and in relationship to one another:

(i) The degree to which the action may adversely affect public health and safety.
(ii) The degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
(iii) Whether the action may violate relevant Federal, State, Tribal, or local laws or other requirements or be inconsistent with Federal, State, Tribal, or local policies designed for the protection of the environment.
(iv) The degree to which the potential effects on the human environment are highly uncertain.
(v) The degree to which the action may adversely affect resources listed or eligible for listing in the National Register of Historic Places.
(vi) The degree to which the action may adversely affect an endangered or threatened species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973.
(vii) The degree to which the action may adversely affect communities with environmental justice concerns.
(viii) The degree to which the action may adversely affect rights of Tribal Nations that have been reserved through treaties, statutes, or Executive Orders."[81]

The Corps must consider reasonably foreseeable changes to the environment from the proposed action or alternative and include direct, indirect, and cumulative effects.[82] "Reasonably foreseeable" means sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision.[83] "Direct effects" are "caused by the action and occur at the same time and place."[84] "Indirect effects" are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth- inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."[85] "Cumulative effects" are "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person

[81] 40 C.F.R. § 1501.3(d) (effective July 1, 2024).
[82] 40 C.F.R. § 1508.1(g) (effective through June 30, 2024); 40 C.F.R. § 1508.1(i) (effective July 1, 2024).
[83] 40 C.F.R. § 1508.1(aa) (effective through June 30, 2024); 40 C.F.R. 1508.1(ii) (effective July 1, 2024).
[84] 40 C.F.R. § 1508.1(g)(1) (effective through June 30, 2024); 40 C.F.R. § 1508.1(i)(1) (effective July 1, 2024).
[85] 40 C.F.R. § 1508.1(g)(2) (effective through June 30, 2024); 40 C.F.R. § 1508.1(i)(2) (effective July 1, 2024).

undertakes such other actions. Cumulative effects can result from actions with individually minor but collectively significant actions effects taking place over a period of time."[86]

The 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.[87]

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."[88]

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 possible."[89] 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.[90] 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."[91]

In rejecting comments urging changes to its existing definition of "reasonably foreseeable" ("sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision") that would, inter alia, require consideration of effects only when the agency has "a high degree of confidence that the effect is more likely than not to occur," CEQ recently confirmed:

> the application of reasonably foreseeable is influenced by the context of the proposed action. Inherent in the application of reasonably foreseeable is the concept that Federal agencies are not required to 'foresee the unforeseeable' or engage in speculative analysis. Agencies must forecast to the extent they can do so either quantitatively or qualitatively within a reasonable range.

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[86] 40 C.F.R. § 1508.1(i)(3) (effective July 1, 2024); *see also* 40 C.F.R. § 1508.1(g)(3) (effective though June 30, 2024).

[87] *Sierra Club v. FERC*, 827 F.3d 36, 49 (D.C. Cir. 2016) (quoting *Taxpayers of Michigan Against Casinos [TOMAC] v. Norton*, 433 F.3d 852, 864 (D.C. Cir. 2006)) (internal quotation marks omitted).

[88] *Sierra Club v. U.S. Army Corps of Engineers*, 803 F.3d 31, 51 (D.C. Cir. 2015).

[89] *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)).

[90] *Atomic Energy Com.*, 481 F.2d 1079 at 1092.

[91] *Del. Riverkeeper Network*, 753 F.3d at 1310*; Atomic Energy Com.*, 481 F.2d 1079 at 1092. *See also* 42 U.S.C. § 4332; 40 C.F.R. § 1500.2 (effective July 1, 2024).

> Further, the term "reasonably foreseeable" is consistent with the ordinary person standard—that is, what a person of ordinary prudence would consider in reaching a decision.[92]

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.[93] 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.[94]

In other words, an agency must consider reasonably foreseeable future developments, including transportation infrastructure, and analyze the impacts stemming from those developments. 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. These impacts include wildlife road mortality.[95]

With regard to assessing the cumulative effects of an action on environmental resources, including species listed under the ESA, the scope of the cumulative effects review under NEPA is different than the scope of review during ESA consultation.[96] NEPA regulations require an assessment of cumulative impacts that includes the effects of future federal actions, unlike the

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[92] National Environmental Policy Act Implementing Regulations Revisions Phase 2, 89 Fed. Reg. 35442, 35550 (May 1, 2024).

[93] *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).

[94] Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (March 23, 1981), *available at* https://www.energy.gov/nepa/articles/forty-most-asked-questions-concerning-ceqs-national-environmental-policy-act. [Attached-DVD.]

[95] *See e.g., Sierra Club v. Van Antwerp*, 661 F.3d 1147, 1155–1157 (D.C. Cir. 2011) (remanding Section 404 permit where Army Corps' Finding of No Significant Impact failed to address increased road mortality to eastern indigo snake from habitat fragmentation from mall construction).

[96] *See, e.g., Nw. Envtl. Def. Ctr. v. Nat'l Marine Fisheries Serv.*, 647 F. Supp 2d 1221, 1247 (D. Or. 2009) ("The ESA requires [the Service] to consider only future non-federal activities that are reasonably certain to occur within the action area…whereas NEPA requires the [action agency] to consider all past, present, and foreseeable future actions, regardless of who performs the action, that combine with the proposed action to cause an incremental environmental impact[.]").

regulations implementing the ESA's consultation requirements, which limit the analysis to "those effects of future State or private activities, not involving Federal activities[.]"[97] Furthermore, whereas NEPA requires consideration of "reasonably foreseeable" cumulative effects of the proposal and other actions, ESA regulations require consideration of those cumulative effects that are "reasonably certain to occur."[98]

Effects on listed species need not reach the level of "jeopardy" under the ESA to be significant for NEPA purposes.[99] Moreover, an action agency cannot satisfy NEPA merely by stating that the project will ultimately incorporate the results of an ESA section 7 consultation process; because NEPA requires that the extent of the impacts be identified and made available for public review, such reliance on the content of a yet-to-be-developed biological opinion cannot satisfy NEPA's requirement to provide the public with an opportunity for comment on the actual extent of the impacts that will occur.[100]

An agency's "finding of no significant impact shall state the authority for any mitigation that the agency has adopted and any applicable monitoring or enforcement provisions. If the agency finds no significant effects based on mitigation, the mitigated finding of no significant impact shall state the enforceable mitigation requirements or commitments that will be undertaken and the authority to enforce them … and the agency shall prepare a monitoring and compliance plan for that mitigation consistent with § 1505.3(c)."[101]

Where an environmental assessment relies on mitigation measures to reach a finding of no significant impact, that mitigation must be assured to occur and must "completely compensate

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[97] 50 C.F.R. § 402.02.

[98] 50 C.F.R. § 402.02.

[99] *Makua v. Rumsfeld*, 163 F. Supp 2d 1202, 1218 (D. Hawaii 2001) ("A [Finding of No Significant Impact] … must be based on a review of the potential for significant impact, including impact short of extinction. Clearly, there can be a significant impact on a species even if its existence is not jeopardized."); *National Wildlife Federation v. Babbitt*, 128 F. Supp.2d 1274, 1302 (E.D. Cal. 2000) (requiring EIS under NEPA for ESA section 10 Habitat Conservation Plan even though mitigation plan satisfied ESA where there were substantial questions about effectiveness of mitigation); *Portland Audubon Society v. Lujan*, 795 F. Supp. 1489, 1509 (D. Or. 1992) (rejecting action agency's request that the court "accept that its consultation with the United States Fish and Wildlife Service under the Endangered Species Act constitutes a substitute for compliance with NEPA.").

[100] *Cf. Portland Audubon Soc'y v. Lujan*, 795 F. Supp. 1489, 1509 (D. Or. 1992) (explaining that ESA consultation cannot substitute for EIS preparation, even where the action agency also prepared an EA, because "The purpose of the Endangered Species Act and the purpose of NEPA are not the same. For example, there is no substitute in the Endangered Species Act for the public comment commanded by NEPA."); *San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 649-650, 653 (9th Cir. 2014) (concluding that the implementation of a Biological Opinion was not exempt from NEPA requirements to prepare an EIS or EA and FONSI because "[w]e cannot say that Section 7 of the ESA renders NEPA 'superfluous' when the statutes evaluate different types of environmental impacts through processes that involve varying degrees of public participation.").

[101] 40 C.F.R. § 1501.6(d) (effective July 1, 2024).

for any possible adverse environmental impacts."[102] A court will not accept conclusory statements that mitigation measures are effective: the agency must be able to support its conclusions with information in the administrative record.[103] In an EA, the government must detail the mitigation measures it relied on to obtain a FONSI.[104] NEPA requires agencies to "analyze the mitigation measures in detail [and] explain how effective the measures would be. A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA."[105] If the effectiveness of such mitigation is not assured, then the agency cannot sign a FONSI and must prepare an EIS.[106] If the plaintiff raises substantial questions whether a project may have a significant effect, an EIS must be prepared.[107]

In cases requiring an environmental impact statement, the record of decision must "[s]tate whether the agency has adopted all practicable means to mitigate environmental harm from the alternative selected, and if not, why the agency did not. Mitigation shall be enforceable when the record of decision incorporates mitigation and the analysis of the reasonably foreseeable effects of the proposed action is based on implementation of that mitigation. The agency shall identify the authority for enforceable mitigation, such as through permit conditions, agreements, or other measures, and prepare a monitoring and compliance plan consistent with § 1505.3(c)."[108]

Agencies "shall prepare and publish a monitoring and compliance plan for mitigation when:

> (1) The analysis of the reasonably foreseeable effects of a proposed action in an environmental assessment or environmental impact statement is based on implementation of mitigation; and
>
> (2) The agency incorporates the mitigation into a record of decision, finding of no significant impact, or separate decision document."[109]

"The agency should tailor the contents of a monitoring and compliance plan … to the complexity of the mitigation committed to and include:

> (1) A basic description of the mitigation measure or measures;
>
> (2) The parties responsible for monitoring and implementing the mitigation;

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[102] *Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson*, 685 F.2d 678, 682 (D.C. Cir. 1982).

[103] *Sierra Club v. Peterson*, 717 F.2d 1409 (D.C. Cir. 1985).

[104] *Robertson v. Methow Valley Citizen's Council*, 490 U.S. 332, 353 (1989); *Carmel-By-the-Sea v. United States Dep't of Transp*., 123 F.3d 1142, 1154 (9th Cir. 1997) ("mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated"); *Neighbors of Cuddy Mountain v. United States Forest Serv*., 137 F.3d 1372 (9th Cir. 1998).

[105] *Northwest Indian Cemetery Protective Assn. v. Peterson*, 764 F.2d 581, 697 (9th Cir. 1985), *rev'd on other grds*, 485 U.S. 439 (1988).

[106] *See Foundation for North American Wild Sheep v. U.S. Dep't of Agric*., 681 F.2d 1172, 1178 (9th Cir. 1982).

[107] *The Steamboaters v. FERC*, 759 F.2d 1382, 1392 (9th Cir. 1985) ("The plaintiff need not show that significant effects *will in fact occur,* but if the plaintiff raises substantial questions whether a project may have a significant effect, an EIS *must* be prepared.") (citing *Foundation for North American Wild Sheep,* 681 F.2d at 1178)).

[108] 40 C.F.R. § 1505.2(c) (effective July 1, 2024).

[109] 40 C.F.R. § 1505.3(c) (effective July 1, 2024).

(3) If appropriate, how monitoring information will be made publicly available;
(4) The anticipated timeframe for implementing and completing mitigation;
(5) The standards for determining compliance with the mitigation and the consequences of non-compliance; and
(6) How the mitigation will be funded."[110]

An agency's "Finding of No Significant Impact" and decision not to prepare an Environmental Impact Statement are reviewed under the Administrative Procedure Act's "arbitrary-and-capricious standard."[111] Under the Administrative Procedure Act ("APA"), courts must "hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[112] In determining whether the agency acted arbitrarily and capriciously, courts ask whether the agency "examine[d] the relevant data and articulate[d] a satisfactory explanation for its action."[113] The court's ultimate task is to "ensure that the agency took a 'hard look' at the environmental consequences of the proposed action."[114]

I. The Corps Must Properly Evaluate Impacts to the Endangered Florida Panther.

A. The Best Available Scientific Information Shows the Florida Panther Population is Vulnerable to Impacts from Habitat Loss and Increased Take.

Experts are in general agreement that "further habitat loss in the occupied breeding range for the sole existing population of Florida panthers is not acceptable."[115] And one of the objectives of the Service's Recovery Plan for the Florida panther is to maintain, restore, and expand the panther population and its habitat in south Florida and expand the breeding portion of the population in south Florida to areas north of the Caloosahatchee River.[116] The Recovery Plan

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[110] 40 C.F.R. § 1505.3(d) (effective July 1, 2024).
[111] *Black Warrior Riverkeeper, Inc. v. U.S. Army Corps of Eng'rs*, 781 F.3d 1271, 1288 (11th Cir. 2015) (citing *Hill v. Boy,* 144 F.3d 1446, 1450 (11th Cir.1998)).
[112] 5 U.S.C. § 706.
[113] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 43, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983).
[114] *Black Warrior Riverkeeper, Inc. v. U.S. Army Corps of Eng'rs*, 781 F.3d 1271, 1288 (11th Cir. 2015) (quoting *Sierra Club v. U.S. Army Corps of Eng'rs,* 295 F.3d 1209, 1216 (11th Cir. 2002)).
[115] Declaration of Robert Frakes (Dec. 1, 2023) at ¶¶ 23 [Attached-DVD]; Kautz R, Kawula R, Hoctor T, Comiskey J, Jansen D, Jennings D, Kasbohm J, Mazzzotti F, McBride R, Richardson L, Root K (2006) How much is enough? Landscape-scale conservation for the Florida panther. Biol Conserv 130:118–133; Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044. https://doi.org/10.1371/journal.pone.0133044 [Attached-DVD]; Root, K.V., 2004. Using models to guide recovery efforts for the Florida panther. In: Akc¸akaya, H.R., Burgman, M., Kindvall, O.,Wood, C.C., Sjogren-Gulve, P., Hatfield, J., McCarthy, M. (Eds.),Species Conservation and Management: Case Studies. Oxford University Press, New York, NY, USA, pp. 491–504 [Attached-DVD].
[116] U.S. Fish and Wildlife Service. 2008. Florida Panther Recovery Plan (*Puma concolor coryi*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 217pp [Attached-DVD].

calls for three self-sustaining, interconnected populations of 240 adult panthers for the species to be considered fully recovered.[117] As explained by Dr. Frakes, "This goal was established based on population viability analyses that suggest at least 240 panthers are required for genetic health and long-term viability of a population. These populations would also need sufficient habitat to support them, as well as habitat corridors to facilitate movement between populations to maintain natural genetic flow."[118]

The best available scientific information indicates that the Florida panther population is between 120–230 adults and subadults, and that the population has plateaued and may be in decline.[119] A study by FWS and Florida Fish and Wildlife Conservation Commission scientists published in July 2024 acknowledges that, "panther population abundance has stabilized and declined in recent years (2016‑2020)."[120] That study summarizes available abundance estimates, which show decline starting in 2016 and continuing through 2020, the latest year for the estimates.[121]

Neither FWS nor the Corps can rationally assert that the current population is higher than approximately 120–230 adults and subadults based on estimates derived from McClintock et al. (2015 and 2019). In recent draft documents evaluating the impact of other projects on the Florida panther, FWS arbitrarily and irrationally cited the 2019 update to McClintock et al. 2015 for a "size point estimate of 407 panthers in 2018, with a 95 percent confidence interval ranging from 222 to 773 panthers" and compared that to the estimated range from McClintock et al. (2015) of between 143 and 509 individuals in 2012 to estimate an "average annual increase of between 11 and 37" panthers per year. [122] To the extent FWS or the Corps intend to rely on this estimate, such reliance would be arbitrary for at least two reasons. For one, the authors of the published model have warned:

> [O]ur model-averaged confidence intervals were still too large to conclude there were significant increases in population size from 2000 to 2012. Furthermore, upper confidence interval bounds in later years (e.g. 509 panthers in 2012) exceeded population estimates we believe could be supported within the breeding range of the Florida panther.[123]

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[117] *Id.*

[118] Declaration of Robert Frakes at ¶ 22.

[119] USFWS. 2020. Species Status Assessment for the Florida Panther. Version 1.0 September, 2020. Vero Beach, Florida, at v, 76, 88, 93 ("Draft SSA") [Attached-DVD]. We note that Sierra Club and the Center have raised other concerns and criticisms of the species status assessment, as outlined in a November 17, 2021 letter submitted to FWS by the Center, Sierra Club, and the Conservancy of Southwest Florida Re: Request for Reevaluation of the Species Status Assessment for the Florida Panther. [Attached-DVD].

[120] Onorato, D.P., Cunningham, M.W., Lotz, M. *et al.* Multi-generational benefits of genetic rescue. *Sci Rep* **14**, 17519 (2024). https://doi.org/10.1038/s41598-024-67033-6, at 9.

[121] *Id*. at 7, Figure 5.

[122] *See* Kingston FWS Technical Assistance Form, Oct. 26, 2023, at 15 [Attached].

[123] McClintock, B. T., D. P. Onorato, and J. Martin. 2015. Endangered Florida panther population size determined from public reports of motor vehicle collision mortalities. Journal of Applied Ecology 52:893–901, at 900 [Attached-DVD].

Moreover, *FWS itself* found in a 2020 species status assessment for the Florida Panther that the estimate for 2018 "had a margin of error of 222–773 panthers, which *is too wide to inform conservation decisions*."[124] Instead, FWS has consistently found that "[t]he size of the panther population in areas south of the Caloosahatchee River identified as suitable habitat was reported to be 120–230 adults and subadults in 2015."[125] FWS has found that, if anything, McClintock et al. 2015 makes it "apparent that population growth has slowed in the last 4 years and even declined in 2018 for the first time during the study period."[126]

Furthermore, neither the Corps nor FWS can rationally rely on population growth rate estimates that assume, without any basis or analysis, that past population growth up through 2018 will continue indefinitely. Recent population growth rate estimates from FWS have failed to acknowledge evidence: (1) estimating that panther population growth would level off in the near term; and (2) indicating that the population has in fact already leveled off since 2016 and may be in decline.[127] The projected populations based on the motor vehicle collision mortalities (MVM) approach generated in van de Kerk et al. (2019) estimated continued growth of the population through approximately 2024, with the population plateauing thereafter.[128] The most recent population trend data indicate the population did not grow between 2016 and 2018, and began to decline from 2017 to 2018.[129] Thus, it is irrational to rely on the assumption of continued growth at the past rate, and doing so reflects a failure to consider the best available scientific information. Moreover, as stated above, FWS and FFWCC scientists have recently acknowledged that the population stabilized and began to decline around 2016, and that trends in abundance estimates show decline between 2016 and 2020.[130]

Notably, based on panthers sampled from 2016 to 2020, that study estimated that the effective population size is 62.1 (95% CI 40.2–115.5).[131] The study found that "all measures of genetic variation slightly decreased in the most recent cohort of panthers" and affirmed that "[t]he continued isolation of this population from conspecifics ultimately means that additional genetic management will be necessary. … Although wildlife managers continue to monitor the genetic health of panthers 29 years after genetic rescue, these findings suggest the need to consider future genetic management of this population if the most recent trends continue."[132]

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[124] Draft SSA at v, 76, 88 (emphasis added).
[125] *Id.* at v, 76, 88, 93.
[126] *Id.* at 88.
[127] USFWS 2020 (Draft SSA) at 76, 88
[128] Van De Kerk M, Onorato DP, Hostetler JA, Bolker BM, Oli MK. 2019. Dynamics, persistence, and genetic management of the endangered Florida panther population. Wildlife Monographs 203: 3– 35, available at https://wildlife.onlinelibrary.wiley.com/doi/pdf/10.1002/wmon.1041; USFWS 2020 (Draft SSA) at 186, Figure 7.1. [Attached-DVD]
[129] *See* USFWS 2020 (Draft SSA) at 88, 90, Figure 6.8.
[130] Onorato, D.P., Cunningham, M.W., Lotz, M. *et al.* Multi-generational benefits of genetic rescue. *Sci Rep* **14**, 17519 (2024). https://doi.org/10.1038/s41598-024-67033-6, at 7 (Figure 5), 9.
[131] *Id*. at 3.
[132] *Id*. at 9.

Finally, reliance on the Panther Habitat Assessment Methodology ("PHAM") neither ensures against jeopardy nor ensures that impacts are minimized. The key factors underlying the PHAM reflect scientific information that can no longer be considered the best available, and among other things, it overestimates the amount of land available for use by panthers.[133] Moreover, the PHAM system was not designed to ensure no net loss of habitat – or even to ensure large enough viable panther populations to support the species' survival and recovery.[134]

In complying with its obligations under the CWA, ESA, and NEPA associated with this permit application, the Corps must rationally address and take into account the above concerns.

B. Available Analysis Regarding Vehicle Collision Deaths Due to Increased Traffic Indicates Reasonably Foreseeable Development in Collier County Will Appreciably Diminish Survival and Recovery.

Authorizing the CWA 404 permit sought for Rural Lands West will enable development drawing increased traffic into Florida panther habitat, where panthers are vulnerable to vehicle collisions from such traffic. According to the notice for the Rural Lands West CWA 404 application, the discharges of fill for which the permit is being sought and associated proposed impacts to wetlands are "primarily associated with the infrastructure improvements to allow for road crossings and construction of the project's surface water management system," and the purpose of the project is "construction of a mixed-use community."[135] Studies prepared by contractors for the applicants for the State 404 permit applications for Rural Lands West and Bellmar estimated that for the year of anticipated buildout, 2042, these two projects would result in 20.9% more traffic compared to the estimated traffic by that year without them, increasing the annual average daily traffic sum projected for 2042 from 1,592,800 to 1,925,000.[136]

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[133] Robert Frakes Declaration at ¶¶ 64, 79.

[134] *See* U.S. FWS, Panther Habitat Assessment Methodology, September 24, 2012 *available at* https://ipac.ecosphere.fws.gov/guideline/assessment/population/8/office/41420.pdf [Attached-DVD]. The 2012 PHAM is aimed at preserving the amount of habitat needed to support a population of 90 panthers, and presumes that a portion of the remaining privately-owned habitat may be destroyed as long as the rest of the privately-owned habitat is preserved. It is therefore predicated on allowing net loss, and on the presumption that there is a "cushion" of habitat that can be permanently lost without undercutting the goal of supporting a population of 90 panthers. Critically, 90 panthers fall short of the U.S. Fish and Wildlife Service's own recovery plan goals, which requires populations of *at least 240* adults and subadults—and sufficient habitat to support them—to downlist and delist the species. U.S. Fish and Wildlife Service. 2008. Florida Panther Recovery Plan (*Puma concolor coryi*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 217pp; *see also* Robert Frakes Declaration at ¶ 64.

[135] US Army Corps of Engineers Jacksonville District Website, Public Notices, Permit Application No. SAJ-2008-02431 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3910899/.

[136] Trebilcock Consulting Solutions, Combined Rural Lands West/ Bellmar Traffic Analysis – December 7, 2022 at 5 ("The results of the traffic analysis demonstrate that the projected 2042 traffic volumes associated with RLW and Bellmar combined are 20.9 percent higher than projected 2042 traffic volumes in the project area without RLW or Bellmar…"); *id*. at 31 (Table

FWS has previously analyzed how the cumulative effects of proposed development in eastern Collier County, including traffic inducing effects of that development, will affect Florida panthers. Prior analysis FWS conducted in draft Biological Opinions for the formerly proposed Eastern Collier Property Owners HCP, which covered a massive collection of developments in Collier County, suggests that the cumulative habitat loss and traffic-inducing effects of those developments, which appear to have included the proposed Rural Lands West Development, as well as Bellmar, are likely to appreciably diminish the survival and recovery of the Florida panther.

Under the formerly proposed Eastern Collier Property Owners ("ECPO") HCP, multiple developments sought ESA section 10 Incidental Take Permits ("ITPs") in reliance on their proposed Eastern Collier Multi-Species Habitat Conservation Plan ("ECPO HCP"). According to a statement by FWS:

> The first full draft of the HCP was received on April 22, 2015. Modifications to the original HCP were received by the Service on October 14, 2017, April 6, 2018, April 23, 2018, August 22, 2018, March 8, 2019, March 25, 2019, and September 17, 2019 (HCP Addendum). Also, a modification to the original ITP application was received on September 9, 2019.[137]

According to FWS, the ECPO applicants submitted a letter to the Service to withdraw their ITP applications on July 28, 2022.[138] While the letter indicates the ECPO applicants wish to withdraw their ITP application, it confirms that the applicants will "move forward case-by-case

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8- Total Traffic Summary, showing traffic volumes in 100s); *see also id*. at 70 (showing 133,650 trips generated by the projects). [Attached-DVD]. Please note that our organizations point to this report for the purpose of indicating the need for the Corps and FWS to analyze the traffic impacts of the proposed development, and do not in any manner concede that the Trebilcock report sufficiently estimates the full traffic impacts in terms of either volume or location of projected traffic, nor that it accurately estimates the internal capture rates. The Corps and FWS must evaluate the applicant's analysis to ensure consistency with the requirements imposed by NEPA, the CWA, ESA, and Administrative Procedure Act. *See, e.g*., 42 U.S.C 4332(D)-(E) (under NEPA, agencies must "ensure the professional integrity, including scientific integrity, of the discussion and analysis in an environmental document" and "make use of reliable data and resources"); 50 C.F.R. § 1506.5(a)-(b)(2) ("The agency is responsible for the accuracy, scope (§ 1501.3(b) of this subchapter), and content of environmental documents and shall ensure they are prepared with professional and scientific integrity, using reliable data and resources… The agency shall independently evaluate the information submitted by the applicant and, to the extent it is integrated into the environmental document, shall be responsible for its accuracy, scope, and contents."); 50 C.F.R. § 1506.6; 16 U.S.C. § 1536(a)(2) (ESA requirement to use best available scientific information).

[137] U.S. Fish & Wildlife Service, East Collier Multi-Species ITP/HCP Withdrawal, (posted Sept. 1, 2022) https://www.fws.gov/library/collections/east-collier-multi-species-itphcp-withdrawal (last accessed Sept. 9, 2022) [Attached-DVD].

[138] *See id*. *See also* Eastern Collier Property Owners Letter to USFWS dated 07/28/2022 Withdrawing their Incidental Take Permit applications, *available at* https://www.fws.gov/media/eastern-collier-property-owners-letter-usfws-dated-07282022-withdrawing-their-incidental-take [Attached-DVD].

on [their] individual projects" within the HCP area through "project-specific reviews," with some already in that process and others "fast approaching."[139] Following the ECPO applicants' withdrawal, the Service stated that, "[a]t the time of withdrawal, the Service had not made a final determination regarding jeopardy or non-jeopardy for any of the covered species."[140] Nonetheless, the Service's analyses in publicly available draft biological opinions for the proposed ECPO HCP indicate that the combined effect of the proposed ECPO developments would cause jeopardy to the Florida panther. The Service has publicly released two draft biological opinions (draft BiOps) dated December 2020 and December 2021, respectively.[141] The December 2020 draft BiOp indicates that it is based on a version of the HCP from January 28, 2020, whereas the December 2021 draft BiOp indicates that it is based on the same version of the HCP "plus subsequent addenda."[142]

A February 24, 2021 letter from the ECPO ITP applicants to FWS regarding the December 2020 draft Biological Opinion ("BiOp") makes clear their understanding that the draft BiOp concluded that absent additional commitments from the ITP applicants to "fund public roadway improvement projects (wildlife crossings and fencing) and 'capture' traffic within future community developments," the additional panther mortality from vehicle collisions due to increased traffic induced by the proposed developments "would cause jeopardy."[143]

Indeed, the December 2020 draft HCP BiOp makes clear that, even taking into account the proposed mitigation measures under the draft ECPO HCP, the proposed ECPO developments would result in a statistically significant increase in the risk of extinction for the Florida panther, with a net loss of 12 panthers per year at full build-out.[144] The December 2020 draft HCP BiOp found that the risk of extinction with the HCP increased to 5.7%, compared to an extinction risk of approximately 1.1% or 1.38% without it.[145] The December 2020 draft HCP BiOp then

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[139] *Id.* at 2–3.

[140] U.S. Fish & Wildlife Service, East Collier Multi-Species ITP/HCP Withdrawal, (posted Sept. 1, 2022) https://www.fws.gov/library/collections/east-collier-multi-species-itphcp-withdrawal (last accessed Sept. 9, 2022) [Attached-DVD].

[141] It is our understanding that there is a 2022 draft of the BiOp, but we do not currently have public access to a copy.

[142] *Compare* Biological Opinion and Conference Opinion, Eastern Collier Multi-Species Habitat Conservation Plan (filename "20201229_draft BO-CO-ECMHCP_for ECPO.pdf") (hereafter "2020 draft HCP BiOp") at 1 [Attached-DVD] *to* Biological Opinion and Conference Opinion Eastern Collier Multi-Species Habitat Conservation Plan (filename DRAFT-USFWS-ECPO-full-Biological-Opinion-December-2021.pdf) (hereafter "2021 draft HCP BiOp") at 1 [Attached].

[143] "ECPO's High-Level Comments on Draft BO" at 12, transmitted to Robert Tawes Chief, Environmental Review Division, U.S. Fish and Wildlife Service, Southeast Region by Bruce Johnson, Principal, Senior Scientist, Stantec Consulting Services, as attachment to letter dated February 24, 2021. (Obtained from FWS via FOIA) [Attached-DVD]; *see also* Email from Leopoldo Miranda, Regional Director, FWS, to Jack Arnold, Acting Assistant Regional Director, FWS, regarding a Revised ECPO Information Memorandum (June 5, 2019) (quoting a draft information memorandum stating, "We have also begun frank discussions with ECPO, most recently May 10 and 14, based on the Service's preliminary, internal analyses of traffic volume effects on the continued survival or recovery of the Florida panther.") [Attached-DVD].

[144] 2020 draft HCP BiOp at 158–159.

[145] *Id*. at 158–159.

explained that to sufficiently reduce the increased risk of extinction so that it was no longer a statistically significant increase, additional mitigation measures and/or changes to the proposed developments to increase internal capture rates for traffic or otherwise reduce impacts would be required.[146] The 2020 draft HCP BiOp stated:

> If the Applicants are able to achieve a greater than 50 percent community (internal) capture rate, further reduce the effects of their action, or mitigate them through use of the Marinelli Fund for habitat restoration to the extent that the net effect is a loss of no more than 10 adult panthers (4 female adult panthers)/year above present (from all causes) our analysis finds the probability of extinction falls from 5.7 percent to 1.4 percent. This probability of extinction is within the 95 percent C.I. [confidence interval] of scenarios where no additional panthers are taken above present (i.e., not significantly different from baseline).[147]

The next paragraph in the December 2020 draft HCP BiOp indicated that a "no jeopardy" conclusion is contingent on finding that a "further net reduction of effects to *fewer than* 10 panthers per year at full build-out" will "be accomplished through the maintenance of high community (internal) trip capture, adaptive management, and the mitigative effects of actions facilitated by the Marinelli Fund."[148] In short, the December 2020 draft HCP BiOp shows that the combined impacts of the proposed ECPO developments would cause jeopardy to the Florida panther absent additional changes to the design or additional mitigation measures to reduce the anticipated number of annual panther losses caused by implementing the proposed covered activities.

The December 2021 draft HCP BiOp similarly stated:

> [O]ur PVA [population viability analysis] predicts the implementation of the HCP, in the absence of further actions to reduce the impact of the action to the panthers, could reduce the abundance of panthers across their range such that the probability of extinction is predicted to increase from 1 percent (95 percent C.I. 0.2 to 1.8 percent) to 5.7 percent (95 Percent C.I. 2.2 to 9.2 percent). When cumulative effects are added to the effects of the HCP the probability of extinction further increases to 6.6 percent (95 percent C.I. 2.3 to 10.9 percent). The probability of extinction after implementation of the HCP is statistically significantly different than baseline conditions. If the Applicants are able to achieve a greater than 50 percent community (internal) traffic capture rate, further reduce the effects of their action, or mitigate them through use of the Marinelli Fund for habitat restoration to the extent that the net effect is a loss of no more than 10 adult panthers (4 female adult panthers)/year above present (from all causes) our analysis finds the probability of extinction falls from 5.7 percent to 1.4 percent. This probability of extinction is within the 95 percent C.I. of scenarios where no additional panthers are taken above present (i.e., not significantly different from baseline).[149]

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[146] *See id*. at 159.
[147] *Id*. at 159.
[148] 2020 draft HCP BiOp at 159 (emphasis added).
[149] 2021 draft HCP BiOp at 148.

Notably, although the draft HCP BiOps both state that additional panther losses must be limited to "no more than 10" per year over present levels, other portions of the draft HCP BiOps indicate that the number actually must be *fewer than* 10 over present levels to avoid a statistically significant increase in extinction risk.[150]

Just like the 2020 draft HCP BiOp, the modeling in the 2021 draft HCP BiOp found that, even with 8 wildlife crossings *and* assuming a 50% internal capture rate for traffic, implementation of the HCP would cause a total of 12 additional panther deaths per year: 8 from vehicle collisions resulting from increased traffic induced by the HCP developments and 4 from habitat loss and degradation.[151] And both the 2020 and 2021 BiOps found that the cumulative effects of traffic induced by other non-HCP, non-federally authorized actions will cause an additional 2 panther deaths per year, even after accounting for the mitigation provided by 8 proposed wildlife crossings.[152] In sum, both versions concluded that the additional panther deaths associated with implementation of the HCP—i.e., construction of reasonably foreseeable development in the region—will be 12 per year, and that those panther losses needed to be limited to fewer than 10 per year to avoid a statistically significant increase in the risk of extinction (i.e. jeopardy). Both versions indicated that additional changes to the proposed HCP, such as commitments to achieve internal capture of traffic greater than 50% and/or additional commitments for mitigation, would be necessary to conclude that the panther losses will be reduced to 10 or fewer.

Consequently, the Service's draft analyses for the ECPO HCP appear to indicate that, absent additional changes to the project designs to increase internal capture above 50% or commitments for additional avoidance or mitigation of impacts, the combined impacts of the Rural Lands West project and the other projects formerly part of the proposed HCP, would result in total panther losses that are likely to appreciably diminish the survival and recovery of the Florida panther.[153]

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[150] *See* 2020 draft HCP BiOp at 146 ("Internal population viability analysis contingency modelling, and statistical comparison of possible thresholds found that the probability of extinction 100 years after ITP expiration of BSLR, BSLR + HCP, and BSLR + HCP + CE scenarios do not differ significantly (1.38 percent Prext versus the 1.1±0.8 percent Prext estimated for BSLR) *if fewer than* 10 adult panthers (4 female panthers) total are taken annually, above present.") (emphasis added); 2021 draft HCP BiOp at 133–134 ("Our analysis of these PVAs found that though there was still a difference in final abundances, the probability of extinction 100 years after ITP expiration does not differ significantly from Baseline + Sea Level Rise (1.38 percent Prext versus the 1.1±0.8 percent Prext estimated for BSLR) *if fewer than* 10 adult panthers (4 female panthers) total are lost annually, above present, from any cause (*e.g.,* habitat loss, roadway mortality, etc.).") (emphasis added).

[151] *See* 2020 draft HCP BiOp at 153, lines 5444-5447; 2021 draft HCP BiOp at 142, lines 5055-5057.

[152] *See* 2020 draft HCP BiOp at 153; 2021 draft HCP BiOp at 142.

[153] Notably, the internal capture rate estimated for Rural Lands West and Bellmar combined in the 2022 Trebilcock report submitted in connection with the State 404 permit application was 40.5%. Trebilcock Consulting Solutions, Combined Rural Lands West/ Bellmar Traffic Analysis – December 7, 2022 at 14. Again, our organizations point to this to flag the need for analysis by the agencies of vehicle collision effects from traffic, and in no manner concede that this estimate

This result is especially concerning because the 2020 and 2021 draft HCP BiOps reflect multiple assumptions that result in *underestimating* the risk of extinction, as the Center and Sierra Club detailed in prior comments regarding another project that was part of the formerly proposed ECPO HCP.[154]

In evaluating this permit application, the Corps must rationally address the effects estimated by this analysis in accordance with the requirements of the CWA, ESA, and NEPA, respectively. In particular, the Corps must consider how the increased traffic attracted into panther habitat by the proposed Rural Lands West development will affect vehicle collisions in the vicinity of that habitat, considering the effects both individually and cumulatively with other development, and also considering how attracting such traffic to the area undermines the conservation value of the habitat preservation being offered as mitigation. With regard to the requirements of the ESA, given the rapid succession of pending permit applications to the Corps in the vicinity of the Rural Lands West Project, the Corps and FWS are required to ensure that the impacts of those federally-permitted projects are considered in the environmental baseline analysis if the impacts of those projects are authorized prior to the approval of the Rural Lands West permit. And, as detailed above, the Corps' NEPA analysis should consider the impacts of reasonably foreseeable development, such as the development in pending permit authorizations, having cumulative effects with the impacts of Rural Lands West.

C. Preliminary Concerns Regarding the Proposed Measures for Florida Panther

The 2024 Biological Assessment prepared by the applicants states that, despite their withdrawal of the incidental take permit applications relying on the ECPO HCP in 2022 because "the landowners concluded that several important steps remained to be completed, and some projects had reached a point at which the landowners needed to proceed with project-specific reviews rather than continue with the collective incidental take permit (ITP) applications…, the landowners have committed to the landscape-level planning reflected therein" and that "[t]he RLW and Bellmar projects will be among the first to implement the tenets of the [HCP] as binding conditions of their Section 404 permits."[155] As discussed above, based on the

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is accurate. The agencies should evaluate whether traffic internal capture estimates may be overestimates.

[154] *See* Comments from Center for Biological Diversity, Conservancy of Southwest Florida, and Sierra Club, Re: Bellmar Development Application (Collier County) and Public Notice, #396364-001, (Sept. 15, 2022) [Attached-DVD].

[155] Passarella & Associates, Inc., Rural Lands West Biological Assessment (April 2024), prepared for Collier Enterprises (obtained by Conservancy of Southwest Florida via a FOIA request) (hereafter "2024 Biological Assessment" or "2024 BA") at 14. *See also id*. at 41 (The applicant proposes to implement the following planning tenets that reflect the ECMSHCP prepared and submitted by the applicant and other landowners, with support from four leading conservation organizations, for Eastern Collier County in connection with applications submitted to USFWS for ITPs pursuant to ESA section 10 (the ITP applications were withdrawn on July 28, 2022, but the applicant has committed to work with the other landowners and conservation organizations to voluntarily implement the ECMSHCP)."

information FWS has released to the public so far, the provisions of the HCP were not sufficient to support a finding that the developments under the ECPO HCP would not cause jeopardy to the Florida panther. Thus, in evaluating the effects of the RLW Project, the Corps must consider FWS's prior draft conclusions regarding the ECPO HCP. Moreover, the applicant's statements regarding a commitment to continuing to work with other landowners under the formerly proposed HCP to "voluntarily" implement that HCP make the other developments under the HCP reasonably foreseeable to occur, such the cumulative effects with RLW should be considered in the NEPA analysis.[156]

The 2024 Biological Assessment also states that "[i]n 2023, the USFWS developed recommended permit conditions for RLW. The applicant memorialized its commitment to implement those conditions in correspondence with the USFWS on December 2, 2023 (provided under separate cover)."[157] To date, it appears that those permit conditions and the commitment to implement them have not been made available to the public. The Corps should make those documents public and provide an opportunity for the public to comment on them.

The 2024 Biological Assessment also states that "[t]he applicant's proposed conservation measures are consistent with the Technical Assistance Memorandum prepared by the USFWS for the Bellmar project on October 31, 2023."[158] Sierra Club and the Center commented extensively on the legal and factual defects in FWS's Technical Assistance document, the inadequacy of the proposed mitigation measures, and the failure of FWS to rationally support its assertion of "no jeopardy."[159] Thus, the Corps should consider that the measures are consistent with a legally and factually flawed document that fails to utilize the best available science and fails to rationally support its conclusions.

Further, the 2024 Biological Assessment refers to "additional conservation measures" for Florida panthers that will purportedly be carried out under the "Paul J. Marinelli Florida Panther Protection Fund."[160] The Corps cannot rationally rely on these purported additional conservation measures under NEPA, the ESA, or the CWA because they lack specificity, are not sufficiently certain to occur, are not sufficiently likely to be funded adequately, and cannot be evaluated in terms of potential effectiveness or lack thereof due to the lack of detail about what measures will actually occur.[161]

Finally, the 2024 Biological Assessment attempts to downplay the value of the panther habitat that will be destroyed and degraded by the development. That document states, "[a]gricultural and other disturbed habitats, freshwater marsh, thicket swamp, and mixed swamp

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[156] *See* 2024 BA at 14, 41.
[157] 2024 BA at 1.
[158] 2024 BA at 41.
[159] 2023 Sierra Club and CBD Comment Letter re Bellmar [Attached-DVD]. Sierra Club and CBD incorporate those comments by reference here.
[160] BA at 37.
[161] In commenting on the proposed ECPO HCP, Sierra Club, the Center, and the Conservancy identified numerous problems with reliance on purported mitigation to occur under the Marinelli Fund, and incorporate those concerns by reference here. *See* Center for Biological Diversity, Sierra Club, Conservancy of Southwest Florida, and NRDC**,** Public Comments to FWS on Draft Environmental Impact Statement for Eastern Collier County Multiple Species Habitat Conservation Plan (Dec. 3, 2018) [Attached-DVD].

are not preferred" by the Florida panther based on a 1990 paper written by Maehr.[162] This is not the best available science. More recent science has found that, in fact, Florida panthers both use and traverse such habitats as part of an overall matrix of habitats within a home range, as travel pathways, and as hunting grounds, amongst other uses. In fact, 48% of the primary zone identified by Dr. Randy Kautz et al. is classified as agricultural, disturbed, or freshwater marsh.[163] This best available science, which recognizes the Rural Lands West site—including its agricultural and pasture land coves—as essential panther habitat important for supporting the panther's survival and recovery, should be relied on when making decisions impacting this species. The Rural Lands West project is nearly completely comprised of Primary Zone habitat and nearly all Adult Breeding Habitat area—two models depicting the most critical lands to the survival and recovery of the Florida panther. It is also situated close to a critical linkage called Camp Keais Strand, which is within and adjacent to the project.

While 190,574.5 acres of primary panther zone as identified by Kautz et al.[164] are agricultural or disturbed land covers, and 3,805 or 3.4% of telemetry points are located in agricultural lands, there is sampling bias in the telemetry points that minimizes the number of panthers observed and tracked on private lands. The majority of agricultural lands are privately owned. The majority of collared panthers are tracked and collared on public lands; thus, it stands to reason that the available telemetry data may not fully capture the panther's true movements and use of private lands. This creates what we call the public lands bias, i.e. most of the panther telemetry points are on public lands (73.3%) thus, leading to the possibly erroneous conclusion that private lands are less important and/or less necessary to the survival and recovery of the Florida panther.

The problem with this is that panthers who primarily live on private lands are not collared, and thus, not tracked because the majority of private land owners have not given permission for scientists to go on their private property to track and collar these panthers. As of 2020, only 8 panthers were collared, with no new panthers collared in 2019–2020.[165] These 8 panthers represent only 3–6% of the population. Additionally, most collars used by the agencies are still VHF; the data collection for these types of collars occurs during the day when panther's use of habitat is more confined to forest land covers. While GPS collars are being explored, the majority of telemetry data points also may still have a daytime bias as well. That is why use of

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[162] 2024 BA at 30 (referring to Maehr, D.S. 1990. Florida panther movements, social organization, and habitat utilization. Final Performance Report Study No. 7502. Florida Game and Fresh Water Fish Commission, Tallahassee, Florida).
[163] Kautz, R. et al, How much is enough? Landscape-scale conservation for the Florida panther, *Biological Conservation* 130 (2006) 118 – 133.
[164] *Id*.
[165] Florida Fish and Wildlife Conservation Commission. 2020. Annual report on the research and management of Florida panthers: 2019-2020. Fish and Wildlife Research Institute & Division of Habitat and Species Conservation, Naples, Florida, USA, p. 13

multiple forms of information, particularly habitat modeling like as found in the Kautz et al. 2006[166] and Frakes et al. 2015 studies are so important.

Moreover, it is notable that the 2024 Biological Assessment states that staff conducting surveys at the proposed project site documented signs of the Florida panther "in perimeter berms of the agriculture fields adjacent to native forested habitat."[167] This contradicts the BA's earlier assertion that agricultural lands are not important for panthers.

D. The Impacts of the Rural Lands West Project on Florida Panthers

The proposed Rural Lands West development will destroy thousands of acres of panther habitat and impair a north-south wildlife corridor key to recovery. The first two figures below from the 2024 Biological Assessment prepared by the applicants show the project boundaries relative to primary and secondary panther habitat, and the footprint of development within the project boundary. The third and fourth figures below, prepared by the Conservancy of Southwest Florida, show the overlap of the proposed construction footprint with primary and secondary Florida panther habitat, and with adult breeding habitat. The entire development footprint is within panther habitat, with the bulk of that development in primary zone panther habitat. Former FWS biologist Dr. Robert Frakes prepared an analysis of the impacts of the proposed Rural Lands West and Bellmar developments on panther adult breeding habitat. His analysis found that the Bellmar development alone would result in the loss of 2,471 acres of panther adult breeding habitat and that Bellmar and Rural Lands West together would result in a loss of 5,683 acres panther adult breeding habitat.[168] As shown in the figures below prepared by Dr. Frakes previously to show the impacts of Rural Lands West alone, the habitat value of areas not only within the construction footprint but adjacent to it as well will be drastically reduced by the proposed development. In that prior analysis, Dr. Robert Frakes calculated that Rural Lands West will, in effect, eliminate about 14 square kilometers (approximately 3460 acres) of Adult Breeding Panther habitat as a result of direct and indirect effects.[169] As explained above, proposed mitigation that merely preserves other habitat does not avoid net loss of habitat, and the Florida panther cannot afford further habitat loss. This habitat loss will reduce the carrying capacity for panthers, meaning the population that can be sustained will be reduced permanently.[170] In past analyses, FWS has estimated the take of panther due to direct habitat loss causing reduced carrying capacity by multiplying the amount of habitat destroyed by the project

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[166] Kautz, R. et al, How much is enough? Landscape-scale conservation for the Florida panther, *Biological Conservation* 130 (2006) 118 – 133. Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044. https://doi.org/10.1371/journal.pone.0133044

[167] 2024 BA at 32.

[168] Declaration of Robert Frakes at ¶¶ 37, 46, 51.

[169] *See* Conservancy of Southwest Florida, Comments to U.S. Army Corps of Engineers and FWS re SAJ-2008-00210 (SP-RMT) Rural Lands West (FKA Town of Big Cypress) (Feb. 2, 2018) (presenting results of analysis prepared by Dr. Frakes) [Attached-DVD].

[170] *See, e.g.*, US FWS, Bellmar Technical Assistance Form (Oct. 31. 2023) (hereafter "Bellmar TA Form") at 16, asserting that carrying capacity impacts from the loss of 1,793 acres of habitat would result in loss of 0.25 panthers from the population.

by the estimated density of panthers relying on that habitat. For example, in its analysis for the Kingston development, FWS multiplied the habitat loss by a density range estimate of 1.37 to 4.03 panthers per 100 square kilometers to estimate that the lost carrying capacity from eliminating 3,400 acres of habitat would be 0.18 to 0.55 panthers.[171] FWS characterized the loss of carrying capacity as take in the form of harm.[172]

Furthermore, in evaluating the amount of panther habitat that will be lost, and the extent of the proposed mitigation, the Corps should consider the habitat degradation and avoidance induced by the buffer lakes,[173] and should also consider whether any internal "preserve" areas will be rendered inaccessible to panthers for safety reasons, such that any areas of avoidance, and preserve areas designed to exclude panthers should not count as preserved habitat for panthers. And even for those "preserve" areas that will remain physically accessible, the Corps should consider how proximity to human disturbance will undermine the use of such areas by panthers—for example, by causing avoidance behaviors—thereby negating the value of those areas to panthers.

In addition to the loss of this habitat, Dr. Frakes's analysis found that the effects of the developments would substantially narrow the existing north-south panther habitat connection (Camp Keais Strand) between Florida Panther National Wildlife Refuge and Corkscrew Swamp, which would be likely to adversely impact north-south panther movements in this part of their range when connectivity to the north is essential for panther recovery.[174] As Dr. Frakes explained, further narrowing this already narrow habitat corridor will impede panther movements, affecting the likelihood of recovery for the species because panthers need to disperse north across the Caloosahatchee River to move into central and northern Florida, a goal of the Recovery Plan.[175] Dr. Frakes further explained that installing underpasses or crossings does not compensate for narrowing the corridor, and the impairment of corridor use that results from narrowing it.[176]

And, as discussed above, the traffic-inducing effects of the RLW project are likely to increase panther vehicle collision fatalities on area roads by attracting more vehicles to those roads and increasing the number of vehicle trips on them.

Dr. Frakes also previously evaluated the combined impacts of the proposed developments that were part of the formerly proposed ECPO HCP, taking into account the proposed mitigation measures under the plan. In assessing how approval of that proposed HCP would affect the Florida panther, Dr. Frakes concluded that even with the proposed mitigation measures, the "significant habitat loss, fragmentation, and damage to dispersal corridors" would "appreciably

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[171] FWS Kingston Technical Assistance Form at 21.
[172] *See id*. at 22-23.
[173] *See* Declaration of Robert Frakes at ¶ 54 (panthers will avoid the lakes planned along the edges of the development).
[174] Declaration of Robert Frakes at ¶¶ 42, 48, 52.
[175] *Id*. at ¶ 52.
[176] *Id*. at ¶ 52.

reduce the likelihood of survival and recovery of the Florida panther."[177] In short, Dr. Frakes' analysis shows that the cumulative effects of Rural Lands West and these other reasonably foreseeable development projects will have a significant adverse effect on this ESA-listed species.

[177] Frakes, Robert, IMPACTS TO PANTHER HABITAT FROM THE PROPOSED EASTERN COLLIER MULTIPLE SPECIES HABITAT CONSERVATION PLAN: A QUANTITATIVE ANALYSIS (October 7, 2018) (Executive Summary); *see also* Frakes, Robert, Letter to Amber Crooks (November 28, 2018) (confirming that his conclusions in the October 7, 2018 report were not altered by revisions to the HCP that slightly reduced impacts to one of the corridors by turning a small area in the development footprint into proposed preserve instead).

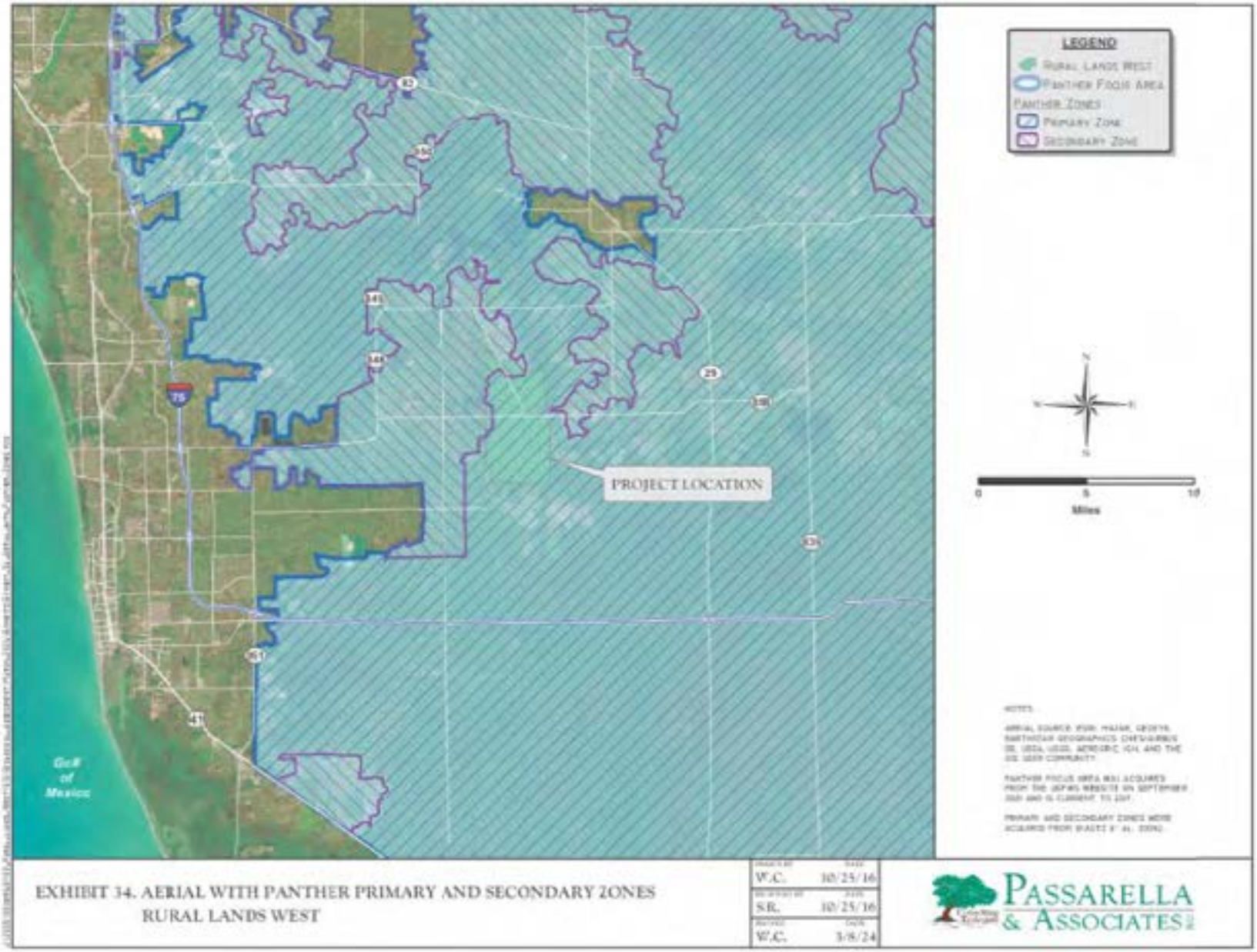
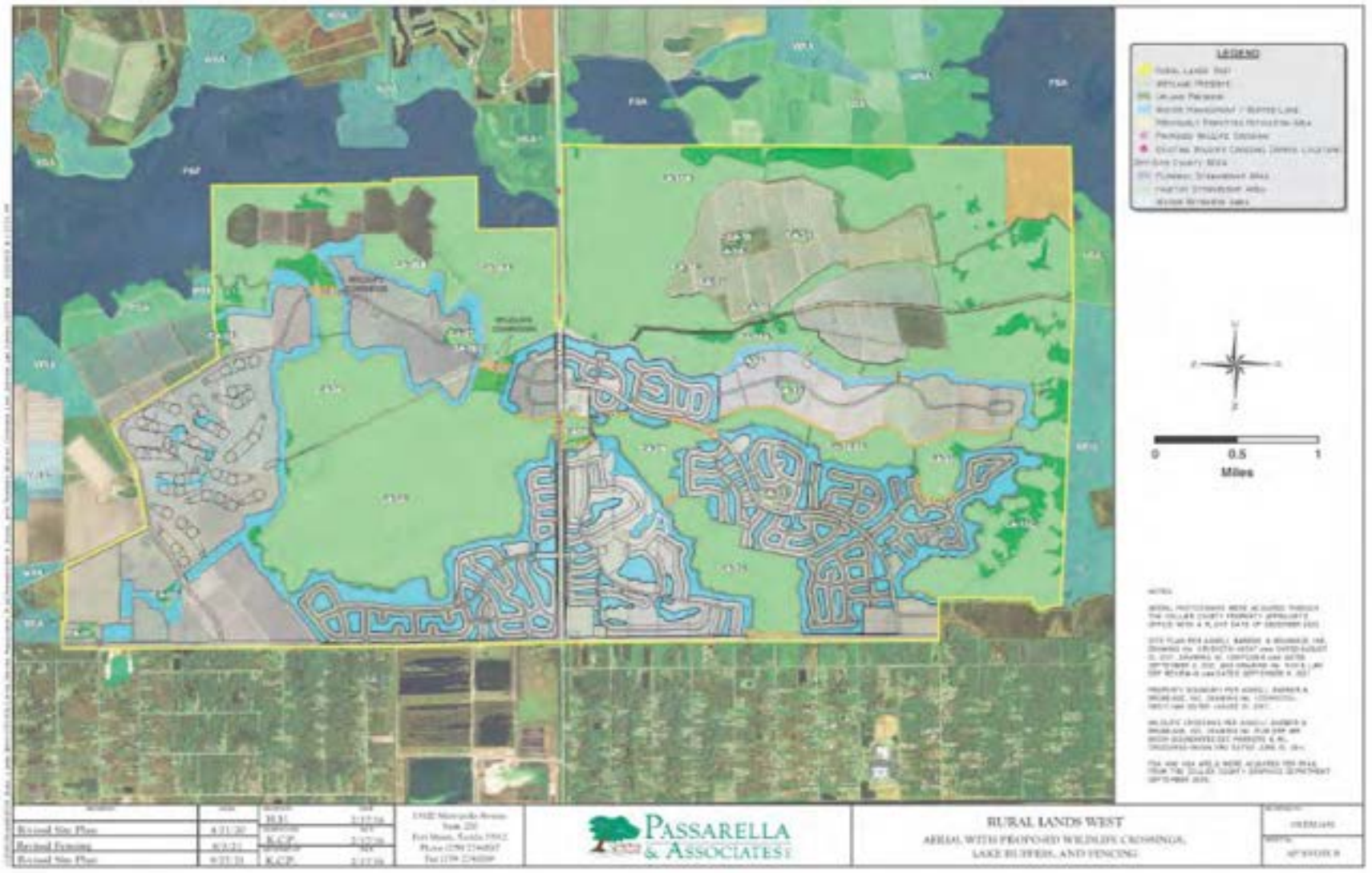


EXHIBIT 34. AERIAL WITH PANTHER PRIMARY AND SECONDARY ZONES
RURAL LANDS WEST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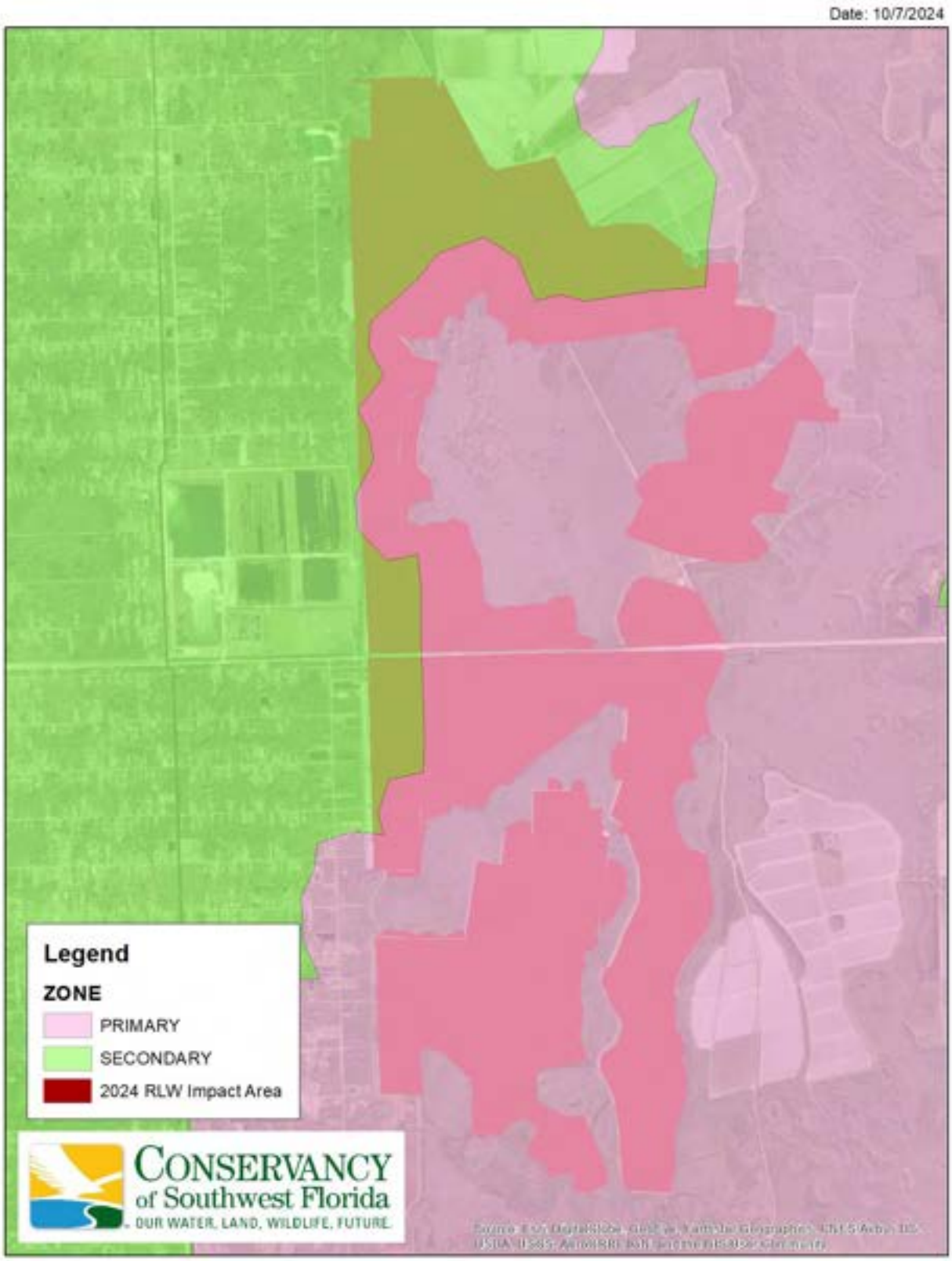
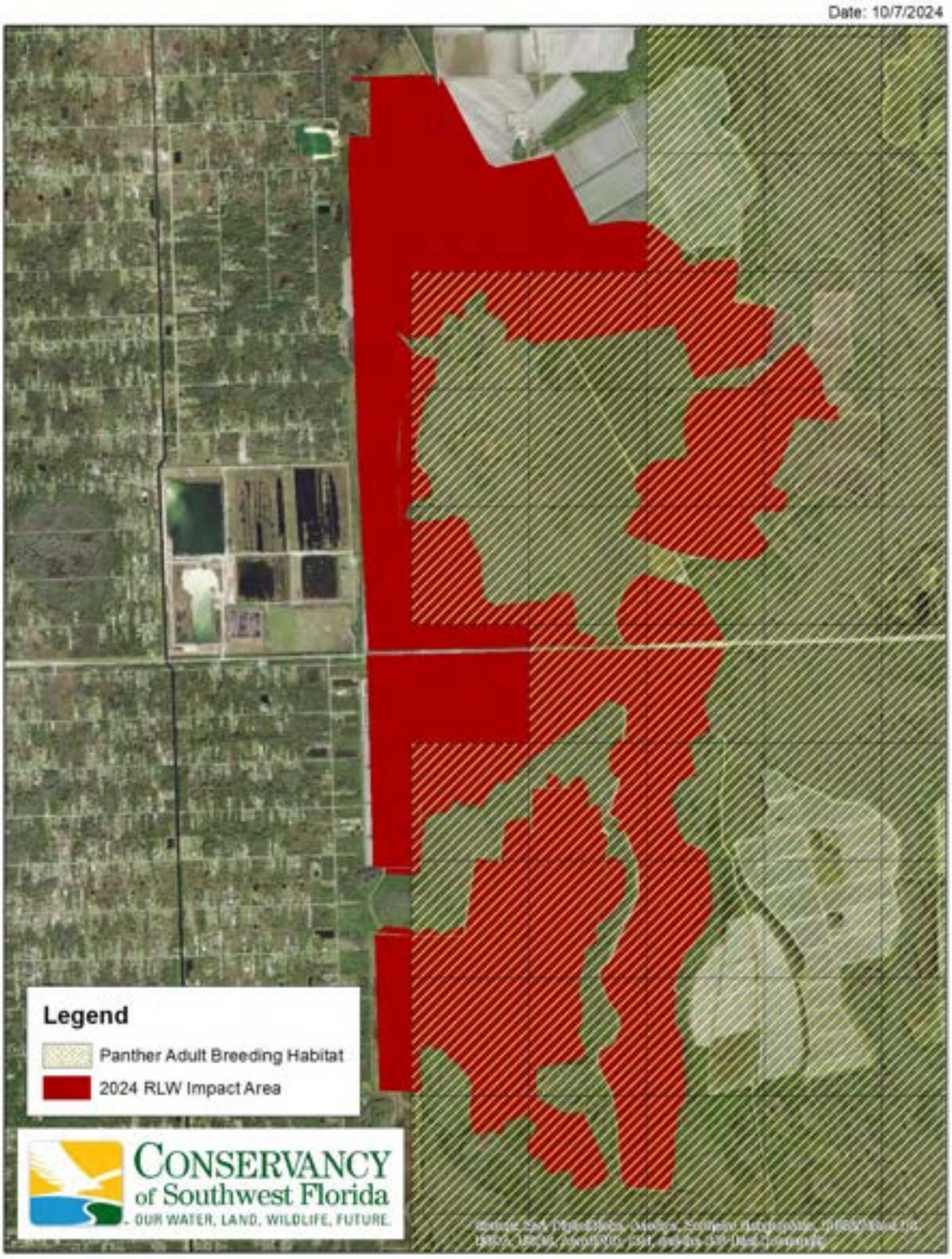
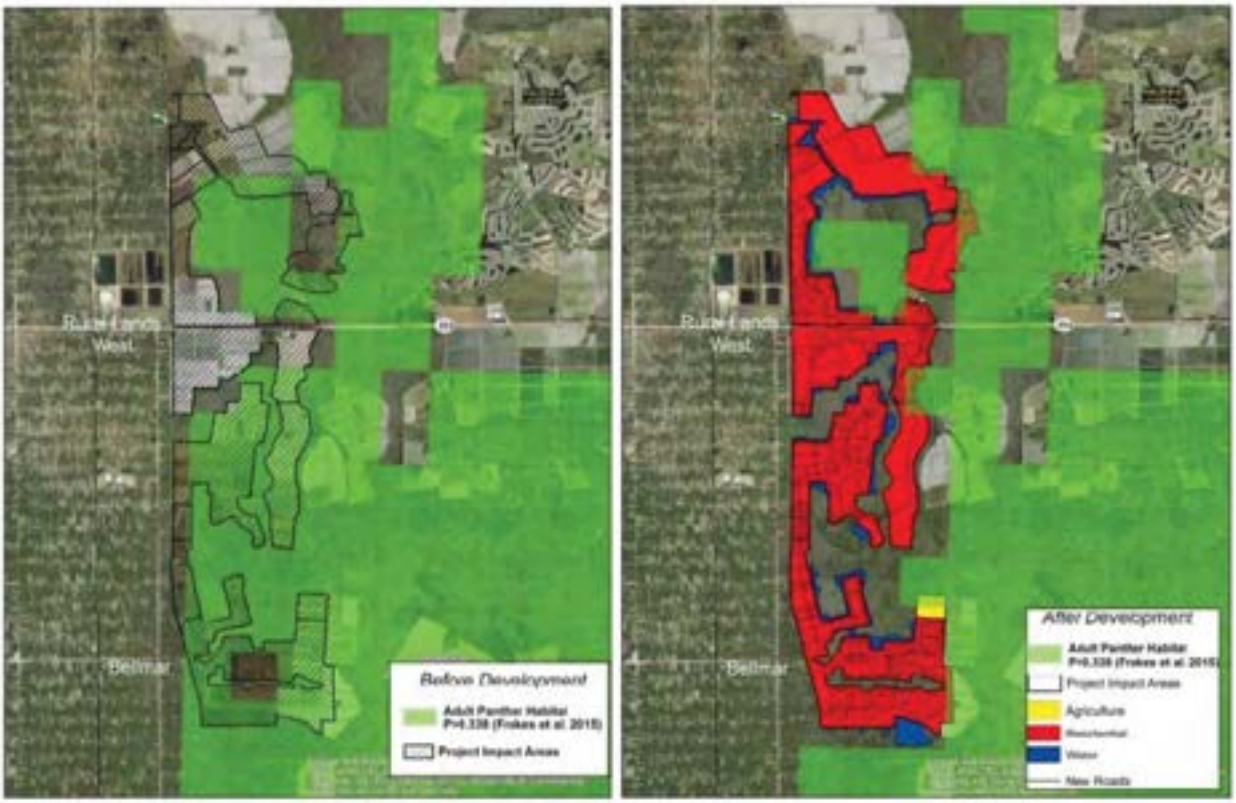
RURAL LANDS WEST
AERIAL WITH PROPOSED WILDLIFE CROSSINGS, LAKE BUFFERS, AND FENCING


Date: 10/7/2024
Legend
ZONE
PRIMARY
SECONDARY
2024 RLW Impact Area
CONSERVANCY
of Southwest Florida
OUR WATER, LAND, WILDLIFE, FUTURE.

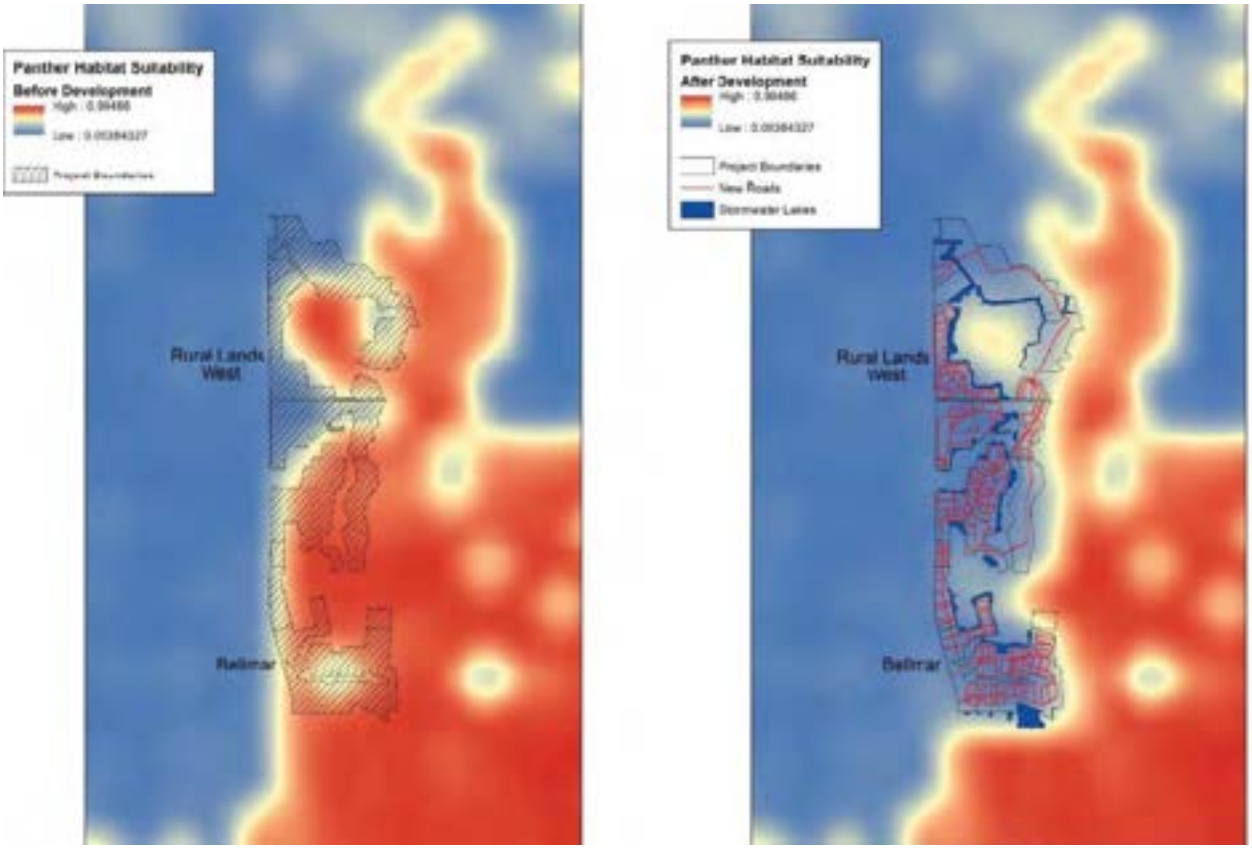

Date: 10/7/2024
Legend
Panther Adult Breeding Habitat
2024 RLW Impact Area
CONSERVANCY
of Southwest Florida
OUR WATER, LAND, WILDLIFE, FUTURE.

Figures Prepared by Dr. Frakes:[178]



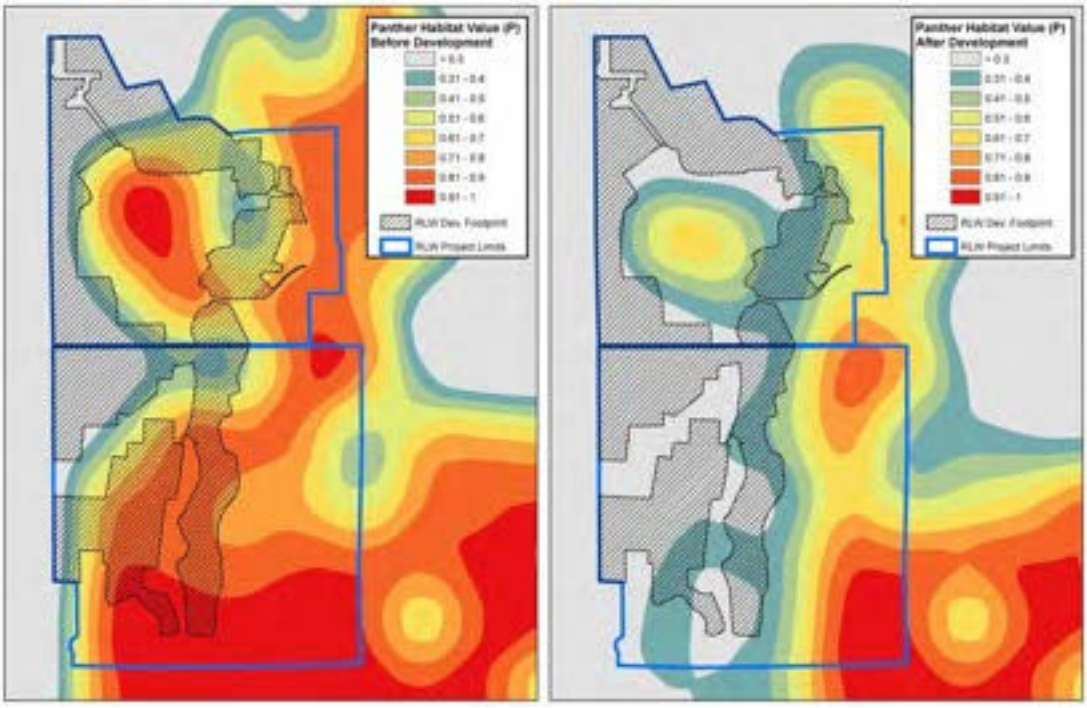
[178] *See* Declaration of Robert Frakes at ¶ 46, Figures 5 and 6.

Figures Prepared by Dr. Frakes[179]



[179] *See* Declaration of Robert Frakes at ¶¶ 47–48, Figures 7 and 8.

Figures Prepared by Dr. Frakes:[180]



Summary of Prior Analysis by Dr. Frakes of Rural Lands West:

Rural Lands West

	Pre-Development	Post-Development
No. of cells	60	60
Total P[a]	36.372	23.496
Change_P	-	-12.876
% loss of P	-	35.4
Minimum P	0.028	0.018
Maximum P	0.994	0.994
Ave_P	0.606	0.392
Std. Dev.	0.368	0.302
Total panther habitat in RLW (km^2)[b]	40	26
Habitat loss (km^2)	-	14
% Habitat loss	-	35.0

All values were calculated using the Florida panther landscape habitat model (Frakes et al. 2015).
[a]Each of the 60 grid cells within the RLW study area has a P value (probability of panther use) assigned by the model.
Total P is the sum of P values for all cells.
[b]Using a cutoff point of P=0.338 (Frakes et al. 2015).

[180] This figure illustrates how development of Rural Lands West will adversely change Adult Breeding Habitat. The left side shows the current panther habitat value per the Frakes et al. model, and the right side graphic shows the Frakes et al. model re-run with the Rural Lands West project in place. The warmer the color, the higher the value to adult breeding panthers. Blue and gray colors depict lower value habitat for adult breeding panthers. Conservancy of Southwest Florida, Comments to U.S. Army Corps of Engineers and FWS re SAJ-2008-00210 (SP-RMT) Rural Lands West (FKA Town of Big Cypress) (Feb. 2, 2018) [Attached-DVD].

E. The Corps Must Prepare an EIS to Evaluate the Impacts on Florida Panthers.

As detailed above, FWS's prior analyses in the ECPO HCP, as well as Dr. Frakes' 2018 analyses of the ECPO HCP, suggests that the Rural Lands West Development will contribute to levels of take that cumulatively are likely to appreciably diminish the survival and recovery of the Florida panther—which clears by leaps and bounds NEPA's lower "significance" threshold requiring an EIS. An agency cannot dismiss the need to consider significant cumulative effects on the grounds that the effect of the action in isolation is not significant.[181]

The prior efforts of the ECPO HCP applicants to obtain Incidental Take Permits for their developments, and the applicants' indication upon withdrawing the ITP applications that they would seek ESA authorization through individual project permitting instead make those developments and their likely impacts reasonably foreseeable. Among those reasonably foreseeable proposed developments in Collier County are the Bellmar project, which recently sought a permit under the State 404 program, and is currently seeking a Clean Water Act from the Corps, and the Brightshore Village Development, which is also seeking a Clean Water Act 404 permit from the Corps.[182] Furthermore, it is reasonably foreseeable that other proposed developments in nearby areas will also contribute to cumulative vehicle collisions, such as the Kingston development in Lee County, the FFD Corkscrew Road Project in Lee County nearby to Kingston, and the Immokalee Road Rural Village development, which all presently have

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[181] *See, e.g.*, *Healthy Gulf v. FERC*, No. 23-1069, 2024 WL 3418863, at *6 (D.C. Cir. July 16, 2024) ("We agree with petitioners that the Commission's approach to assessing cumulative NO2 effects was arbitrary… the Commission said that because the project's incremental effects were insignificant, its cumulative effects were, too. …That approach would eviscerate the purpose behind requiring a distinct cumulative effects analysis in the first place, which is to account for "collectively significant" environmental impacts that may result from "individually minor" actions.").

[182] *See, e.g.*, Bellmar FWS Technical Assistance Form, Oct. 31. 2023 [Attached-DVD]; US Army Corps of Engineers Jacksonville District Website, Public Notices, Bellmar Mixed-Use Development, Permit Application No. SAJ-2024-01593 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3928688/saj-2024-01593-sp-mao/; US Army Corps of Engineers Jacksonville District Website, Public Notices, Brightshore Village Mixed-Use Development Clean Water Act Section 404 Permit Application SAJ-2024-00966 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3831959/saj-2024-00966sp-mao/.

pending CWA 404 permit applications before the Corps.[183] Another residential project in the area, Hyde Park is in the process of constructing up to 1,800 homes.[184]

Particularly in light of the existing draft analyses FWS performed for the former ECPO HCP, the Corps must analyze the cumulative effects of such reasonably foreseeable development on panther vehicle collisions. The information presented in existing publicly available analyses from FWS indicates—and at the very least raises substantial questions about—significant adverse effects on the Florida panther population from increased vehicle collisions due to the cumulative effects of the Rural Lands West Development and other reasonably foreseeable sources of increased traffic. These significant cumulative effects must be evaluated carefully in an EIS.

Similarly, the Corps must consider the cumulative effects on the Florida panther population of habitat loss from reasonably foreseeable development.

The Corps cannot lawfully or rationally rely on the PHAM to assert that such effects will not be significant. As discussed above, the PHAM is not based on the best available science, and does not ensure that enough habitat will remain to ensure the long-term persistence of the Florida panther.[185] Nor does the PHAM address the impacts of vehicle collision mortality. Relying on the PHAM system to assert that the preservation of other existing habitat will sufficiently minimize the reasonably foreseeably cumulative impacts of the taking and habitat destruction to insignificant levels is arbitrary and capricious, and a failure to consider the best available scientific information.

Furthermore, aside from cumulative effects, the impacts of the Rural Lands West development itself on panther dispersal, by substantially narrowing the south-to-north movement

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[183] *See* US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3808962/saj-2024-00967-sp-sjf/ (Kingston CWA 404 application notice); Kingston FWS Technical Assistance Form for Permit Application No. 423130-001, Oct. 26, 2023 (hereafter "Kingston TA Form") [Attached-DVD]; US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3924391/saj-2008-03827-sp-lmg/ (Permit Application No. SAJ-2008-03827(SP-LMG) for FFD Corkscrew Road Property Project CWA 404 application notice); US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3869635/saj-2024-01216-sp-rwf/ (Immokalee Road Rural Village, Brentwood Holdings Limited Partnership, 27th Pico Blvd Limited Partnership), #SAJ-2024-01216 (SP-RWF) [Attach]; Conservancy of Southwest Florida, Comments RE: Immokalee Road Rural Village (Brentwood Holdings Limited Partnership, 27th Pico Blvd Limited Partnership), #SAJ-2024-01216 (SP-RWF) (Aug. 31, 2024). [Attached-DVD].

[184] *See* Riley, Patrick, "Collier commissioners approve 642-acre rural village near Golden Gate Estates," Naples Daily News (June 9, 2020), https://www.naplesnews.com/story/news/government/2020/06/09/collier-commissioners-approve-642-acre-rural-village-near-golden-gate-estates/5318652002/ [Attached-DVD]; Hyde Park Village, https://hydeparkvillagenaples.com/ [Attached-DVD].

[185] Robert Frakes Declaration at ¶¶ 64, 79.

corridor (as described by Dr. Frakes, see above), is a significant adverse impact that must be evaluated carefully in an EIS.

In sum, the significant adverse effects from the Rural Lands West Development on the Florida panther should be studied in an EIS, and mitigation detailed and evaluated per NEPA requirements set forth in current CEQ regulations implementing NEPA. Moreover, in evaluating the extent to which mitigation reduces adverse effects, the Corps' analysis must consider how the human-disturbance and traffic-increasing effects of the Rural Lands West Development undermine the value of any proposed habitat preservation mitigation. Specifically, the Corps' NEPA analysis should evaluate how the value of the proposed habitat preservation is reduced by the reasonably foreseeable reality that the increased traffic drawn to the vicinity of that habit will increase vehicle collision deaths for panthers utilizing that habitat. The analysis should also consider how the value of mitigation lands is reduced by increased human presence and disturbance. Further, in considering the extent to which any proposed offsite mitigation will offset impacts, the Corps' NEPA analysis should consider how vehicle collision impacts from reasonably foreseeable increases in traffic from development and other sources will undermine the value of that habitat to the species, as well as how foreseeable increases in human-disturbance affect the value of that habitat. Given the rapid succession with which the Corps is receiving and reviewing permits in the geographic region where the sole Florida panther population clings to existence, the Corps and FWS must take care to ensure that no cumulative impacts analyses "are kicked down the road" or "slip through the cracks"—all reasonably foreseeable cumulative effects must be analyzed to meet NEPA's requirements.

F. *The Corps must comply with the ESA's Consultation Requirements When Evaluating the Rural Lands West Application.*

The Corps must engage in formal ESA section 7 consultation with FWS regarding the proposed Rural Lands West permit. The section 7 consultation must properly analyze and explain how allowing additional net loss of Florida panther habitat is consistent with avoiding jeopardy given that the species already lacks sufficient habitat, as detailed above. Moreover, the consultation must consider impacts both from habitat loss and increased vehicle collisions, and do so in light of cumulative effects.

Evaluating habitat loss in terms of what percentage of the remaining habitat for the panther it represents is an approach that arbitrarily fails to consider that the panther population is already not large enough to survive long-term on its own without intensive management, and there is simply not enough remaining habitat available in the region to justify having even less.[186] FWS in the past has asserted that permanent losses of thousands of acres of habitat are not likely to result in jeopardy based solely on the proportion of habitat represented by the loss, without *any* analysis of how much habitat the Florida panther needs to ensure survival and recovery.[187] Such an approach irrationally fails to acknowledge that most of the sole remaining

[186] *See* Robert Frakes Declaration at ¶¶ 44, 78.
[187] *See*, *e.g.*, Kingston TA Form at 24.

breeding population of panthers remains restricted to south Florida, below the Caloosahatchee River.[188]

FWS's conclusions regarding overall impacts and jeopardy for the panther also have relied on the applicants protecting other habitat from destruction.[189] But, notably, the Panther Habitat Assessment Methodology ("PHAM") system was not designed to ensure no net loss of habitat—or even to ensure large enough viable panther populations to support the species' survival and recovery.[190] Thus, asserting that the applicant has provided Panther Habitat Units ("PHUs") for the destroyed acres neither ensures that there will be no net loss nor provides a substitute for a rational analysis of whether the net loss due to the project is likely to cause jeopardy. While the applicants may propose to protect other areas of habitat, that cannot be a substitute for meaningful analysis of how allowing the permanent loss of habitat due to the project does not appreciably diminish survival and recovery for a species that already does not have enough habitat to ensure the population numbers sufficient for long-term survival in the wild absent management interventions to supplement the gene pool.

Moreover, relying on the PHAM system does not reflect a rational approach to ensuring that habitat loss will not impair panther survival or recovery. As Dr. Frakes has explained, the key factors underlying that analysis reflect scientific information that can no longer be considered the best available, and among other things, it overestimates the amount of land available for use by panthers.[191] As such, neither the Corps nor FWS can rationally or lawfully rely on mitigation calculated using the PHAM to assert that habitat loss is not likely to appreciably reduce survival and recovery of the Florida panther. The applicant's plans to protect other existing habitat does not compensate for the permanent loss associated with the development.

Finally, the section 7 analysis must include meaningful evaluation of the impacts of narrowing dispersal corridors on the survival and recovery of the species.

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[188] *See, e.g.*, Florida Fish and Wildlife Conservation Commission (FWC), Wildlife Conservation, Florida Panther Program, Description of Range, https://myfwc.com/wildlifehabitats/wildlife/panther/description/#:~:text=Today%20only%20about%20120%2D230,Florida%2C%20below%20the%20Caloosahatchee%20River (last accessed Jan. 14, 2024) [Attached-DVD].

[189] *See*, e.g., Kingston TA Form at 23.

[190] *See* U.S. FWS, Panther Habitat Assessment Methodology, September 24, 2012 *available at* https://ipac.ecosphere.fws.gov/guideline/assessment/population/8/office/41420.pdf. The 2012 PHAM is aimed at preserving the amount of habitat needed to support a population of 90 panthers, and presumes that a portion of the remaining privately-owned habitat may be destroyed as long as the rest of the privately-owned habitat is preserved. It is therefore predicated on allowing net loss, and on the presumption that there is a "cushion" of habitat that can be permanently lost without undercutting the goal of supporting a population of 90 panthers. Critically, 90 panthers fall short of the U.S. Fish and Wildlife Service's own recovery plan goals, which requires populations of *at least 240* adults and subadults—and sufficient habitat to support them—to downlist and delist the species. U.S. Fish and Wildlife Service. 2008. Florida Panther Recovery Plan (*Puma concolor coryi*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 217pp; *see also* Robert Frakes Declaration at ¶ 64.

[191] Robert Frakes Declaration at ¶¶ 64, 79.

II. The Corps Must Properly Assess the Impacts to Florida Crested Caracara.

A. Due to Habitat Saturation Continued Habitat Loss Threatens Population Decline for the Florida Crested Caracara.

The Florida population of the Crested Caracara was listed as a threatened species under the ESA in 1987 due to the threat posed by destruction of their habitat, *see* 52 Fed. Reg. 25,229 (July 6, 1987) and remains listed as threatened. Habitat loss continues to threaten the crested caracara population.[192] The available habitat in Florida is believed to be saturated, as FWS has recognized in prior documents.[193] Habitat saturation means that all habitat suitable for a species to survive, thrive, and reproduce successfully is already occupied by breeding individuals; and offspring of those individuals cannot find a place to nest and reproduce because there is no more habitat in which to do so.[194] If the overall acreage of suitable habitat continues to shrink, the number of individuals in the population will eventually decline.[195]

The best available science indicates that the Florida crested caracara population is small. The best and most reliable estimate of population size for Florida's caracara population was recently published in Payne et al. (2023) and is based on genetic analyses.[196] These analyses provide more reliable estimates of Effective Population Size (EPS), which corresponds to the number of individuals in the population that are actually breeding thus are contributing to the population's long-term persistence (Wang et al. 2016).[197] The estimate provided by Payne et al. (2023) for the EPS of Florida's caracara population is 565.4 individuals (95% CI: 458.2, 671.2), which represents approximately 280 breeding pairs.[198] At present, there appear to be no scientific studies establishing whether 280 breeding pairs is sufficient for long-term persistence.[199] Absent such studies, there is insufficient evidence to conclude that additional habitat loss and reduction to the number of breeding pairs is not likely to appreciably reduce survival and recovery of the Florida crested caracara.[200] Moreover, the available scientific information indicates that for "closed" populations (i.e. populations that cannot grow due to habitat saturation) of relatively small population size, isolated, and already known to have reduced genetic diversity, such as the Florida crested caracara, there is substantial reason to believe that continued habitat loss that reduces the number of breeding pairs likely appreciably diminishes survival and recovery.[201]

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[192] Joan Morrison Report (Oct. 12, 2024) (hereafter "2024 Morrison Report") at ¶ 19 [Attached-DVD]; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 18. [Attached-DVD].
[193] 2024 Morrison Report at ¶ 20 (referring to 2023 FWS Technical Assistance document for the Bellmar Project); Joan Morrison Declaration (Dec. 1, 2023) at ¶ 19 (same).
[194] 2024 Morrison Report at ¶ 21; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 20.
[195] 2024 Morrison Report at ¶ 22; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 21.
[196] 2024 Morrison Report at ¶¶ 23–24; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 22.
[197] 2024 Morrison Report at ¶ 23; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 22.
[198] *Id*.
[199] 2024 Morrison Report at ¶¶ 27–28; Joan Morrison Declaration (Dec. 1, 2023) at ¶¶ 25–26.
[200] 2024 Morrison Report at ¶ 28; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 26.
[201] 2024 Morrison Report at ¶¶ 25–26; Joan Morrison Declaration (Dec. 1, 2023) at ¶¶ 23–24.

The average territory size of a breeding pair of caracaras in Florida is approximately 1296 hectares (~3200 acres), which can be described in simple terms as a circle of ~2000 m radius around a nest tree (Morrison and Humphrey 2001), although territories are never actually circular but rather are defined by the boundaries of the habitat areas used by the breeding pair.[202] Caracaras are highly territorial, breeding pairs remain on their territory all year (they do not migrate or leave Florida), and individuals remain on their territory for multiple years, up to decades (Morrison and Humphrey 2001).[203] Caracaras are a long-lived raptor, adults may live as long as 24 years in the wild (Morrison et al. 2016).[204]

While breeding pairs of caracaras are strongly site faithful, often nesting in the same tree in consecutive years, they do use alternate nest trees within the territory (Morrison 2001).[205] Alternate nest trees may be used for a second brood or if the nest in a previously used tree is damaged, for example, by wind or rain, and falls out of the tree.[206] These alternate nest trees are often within 0.5 km (0.31 miles) of each other but are within the same 3200-acre territory, and thus the breeding pair would depend on the same foraging areas.[207]

Development that substantially reduces the amount of foraging area within a breeding pair's ~3200 acre territory is likely to cause the pair to attempt to shift into the territory of adjacent breeding pairs, resulting in competition for inadequate resources, in turn resulting in likely permanent impairment of a breeding pair's ability to reproduce successfully.[208]

Establishing that a nest or breeding territory is no longer active requires negative survey results for at least three years. However, negative survey results cannot rationally be relied upon to establish inactivity unless the survey was conducted correctly.[209] For example, negative results from any surveys carried out using pedestrian (walking) transects should be discarded rather than considered as evidence of inactivity because walking transects is inappropriate for conducting caracara surveys.[210]

B. Even with the Proposed Mitigation, the Rural Lands West Project is Likely to Cause Permanent Impairment of Reproductive Capacity to Multiple Breeding Pairs.

According to the 2024 Biological Assessment prepared by the applicant, the most recent caracara surveys for the proposed Rural Lands West site, conducted in 2023 located two nest

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[202] 2024 Morrison Report at ¶ 14; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 13.
[203] 2024 Morrison Report at ¶ 15; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 14.
[204] *Id*.
[205] 2024 Morrison Report at ¶ 17; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 16.
[206] 2024 Morrison Report at ¶¶ 16–17; Joan Morrison Declaration (Dec. 1, 2023) at ¶¶ 15–16.
[207] 2024 Morrison Report ¶ 17; Joan Morrison Declaration (Dec. 1, 2023) at ¶ 16.
[208] *See, e.g*., 2024 Morrison Report at ¶¶ 33–43, 45 (describing impacts of habitat loss from Rural Lands West proposal); Joan Morrison Declaration (Dec. 1, 2023) at ¶¶ 30–31, 38, 40–43 (describing impacts of loss of 1440 acres of foraging habitat within 3200 acre breeding territory resulting from proposed Bellmar project).
[209] *See* 2024 Morrison Report at ¶¶ 32, 50, 61.
[210] Joan Morrison Declaration (Dec. 1, 2023) at ¶¶ 34, 43.

sites.[211] The figure below, copied from the 2024 Biological Assessment, shows the locations of the two nest sites:

[211] 2024 Biological Assessment at 17, 20-21, 39.

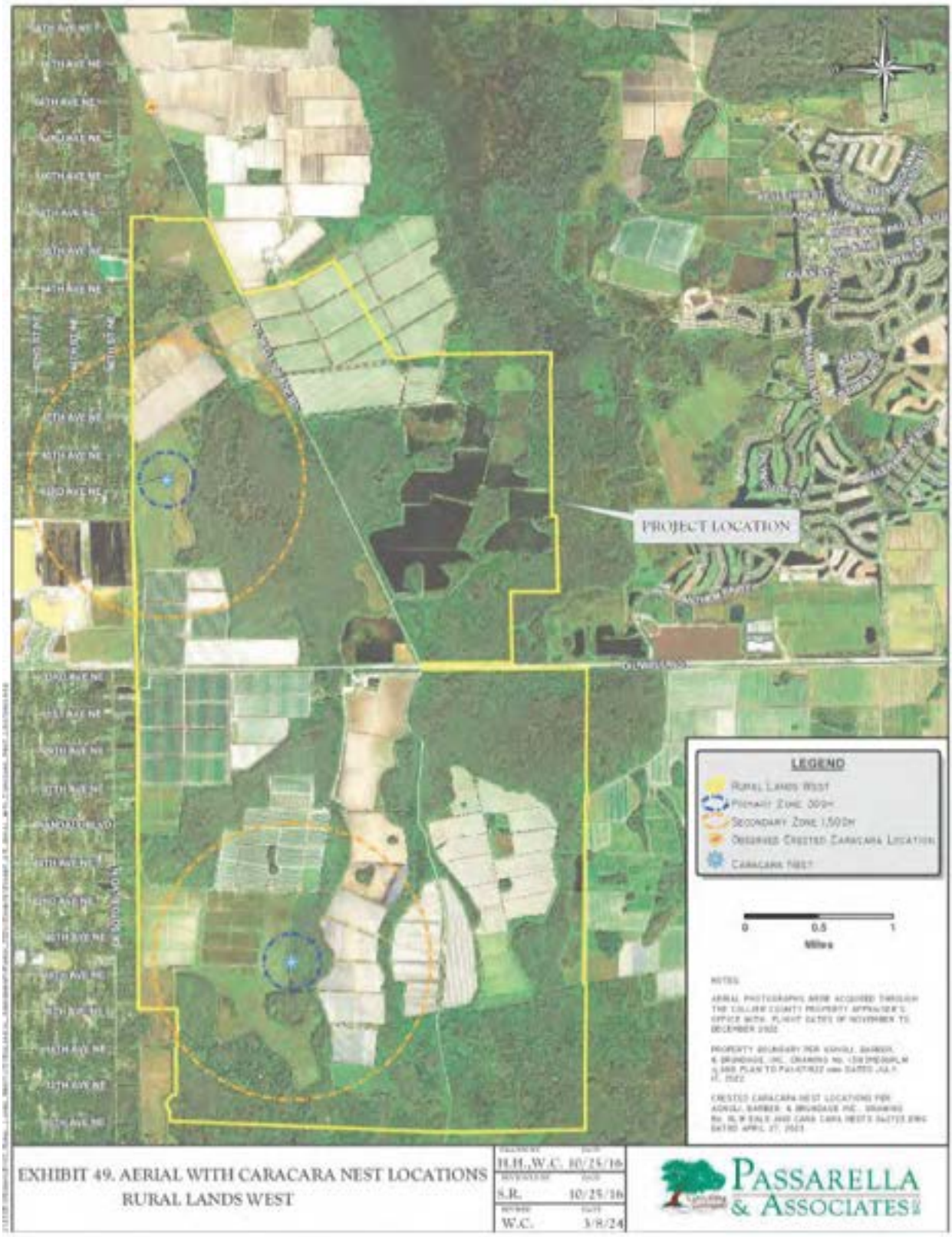

EXHIBIT 49. AERIAL WITH CARACARA NEST LOCATIONS
RURAL LANDS WEST

H.H., W.C.	10/25/16
S.R.	10/25/16
W.C.	3/8/24

PASSARELLA & ASSOCIATES

The 2024 BA also states that a 2016 survey located a crested caracara nest "along Oil Well Grade Road approximately 3,920 feet north of the Project boundary" in a cabbage palm, that additional monitoring in 2021 did not document nesting activity at that location, and that the cabbage palm is now dead. That location appears to be depicted on Exhibit 49 above as the "crested caracara location" north of the project site boundaries.

Sierra Club contracted independent expert Dr. Joan Morrison to evaluate the impacts of the proposed Rural Lands West development on Florida crested caracara.[212] According to Dr. Morrison's analysis, the substantial loss of foraging habitat caused by the Rural Lands West development is likely to cause the displacement of the two breeding pairs that have been nesting within the site boundaries, likely resulting in the permanent loss of the reproductive capacity of at least two breeding pairs.[213] Furthermore, the proposed mitigation described in the 2024 Biological Assessment is not sufficient to avoid these impacts, nor to render them no longer likely.[214] The applicant proposes only to provide habitat replacement if construction activities occur within 300 meters of "an active nest identified in the most recent nesting season."[215] The area within 300 meters of a nest is only 70 acres. Consequently, the applicants seemingly will only replace up to 70 acres of habitat per nesting pair, and will not replace the thousands of acres of foraging habitat within the territory of the affected breeding pair. Moreover, where the construction footprint is not within 300 meters of the nest, no habitat replacement will occur at all, even though thousands of acres of foraging habitat within the breeding territory for the pair using that nest will be eliminated permanently. Further, the maintenance of agricultural areas within and adjacent to the Rural Lands West project boundaries will not preserve enough foraging habitat to avoid the displacement and permanent loss of reproductive capacity caused by the destruction of the foraging habitat within the construction footprint of the Rural Lands West project.[216]

Consequently, even with the proposed mitigation, the impacts of eliminating such extensive portions of the foraging habitats of these two breeding pairs means that they will be likely be displaced and attempt to shift their breeding territory, likely resulting in permanent impairment of breeding due to habitat saturation.[217]

Notably, as Dr. Joan Morrison has explained, the 300-meter radius primary zone does not provide a measure of the area of habitat necessary to support a successful breeding pair, which as described above, requires approximately 3200 acres of foraging habitat (an area with a radius of approximately 2000 meters) around the nesting habitat.[218]

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[212] *See* 2024 Morrison Report. [Attached-DVD].
[213] 2024 Morrison Report at ¶¶ 5, 45, 52, 53.
[214] 2024 Morrison Report at ¶¶ 5, 48–52.
[215] 2024 BA at 47.
[216] *See* 2024 Morrison Report at ¶¶ 34–36, 37, 49, 70 (accounting for agricultural lands that will ostensibly be maintained as agricultural lands in assessing foraging habitat impacts to the two breeding pairs nesting within the RLW project boundaries).
[217] 2024 Morrison Report at ¶¶ 5, 48–52.
[218] *See* 2024 Morrison Report at ¶¶12–14; Joan Morrison Declaration (December 1, 2023) at ¶¶ 11–13. Nor is there scientific support for the contention that a 1500-meter secondary radius zone would provide sufficient habitat for a breeding pair to remain successful. *See* 2024 Morrison Report at ¶¶13–14; Joan Morrison Declaration (December 1, 2023) at ¶¶ 12–13.

Finally, limiting the proposed habitat replacement only to circumstances where there is an "active nest identified in the most recent nesting season" appears to irrationally ignore that a nest identified during a prior nesting season may not be deemed inactive unless it has been shown to be inactive by negative survey results for at least three years. The wording of this proposed mitigation seemingly would mean that no habitat replacement will occur at all even though the construction will destroy a substantial amount of foraging habitat in the breeding territory of the pair associated with that nest, which should be considered still active.

Thus, incidental take of at least two breeding pairs in the form of harm (permanent reproductive impairment) is likely. Notably, this contradicts the 2024 Biological Assessment, which erroneously states at the outset that there will be "no effect" on crested caracara.[219]

Notably, in defending its recent analysis of the Bellmar Project, FWS demonstrated serious fundamental misconceptions regarding Florida crested caracara habitat use that have led to FWS staff drawing erroneous and arbitrary and capricious conclusions regarding the impacts of habitat destruction on breeding pairs. Specifically, FWS staff asserted that impacts of substantial destruction of foraging habitat within a breeding pair's territory would be temporary based on the assumption that the pair "shifts" their territory with regularity. According to expert Dr. Joan Morrison, "[t]hese statements demonstrate a fundamental lack of understanding of Florida crested caracara habitat use and behavior with regard to their territories."[220]
"Pairs are highly faithful to a territory and do not 'shift' their territory if no alteration of the habitat within it occurs. They may shift their nest site and use alternate trees within that territory from year to year or even within a season if they attempt double brooding, but the territory itself does not shift. This is likely because, as has been noted, pairs are highly site faithful and because evidence suggests that all suitable habitat for breeding pairs of caracaras in Florida is saturated. Thus, pairs do not have an option to 'shift territories with some regularity,' and telemetry data indicates they do not do so unless habitat within their territory is lost."[221]

As Dr. Morrison explains, "Telemetry data show that caracaras use as many types of habitats as food resources are available there. Even if farming activities such as tilling are not ongoing at a site, caracaras often continue to use that site for foraging because they regularly forage on insects and other small organisms (small reptiles and mammals) that continue to be present even in fallow fields. If the footprint of the RLW project includes areas of seasonally used farming activities, those areas are still within the territory of the pair and likely will continue to be used by the pair unless the habitat is converted. Yes, caracaras use areas opportunistically but the fact remains that they do use these areas, so removal of used areas constitutes loss of habitat for this pair. It would be erroneous to conclude that the loss of such foraging habitat will be minimal merely because of the seasonal nature of the farming activities. Even taking into account the seasonal nature of the agricultural activities, the loss of foraging habitat detailed … in Table 1 [of her report], within their respective territories, will affect the

[219] 2024 BA at 50. Notably, the "no effect" determination in the 2024 BA also contradicts other portions of the 2024 BA, which acknowledge that project "may affect" crested caracara. *See id.* at 39.
[220] 2024 Morrison Report at ¶ 63.
[221] *Id.* at ¶ 64.

ability of these pairs to acquire sufficient resources for themselves and their young, resulting in displacement and competition with other nearby pairs, and likely permanent loss of reproductive success."[222] And due to habitat saturation, the pair likely will not be able to "shift" somewhere else successfully, with the result that the habitat loss is likely to result in permanent loss of reproduction.[223]

With regard to Bellmar, FWS staff also asserted that there would be no lethal consequences resulting from the displacement of a breeding pair due to destruction of nearly half its foraging habitat as long as the 300 meter zone around the nest tree was protected during the nesting season. As Dr. Morrison explains, this characterization is erroneous because the young remain vulnerable during the two month post-fledging period following nesting, such that construction or clearance activities can impair food delivery to the young, causing mortality, and further, that displacement of the breeding pair and their young into the territory of another pair can result in mortality when the resident pair attacks the young of the displaced pair.[224]

Finally, FWS staff asserted that the impacts from over 29,000 acres of habitat destruction for which FWS authorized caracara take between 2019 and 2021 would not have any combined effect with the impacts of the Bellmar development because those projects were all at least 10 miles or 8 caracara territories away from Bellmar. According to Dr. Morrison, this statement "demonstrates a lack of understanding regarding population biology and the need to consider those impacts when establishing the baseline condition of the Florida crested caracara population."[225] Whether the impacts to breeding from the impacts to the breeding pairs affected by those authorized projects are temporary or permanent breeding loss of reproduction, that affects the population in the long-term because it means that there will be fewer young birds available to eventually become breeders themselves.[226] Notably, the probability of a nestling caracara surviving to be three-years old, when it could potentially breed, is only 0.334.[227] In other words, the vast majority of nestlings do not survive to breeding age, thus authorizing take that impairs breeding pair reproduction further reduces the number of nestlings that will reach that age. Thus, regardless of the distance from Bellmar, FWS should have considered the contraction of the population authorized by those projects in determining the baseline conditions, and the same holds true for analyzing the impacts from Rural Lands West.[228]

It is also notable that FWS's draft analysis in draft Biological Opinions for the former ECPO HCP made assertions about the population size of Florida crested caracara based on flawed assumptions, as detailed by Dr. Morrison.[229] The Corps and FWS should not repeat these errors in evaluating the impacts of the Rural Lands West project.

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[222] *Id.* at ¶ 65.
[223] *Id.* at ¶ 66.
[224] 2024 Morrison Report at ¶ 71; *see also id*. at ¶ 51.
[225] *Id*. at ¶ 72.
[226] *Id*.
[227] *Id*.
[228] *Id*.
[229] *Id*. at ¶¶ 23–24.

C. The Rural Lands West Project Will Have Significant Adverse Effects on the Crested Caracara that Should Be Analyzed in an Environmental Impact Statement.

As detailed above, even with the proposed mitigation, the Rural Lands West Project is likely to permanently impair the breeding success of at least two breeding pairs as a result of the permanent loss of foraging habitat from their territories. The significance of those effects must be considered in light of the effects of other recently authorized habitat loss and take, and reasonably foreseeable future impacts. From 2019 through 2021, FWS authorized or reauthorized caracara take from projects that will remove more than 29,000 acres of caracara habitat, including at least 15 nest sites, causing losses or reduced reproduction of at least 15 breeding pairs.[230] Some of these authorized projects have already undergone land clearing, such that the habitat destruction has occurred already, whereas others have yet to occur.[231] Furthermore, additional future projects that will also impair other breeding pairs are reasonably foreseeable, such as the Bellmar Project and the Kingston Project.[232] As Dr. Morrison explains, "displacement of the breeding pairs from RLW [Rural Lands West] is likely to have effects that extend outside the RLW project boundary, because the displaced pairs will compete with pairs in adjacent territories. Further, displacement of the breeding pairs from RLW is likely to have a "domino effect" on other breeding pairs, meaning the area affected by the displacement is likely even broader than just the most adjacent territories. The Corps' cumulative impacts analysis therefore should consider how habitat loss from other reasonably foreseeable future impacts will combine with this "domino effect" from displacement of the breeding pairs from Rural Lands West."[233] For example, the Corps should consider how the displacement of the two breeding pairs from the Rural Lands West site will have cumulative effects with the displacement of the breeding pair associated with proposed development of the Bellmar site.[234]

Given the small size and vulnerability of the Florida crested caracara to population decline from habitat loss, the Corps must rationally explain how permanent impairment of at least two additional breeding pairs on top of the impacts to so many other breeding pairs is not a significant cumulative effect on this threatened population, or else analyze the significant effects in an EIS. Moreover, as the effects of foraging habitat loss will foreseeably cause the affected breeding pairs to attempt to shift their habitats, it is plain that areas outside the project footprint will be affected when the shifting pairs compete with breeding pairs in adjacent and nearby territories. The Corps must consider how reasonably foreseeable habitat loss outside the footprint of the project will combine with the effects of that competition to potentially result in even more breeding pairs having impaired reproduction.

Finally, the proposed mitigation should be detailed and evaluated per NEPA requirements set forth in current CEQ regulations implementing NEPA. The Corps should evaluate the adequacy of the proposed mitigation, which, as described above, is plainly inadequate to avoid permanent impairment of breeding capacity of the breeding pairs. Furthermore, the 2024 Biological Assessment indicates that the exact location and extent of any replacement habitat

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[230] 2024 Morrison Report at ¶ 29; Joan Morrison Declaration (December 1, 2023) at ¶ 27.
[231] *Id*.
[232] *See, e.g.*, Joan Morrison Declaration at ¶ 48–50.
[233] 2024 Morrison Report at ¶¶ 53, 57.
[234] *Id*. at 53, 56–57.

will be determined later by FWS and FWC, ostensibly after issuance of the permit, but before construction begins, but that the restoration will take place either on agricultural lands within the RLW footprint or adjacent agricultural lands owned by the applicant.[235] But there appears to be no information to support a finding that an area of adequate foraging habitat *that is not already in the breeding territory of another breeding pair* exists either within the portion of the RLW footprint that will be undeveloped, or on adjacent lands, such that the proposed creation of replacement nesting habitat on those areas would avoid impacts to the breeding success of the breeding pair displaced by the construction. As Dr. Joan Morrison has explained, establishing 70 acres of replacement primary zone habitat elsewhere would be meaningless unless it was surrounded by approximately 3000 acres of suitable foraging habitat that is not already within the breeding pair of another caracara pair, and would not result in encroaching on another pair's territory.[236] And due to habitat saturation, it cannot rationally be assumed that such conditions are present. Furthermore, as explained above, according to Dr. Morrison's analysis, maintenance of the agricultural areas outside the RLW construction footprint but within the RLW boundary, and adjacent to it to the north, will not preserve sufficient habitat not already in the territory of another breeding pair to avoid the effects of destroying thousands of acres of foraging habitat used by the two pairs at the Rural Lands West site (permanent loss of breeding capacity for at least two breeding pairs).[237] Thus, the Corps cannot rationally rely on this proposed mitigation to conclude that the effects to Florida caracara will not be significant, nor to conclude that impacts have been minimized.

Furthermore, as discussed in more detail in the next section, mitigation measures that prohibit construction during the nesting season but do not restrict construction during the post-fledging period are not adequate to prevent likely impacts impairing the survival of young birds. The Corps cannot rationally rely on such inadequate measures to assert that lethal impacts to fledgling caracaras are not reasonably foreseeable, to conclude that the project will have no significant impacts, or to conclude that impacts have been minimized.

D. The Corps Must Comply with its Obligations to Ensure Against Jeopardy.

The Corps must engage in formal consultation with FWS regarding the effects of the Rural Lands West development on the Florida crested caracara. The notice for Rural Lands West's CWA 404 permit application erroneously omits any mention of Florida crested caracara from the list of species that the proposal "may affect" for the purposes of ESA section 7 consultation requirements. According to Dr. Morrison's analysis, two breeding pairs rely on foraging habitats within the Rural Lands West boundary, and the proposed construction will destroy large portions of the foraging habitat within their breeding territories, resulting in the likely permanent loss of reproductive capacity for the two breeding pairs, even accounting for the proposed mitigation.[238] Indeed, while the 2024 BA asserts with no support that the project will have "no effect" on the species, the same BA also states that FWS guidelines indicate the project "may affect" the species.[239] Therefore, as detailed above, even with the proposed

[235] 2024 BA at 47.
[236] 2024 Morrison Report at ¶ 49, 69.
[237] *Id*. at ¶ 70.
[238] *See* 2024 Morrison Report.
[239] 2024 BA at 39,50.

mitigation, incidental take in the form of harm from permanent impairment of reproductive success is likely.

The consultation must take into account the best available scientific information. The effects of the action must be considered against a baseline that takes into account the small population size, and the reality that FWS has already authorized actions between 2019 and 2021 that will result in habitat loss and impaired reproduction of at least 15 breeding pairs.[240] Further, the Service must also consider the impacts from other currently pending projects if they are authorized before Rural Lands West. Specifically, if the CWA 404 permits for Kingston or Bellmar projects are authorized prior to Rural Lands West, then their impacts must be considered. As destruction of substantial foraging habitat within a breeding territory will cause the breeding pair to attempt to shift their territory and compete with other pairs, the action area plainly extends to areas that will feel the "domino effect" resulting from displacement of the breeding pairs utilizing the RLW site.[241]

In light of the small effective population size, habitat saturation, and other evidence discussed above indicating that the Florida crested caracara is vulnerable to population declines resulting from continued habitat loss, FWS must rationally explain why the loss of additional breeding pairs and habitat that will be caused by Rural Lands West development does not amount to jeopardy, particularly when FWS lacks the information necessary to assert that the current population size is sufficient, or that further reducing it, on top of all the other recently authorized impacts, will not appreciably diminish the prospects of survival or recovery for the species.

Finally, even if FWS can rationally support a "no jeopardy" conclusion, it must also ensure that the impacts of the taking are minimized via reasonable and prudent measures. As discussed above, the proposed habitat restoration is inadequate because it fails to ensure that adequate foraging habitat will be available for the breeding pair.[242] Further, measures to protect active nests during construction must take into account that recent fledglings remain mostly within 1 km of the nest for the first two months post-fledging and are still dependent on their parents during that time.[243] During the first 2 months after fledging, fledglings are often with their parents and are begging their parents for food.[244] During that 2 month period post-fledging period, 85% of fledgling locations occur within 2.5 km of the nest, with average distance being even closer, particularly during the first month post-fledging.[245] Consequently, measures that only bar land clearing activities within 300 meters of the nest prior to fledging are not adequate

[240] 2024 Morrison Report at ¶ 25–26, 29; Joan Morrison Declaration (December 1, 2023) at ¶ 27.
[241] 2024 Morrison Report at ¶¶ 53, 56–57; Joan Morrison Declaration (December 1, 2023) at ¶¶ 37–39, 48–50.
[242] 2024 Morrison Report at ¶¶ 68–70; *See* Joan Morrison Declaration (December 1, 2023) at ¶¶ 40–43, 46.
[243] *See* 2024 Morrison Report at ¶¶ 47, 51, 71; Joan Morrison Declaration (December 1, 2023) at ¶ 44.
[244] Joan Morrison and Caroline Poli, Post-fledging Movements and Factors that Influence Permanent Departure of Juvenile Crested Caracaras in Florida, *Journal of Raptor Research* 58(2):161–175, at 167 available at https://doi.org/10.3356/JRR-23-48.
[245] *Id*. at 167 and 167, Figure 1.

to minimize likely impacts to the vulnerable young birds post-fledging that include impaired survival.[246]

III. The Corps Must Properly Assess the Impacts to Florida Bonneted Bat.

The 2024 Biological Assessment provided by the applicant states that a 2016 acoustic survey recorded 38 Florida bonneted bat calls, of which "three occurred within one and one-half hour after sunset, one occurred within one and one half hour before sunrise[.]"[247] The timing of these calls indicates that roosting is reasonably certain to occur nearby per the 2019 guidelines, and similarly that "active roosting" is occurring per the 2024 revision those guidelines.[248] The 2024 Biological Assessment also states that application of the 2019 Florida Bonneted Bat Consultation Guidelines indicated that the project "may affect and is likely to adversely affect" the species.[249] The Biological Assessment states that the RLW site includes ~10,264 acres of potential habitat (cover types that could be used by the species),[250] but does not appear to specify the amount of habitat that will be destroyed by the development footprint, nor the amount that will be degraded by proximity to development. However, the public notice for the CWA 404

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[246] *See* 2024 Morrison Report at ¶ 51; Joan Morrison Declaration (December 1, 2023) at ¶ 44. *See also* Morrison and Poli, Post-fledging Movements and Factors that Influence Permanent Departure of Juvenile Crested Caracaras in Florida, *Journal of Raptor Research* 58(2):161–175, at 162–163 (discussing vulnerability of young birds during the post-fledging period between fledging the nest and permanent departure).

[247] 2024 BA at 28.

[248] *Id*. The 2019 guidelines state, "the Service will consider the following evidence indicative that roosting is likely nearby (i.e., reasonably certain to occur) if **ANY** of the following are documented: (a) Florida bonneted bat calls are recorded within 30 minutes before sunset to 1½ hours following sunset or within 1½ hours before sunrise; (b) emergence calls are recorded; (c) human observers see (or hear) Florida bonneted bats flying from or to potential roosts; (d) human observers see and identify Florida bonneted bats within a natural roost or artificial roost; and/or (e) other bat sign (e.g., guano, staining, etc.) is found that is identified to be Florida bonneted bat through additional follow-up. U.S. Fish and Wildlife Service, South Florida Ecological Services Office, Florida Bonneted Bat Consultation Guidelines, October – 2019, available at https://www.fws.gov/sites/default/files/documents/20191023_2019_FBB%20Consultation%20GuidelinesFinal.pdf, at 11 (emphasis in original). The 2024 Revision states: "Active Florida bonneted bat roosting: The appropriate conclusion if ANY of the following occurs: (a) FBB calls are recorded within 1½ hours after sunset or 1½ hours before sunrise; (b) emergence and/or social calls are recorded; (c) human observers see (or hear) FBBs flying from or to potential roosts just after sunset (e.g., within 1½ hour of) or just before sunrise; (d) human observers see and identify FBBs within a natural roost or artificial roost; and/or (e) other bat sign (e.g., guano, staining, etc.) is found that is identified to be FBB through additional follow-up." U.S. Fish and Wildlife Service, South Florida Ecological Services Office, Florida Bonneted Bat Consultation Guidelines 2024 Revision, at 33 (Appendix D), *available at* https://www.fws.gov/sites/default/files/documents/2024-07/20240605_final_fbb-consultation-guidance_0.pdf.

[249] 2024 BA at 40.

[250] 2024 BA at 27, 40.

application states that the project site will encompass approximately 10,148 acres, of which approximately 4,526 acres will be "conservation areas," and based on the figures accompanying the notice, it appears that approximately 4,478 acres of the project site is within the construction footprint.[251] Based on the 2024 Revision to the Consultation Guideline, it appears that absent additional evidence, ESA section 7 consultation with FWS is required based on the acoustic evidence of "active roosting," the size of the potentially affected habitat, and the entire site being located within the "assumed presence polygon."

To comply with its NEPA obligations, the Corps must evaluate the effects of the habitat destruction associated with the Rural Lands West development on the Florida bonneted bat. That analysis should include an assessment of the effects of destroying roost trees. The Service has recognized that preventing destruction of roost trees is critically important to conservation of the species. For example, the Service has previously stated:

- "Suitable natural roost sites in south Florida appear limited, and competition for available tree cavities among native and non-native wildlife may be greater now than historically (see Factor E, Competition for Tree Cavities, final listing rule (78 FR 61004, October 2, 2013); also Belwood 1992, p. 220; Kern, Jr., in litt. 2012; Ludlow, in litt. 2012). Consequently, retaining suitable roost structures (trees and snags with cavities or loose bark) throughout the species' range is fundamental to this species' conservation (Braun de Torrez et al. 2016, p. 240). Specifically, more roost structures may be needed to support dispersing subadult males (Ober et al. 2016, p. 7)."[252]
- "At least 37 percent of the known natural roosts discovered since 2013 are now uninhabitable (due to decay, hurricanes, and other factors) (Braun de Torrez et al. 2020b, entire). Suitable roost sites are a critical resource, are an ongoing need of the species, and may be limiting population growth and distribution in certain situations. The loss of a roost site may represent a greater impact to this species relative to some other bat species (Ober 2012, in litt.)."[253]
- Though "Florida bonneted bats also roost in artificial structures and bat houses…[artificial roosts] are imperfect surrogates for natural roosting habitat …Therefore, natural roosts (i.e., live or dead trees and tree snags, especially longleaf pine, slash pine, bald cypress, and royal palm, taller than 34 ft (10.4 m) in height and

[251] *See* US Army Corps of Engineers Jacksonville District Website, Public Notices, Permit Application No. SAJ-2008-02431 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3910899/.

[252] Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Florida Bonneted Bat, 85 Fed. Reg. 35,510, 35,517 (June 10, 2020). *See also* Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Endangered Florida Bonneted Bat, 89 Fed. Reg. 16,624, 16,644 (Mar. 7, 2024) ("Natural roosting habitat appears to be limiting, and competition for tree cavities is high (see Competition for Tree Cavities under the Factor E discussion in the final listing rule (78 FR 61004, October 2, 2013, p. 61034)). To help conserve the Florida bonneted bat, efforts should be made to retain tall trees, cavity trees, trees with hollows or other decay, and snags wherever possible to protect habitat, reduce competition for suitable roosts, and bolster or expand populations within the species' known range (Angell and Thompson 2015, p. 187; Braun de Torrez et al. 2016, pp. 235, 240; Ober et al. 2016, p. 7).").

[253] 89 Fed. Reg. 16,640 (Mar. 7, 2024).

greater than 7.4 in (19 cm) dbh and having unobstructed space for emergence) are important habitat characteristics for this species."[254]

Furthermore, the recovery outline for the Florida bonneted bat says that survival depends on *preventing further degradation* of occupied habitat *and suitable habitat* and restoring additional habitat within historical range.[255]

To comply with NEPA, the Corps should also consider how the artificial lighting associated with the proposed development will affect Florida bonneted bat habitat on site. In designating critical habitat for the Florida bonneted bat, FWS recognized "excessive alteration of natural lighting" as an "action that would significantly reduce habitat suitability or impact the prey base for the Florida bonneted bat" and therefore be considered in evaluating whether an action is likely to destroy or adversely modify critical habitat.[256] FWS explained:

- "Artificial light aversion has been documented in other species closely related to Florida bonneted bat (i.e., within Molossidae and/or Eumops) (Jung and Kalko 2010, pp. 147–148; Mena et al. 2022, pp. 568–571). Despite increases in research of Florida bonneted bat ecology since the species' listing in 2013, there has been no evidence that Florida bonneted bats exploit artificial light sources, and the highest Florida bonneted bat activity within an urban matrix has been associated with large, dark, open areas with tree cover (Bat Conservation International 2022, p. 18; Ridgley 2023, unpublished data; Ridgley and GambaRios 2023, unpublished data). "
- "Artificial lighting has been demonstrated to also have broadscale negative effects on insects and insect populations (e.g., reduced abundance; altered larval development, reproduction, and other behaviors) (van Grunsven et al. 2020, entire; Boyes et al. 2021, entire; Pennisi 2021, entire), potentially reducing the availability of prey (Mariton et al. 2022, pp. 2, 7) and the quality of foraging habitat for Florida bonneted bats. In addition to effects on foraging habitat, artificial lighting can impact roosting habitat quality because light at emergence is thought to disrupt emergence cues and increase predation risk (or perceived predation risk) at emergence for other open-space-foraging and insectivorous bats (Rydell et al. 1996, pp. 249, 251; Mariton et al. 2022, p. 8)."[257]
- "Artificial lighting can impact roosting habitat quality as light at emergence can disrupt emergence cues and may increase predation risk (or perceived predation risk) for other open space foraging and insectivorous bats (Rydell et al. 1996, pp. 249, 251; Mariton et al. 2022, p. 8). Similarly, lighting can restrict habitat connectivity and fragment foraging areas (Voigt et al. 2020, pp. 197–199). Artificial lighting can also affect the abundance and availability of insects (van Grunsven et al. 2020, entire; Boyes et al. 2021, entire; Pennisi 2021, entire;

[254] 89 Fed. Reg. 16,640 (Mar. 7, 2024).
[255] U.S. FWS (October 2018), Recovery Outline for Florida Bonneted Bat (*Eumpos floridanus*), *available at* https://ecos.fws.gov/docs/recovery_plan/Final%20FLBB%20recovery%20outline.pdf at 3 (emphasis added).
[256] 89 Fed. Reg. 16,625, 16, 653 (Mar. 7, 2024).
[257] 89 Fed. Reg. 16,642 (Mar. 7, 2024).

> Mariton et al. 2022, pp. 2, 7), thereby reducing the quality of foraging habitat for Florida bonneted bats. Thus, at this time, we consider ecological light pollution a potential threat to the Florida bonneted bat and its habitat. Management actions or activities that could ameliorate ecological light pollution include avoiding and minimizing the use of artificial lighting, retaining natural light conditions, and promoting the use of environmentally friendly lighting practices to minimize impacts to wildlife (e.g., Voigt et al. 2018, entire)."[258]

The impacts of roost tree destruction and artificial lighting from the RLW development should also be considered during the ESA section 7 consultation.

IV. The Corps' NEPA Analysis Should Consider Adverse Impacts on Protected Lands and Ecologically Important Areas.

The Corps must assess how the Rural Lands West Development will affect the Camp Keais Stand, a natural, regional cypress slough system that conveys flows from the Corkscrew Swamp and Lake Trafford to the north into the Florida Panther National Wildlife Refuge, the Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, and the Picayune Strand Everglades Restoration project in Picayune Strand State Forest. In assessing whether the effects of a proposal are significant, the Corps must consider the degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.[259] Due to the project location, there are significant concerns that this important flowway and habitat corridor will be negatively impacted, as well as negative impacts to the surrounding federal and state managed lands. The project is within the Camp Keais Strand, a major flowway between the Corkscrew Regional Ecosystem Watershed (CREW) and the Florida Panther National Wildlife Refuge. It is located within an impaired water body, and is upstream of the Outstanding Florida Waters of the Fakahatchee Strand, as well as the Picayune Strand Everglades Restoration project.

In evaluating the effects of the proposal, and the significance of those effects, the Corps must consider how the proposed Rural Lands West Development will affect these neighboring conservation lands and other lands of high ecological importance. For example, the Corps should evaluate the effect of the proposed development's proximity to the conservation lands on management programs on those conservation lands, including prescribed burning, hydrologic restoration, and invasive exotic plant management. The Corps should also consider the effects of the proposed stormwater management on the adjacent conservation lands, and the potential nutrient pollution impacts on the conservation lands. The Corps must evaluate how the fragmentation of wetlands, and impacts to the functional value of wetlands, will degrade water quality, affect surface water sheet flow, and degrade wildlife habitat with regard to these nearby areas.

[258] 89 Fed. Reg. 16, 645 (Mar. 7, 2024).
[259] 40 C.F.R. § 1501.3(d)(2)(ii) (effective July 1, 2024).

V. The Corps Should Deny the Rural Lands West Application.

A. The Rural Lands West Proposal is Contrary to the Public Interest.

When evaluating a permit application, the Corps must evaluate the probable impacts of the proposed activity and its intended use on the public interest.[260] This public interest review requires weighing all relevant factors in a general balancing process, including conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, energy needs, safety, and the broader "needs and welfare of the people."[261] The Corps must deny a permit application if it is "contrary to the public interest."[262] To perform this public interest review, the permit application must contain a complete description of the proposed activity, including information on the location, purpose, and need for the activity.[263] The Corps must consider the applicant's stated purpose and need for the proposed project, as well as the "underlying purpose and need from a public interest perspective" when conducting its public interest review.[264] Then the Corps evaluates the following general criteria: (1) The relative extent of the public and private need for the proposed structure or work; (2) Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work; and (3) The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited."[265] The weight of each criterion is "determined by its importance and relevance to the particular proposal."[266]

Here, based on the information currently available to the public, the public interest factors weigh against the Rural Lands West Development. The Corps has defined two stated purposes: a "basic purpose," which is "[c]onstruction of a mixed-use community" and an "overall purpose," which is "construction of a master-planned, mixed-use community within eastern Collier County."[267] As a preliminary matter, the "relative extent of the public and private need for the proposed work" is low, as "the housing supply on the west coast of Florida is surging" due to an "influx of new homes."[268] Indeed, this factor "is rising at a faster rate in

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[260] 33 C.F.R. § 320.4(a)(1).
[261] *Id.*
[262] *Id.*
[263] *Id.* § 325.1(d).
[264] *Id.* Pt. 325, App. B, §§ (9)(b)(4). The Corps "will in all cases, exercise independent judgment in defining the purpose and need for the project from both the applicant's and the public's perspective." *Id.*
[265] *Id.* § 320.4(a)(2).
[266] *Id.* § 320.4(a)(3).
[267] US Army Corps of Engineers Jacksonville District Website, Public Notices, Permit Application No. SAJ-2008-02431 (SP-MAO) https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3910899/.
[268] Sydney Lake, *Now might be the time to move to Florida as inventory levels surge and sellers slash prices*, Fortune, Apr. 25, 2024, https://fortune.com/2024/04/25/florida-inventory-levels-home-prices-redfin-report/?_ptid=%7Bkpdx%7DAAAAAzr-RscLygQoKY2ZRajJmTTN6ahIQbHc%E2%80%A6 [Attached-DVD].

western Florida than anywhere else in the U.S."[269] Data analysts have described Florida as "'the epicenter' of a mismatch between supply and demand," with two of the top five Florida markets with the greatest supply and demand divergence in southwest Florida.[270]

On the other hand, the detrimental effects on the public interest are extensive and irreversible. As described above, the available analysis suggests that the Rural Lands West Development in combination with other reasonably foreseeable development will have significant adverse cumulative impacts on the survival and recovery of the Florida panther from habitat destruction and degradation, and from attracting drivers into Florida panther habitat, resulting in increased traffic and associated vehicle collision deaths.[271]

The Corps' regulations state that "the unnecessary alteration or destruction of [wetlands] should be discouraged as contrary to the public interest."[272] Wetlands considered to perform functions important to the public interest include, but are not limited to: (1) "Wetlands which serve significant natural biological functions, including food chain production, general habitat and nesting, spawning, rearing and resting sites for aquatic or land species"; (2) "Wetlands set aside for study of the aquatic environment or as sanctuaries or refuges"; (3) "Wetlands the destruction of alteration of which would affect detrimentally natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics"; (4) "Wetlands which serve as valuable storage areas for storm and flood waters"; (5) "Wetlands which serve significant water purification functions"; and (6) "Wetlands which are unique in nature or scarce in quantity to the region or local area."[273] The regulations further provide that "[n]o permit will be granted which involves the alteration of wetlands identified as important by paragraph (b)(2) of this section . . . unless the district engineer concludes . . . that the benefits of the proposed alteration outweigh the damage to the wetlands resource."[274] Courts have upheld permit denials based on findings that wetlands were important within the meaning of 33 C.F.R. § 320.4(b)(2).[275]

Here, the wetlands within the Rural Lands West site provide habitat for imperiled species like the Florida panther, crested caracara, and bonneted bat.

Further, as discussed above, the project's footprint for intensified development lies within significant regional wetlands. Impacts to wetlands and water resources include potential changes to flowways, hydro periods, and water quality, as well as loss of seasonally-flooded lands that provide important wildlife habitat and floodplain protection. The development site is located

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[269] *Id.*

[270] Giulia Carbonaro, *Florida Housing Market 'at Risk' in 13 Different Cities*, US News Reporter, Jul. 1, 2024, https://www.newsweek.com/florida-housing-market-risk-13-different-cities-1919331 [Attached-DVD].

[271] Notably, even if the Service concludes that the proposal is not likely to cause jeopardy under the ESA and applicable ESA-implementing regulations, the Corps should nonetheless consider whether the reasonably foreseeable and substantial adverse impacts on wildlife from the proposal, alone or cumulatively with other reasonably foreseeable development, outweigh the benefits of the proposal, thereby warranting denial of the permit as contrary to the public interest. *See* 33 C.F.R. § 320.4.

[272] 33 C.F.R. 320.4(b)(1).

[273] *Id.* 320.4(b)(2)(i)-(viii).

[274] 33 C.F.R. § 320.4(b)(4).

[275] *See, e.g., Shoreline Assoc. v. Marsh*, 555 F.Supp. 169, 179 (4th Cir. 1984).

within the Camp Keais Stand, a natural, regional cypress slough system that conveys flows from the Corkscrew Swamp and Lake Trafford to the north into the Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, and the Picayune Strand Everglades Restoration project to the south. Due to the project location, there are significant concerns that this important flowway and habitat corridor will be negatively impacted, as well as negative impacts to the surrounding federal and state managed lands.

For the above-described reasons, the permit appears to be contrary to the public interest and should be denied.

B. The Corps Must Deny a Permit Absent Compliance with the 404(b)(1) Guideline Requirements to Avoid, Minimize, and Select the Least Environmentally Damaging Practicable Alternative.

Under the Clean Water Act the Corps has the responsibility of evaluating permit applications for the discharge of fill into waters of the United States. The CWA gave the EPA the task of developing the 404 (b)(1) Guidelines (Guidelines) with the specific goal of providing the environmental criteria and framework by which the Corps evaluates dredge and fill applications. The Guidelines state that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern."[276] Furthermore, "from a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by these Guidelines. The guiding principle should be that degradation or destruction of special sites may represent an irreversible loss of valuable aquatic resources."[277]

For special aquatic sites such as wetlands, however, the Guidelines propose a more difficult test for avoidance with two presumptions. For proposed discharges to special aquatic sites there is a presumption that an alternative site that is not a special aquatic site exists and a presumption that such a site will result in less adverse environmental impacts on the aquatic ecosystem. These rebuttable presumptions clarify how to determine if discharges proposed for special aquatic sites meet the requirement that the practicable alternatives have less significant adverse impact on the environment and do not have other significant environmental impacts.[278]

First, the Corps should not permit the discharge of dredged and fill material where "there is a practicable alternative to the proposed discharge [that] would have less adverse impact on the aquatic ecosystem" and fewer "significant adverse environmental consequences." 40 C.F.R. § 230.10(a). Under the 404(b)(1) guidelines, practicable alternatives can include "[a]ctivities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters" and "[d]ischarges of dredged or fill material at other locations in waters of the United States." *Id.* § 230.10(a)(1)(i). In considering alternatives, the Corps may consider practicable alternatives in "an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity." *Id.* § 230.10(a)(2).

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[276] 40 C.F.R. § 230.1(c).
[277] *Id.* § 230.1(d).
[278] *Id.* §§ 230.10(a)(3); 230.5.

Because this discharge in furtherance of constructing a mixed-use development is "proposed for a special aquatic site"—wetlands—and "does not require access or proximity to or siting within the special aquatic site to fulfill its basic purpose (i.e., is not 'water dependent'), practicable alternatives that do not involve special aquatic sites *are presumed* to be available, unless clearly demonstrated otherwise." *Id.* § 230.10(a)(3) (emphasis added). It is the burden of the applicant and the Corps to overcome this presumption.

Furthermore, "[n]o discharge of dredged or fill material shall be permitted if it . . . [j]eopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act . . . or results in likelihood of the destruction or adverse modification of a [critical] habitat." *Id.* § 230.10 (b)(3). While the Corps must complete formal ESA consultation on this action, the Corps cannot lawfully rely on defective determinations from the Service to satisfy its ESA obligation to ensure against jeopardy. As detailed above, the Service's recent analyses for other projects affecting Florida panthers and crested caracaras have suffered from failures to rationally consider the best available scientific information, and other errors. Similarly defective analysis cannot support a lawful conclusion that the action will not be likely to cause jeopardy nor result in destruction or adverse modification of critical habitat.

Furthermore, "no discharge of dredged or fill material shall be permitted" where the applicant has failed to take "appropriate and practicable steps . . . which will minimize potential adverse impacts of the discharge on the aquatic ecosystem." *Id.* § 230.10(d). For actions affecting plant and animal populations, "minimization" can be achieved by, inter alia, … "avoiding sites having unique habitat or other value, including habitat of threatened or endangered species" and habitat restoration.[279] As detailed above, rather than avoid Florida panther habitat, the proposal seemingly will result in net loss of Florida panther habitat, resulting in reduced carrying capacity for the species and impacts to north-south connectivity, as the proposed mitigation is primarily to "protect" other existing habitat, and there does not appear to be information demonstrating that net loss will be avoided, nor that impacts to habitat connectivity will be avoided.

Finally, in evaluating the extent to which the proposed mitigation reduces adverse effects, the Corps' analysis must consider how the increased human-disturbance and traffic-increasing effects of the Rural Lands West Development undermine the value of the proposed habitat preservation. Specifically, the Corps' analysis should evaluate how the value of the proposed habitat preservation at the Rural Lands West site is reduced by the reasonably foreseeable reality that the increased traffic drawn to the vicinity of that habit will increase vehicle collision deaths for panthers utilizing that habitat, or otherwise undermine the use of the area by panthers.[280] And the analysis should consider how increased human presence and disturbance due to the developments will affect the value of the preserved areas to panthers. Similarly, in evaluating the effectiveness of any offsite mitigation, the Corps should consider how reasonably foreseeable effects from increased traffic and human disturbance will affect the value of the offsite habitat to panthers. And, for the reasons detailed above, the Corps should consider the inadequacy of the proposed mitigation for impacts to Florida crested caracara. Even with the proposed mitigation, likely effects include permanent loss of reproductive capacity for at least two breeding pairs.

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[279] 40 C.F.R. § 230.75(c)–(d).

[280] *Cf. Bersani v. U.S. E.P.A.*, 674 F.Supp. 405, 420 (N.D. NY 1987) (upholding EPA veto where record supporting decision included evaluation of how use of site for mall would undermine proposed onsite habitat creation by impairing resettlement of species).

REQUEST FOR PUBLIC HEARING AND ADDITIONAL OPPORTUNITIES FOR PUBLIC PARTICIPATION

Our organizations request that the Corps hold a public hearing regarding this application. There is substantial public interest in the community regarding the cumulative impacts of the developments encompassed by the formerly proposed Eastern Collier Property Owners HCP, which includes the Rural Lands West Development. As explained above, the available information indicates that the cumulative effects of those former ECPO HCP developments would result in significant adverse effects to the survival and recovery of the Florida panther. The public should have the opportunity to weigh in on environmental impacts to the area and the public interest factors that the Corps must consider.

Furthermore, our organizations request that the Corps provide additional opportunities for public participation. Specifically, to the extent that the Corps decides to prepare an Environmental Assessment for its decision, we request that the Corps make its draft Environmental Assessment available and provide opportunities for public comment on that draft.

CONCLUSION

As detailed above, the available information indicates that the proposed Rural Lands West Development will have significant adverse environmental effects, including significant adverse effects on the Florida panther, that should be examined in an EIS. Furthermore, based on the available information about the significant individual and cumulative adverse effects on the Florida panther, and adverse effects on other species, the Corps should deny the permit as contrary to the public interest.

If you have any questions about these comments, please contact Sierra Club, the Center for Biological Diversity, and the Conservancy of Southwest Florida at the email addresses or phone numbers provided below.

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ATTACHMENTS

LIST OF CITED MATERIALS INCLUDED ON DVD

- US Army Corps of Engineers Jacksonville District Website, Public Notices, Permit Application No. SAJ-2008-02431 (SP-MAO)
- Email message from Michael Ornella, US Army Corps of Engineers, to Karimah Schoenhut, Sierra Club (Sept. 24, 2024)
- Declaration of Robert Frakes (Dec. 1, 2023)
- Kautz R, Kawula R, Hoctor T, Comiskey J, Jansen D, Jennings D, Kasbohm J, Mazzzotti F, McBride R, Richardson L, Root K (2006) How much is enough? Landscape-scale conservation for the Florida panther. Biol Conserv 130:118–133
- Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044. https://doi.org/10.1371/journal.pone.0133044
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- USFWS. 2020. Species Status Assessment for the Florida Panther. Version 1.0 September, 2020. Vero Beach, Florida, at v, 76, 88, 93 ("Draft SSA")
- Letter submitted to FWS by the Center, Sierra Club, and the Conservancy of Southwest Florida Re: Request for Reevaluation of the Species Status Assessment for the Florida Panther (November 17, 2021)
- Onorato, D.P., Cunningham, M.W., Lotz, M. *et al.* Multi-generational benefits of genetic rescue. *Sci Rep* **14**, 17519 (2024). https://doi.org/10.1038/s41598-024-67033-6
- Kingston FWS Technical Assistance Form, Oct. 26, 2023
- McClintock, B. T., D. P. Onorato, and J. Martin. 2015. Endangered Florida panther population size determined from public reports of motor vehicle collision mortalities. Journal of Applied Ecology 52:893–901
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- U.S. FWS, Panther Habitat Assessment Methodology, September 24, 2012 *available at* https://ipac.ecosphere.fws.gov/guideline/assessment/population/8/office/41420.pdf
- Trebilcock Consulting Solutions, Combined Rural Lands West/ Bellmar Traffic Analysis – December 7, 2022

- U.S. Fish & Wildlife Service, East Collier Multi-Species ITP/HCP Withdrawal, (posted Sept. 1, 2022) https://www.fws.gov/library/collections/east-collier-multi-species-itphcp-withdrawal (last accessed Sept. 9, 2022)
- Eastern Collier Property Owners Letter to USFWS dated 07/28/2022 Withdrawing their Incidental Take Permit applications, *available at* https://www.fws.gov/media/eastern-collier-property-owners-letter-usfws-dated-07282022-withdrawing-their-incidental-take
- US FWS, Biological Opinion and Conference Opinion, Eastern Collier Multi-Species Habitat Conservation Plan (2020) (filename "20201229_draft BO-CO-ECMHCP_for ECPO.pdf")
- US FWS, Biological Opinion and Conference Opinion Eastern Collier Multi-Species Habitat Conservation Plan (2021) (filename DRAFT-USFWS-ECPO-full-Biological-Opinion-December-2021.pdf)
- "ECPO's High-Level Comments on Draft BO," transmitted to Robert Tawes Chief, Environmental Review Division, U.S. Fish and Wildlife Service, Southeast Region by Bruce Johnson, Principal, Senior Scientist, Stantec Consulting Services, as attachment to letter dated February 24, 2021. (Obtained from FWS via FOIA)
- Email from Leopoldo Miranda, Regional Director, FWS, to Jack Arnold, Acting Assistant Regional Director, FWS, regarding a Revised ECPO Information Memorandum (June 5, 2019)
- Comments from Center for Biological Diversity, Conservancy of Southwest Florida, and Sierra Club, Re: Bellmar Development Application (Collier County) and Public Notice, #396364-001, (Sept. 15, 2022)
- Passarella & Associates, Inc., Rural Lands West Biological Assessment (April 2024), prepared for Collier Enterprises (obtained by Conservancy of Southwest Florida via a FOIA request)
- 2023 Sierra Club and CBD Comment Letter re Bellmar
- Center for Biological Diversity, Sierra Club, Conservancy of Southwest Florida, and NRDC**,** Public Comments to FWS on Draft Environmental Impact Statement for Eastern Collier County Multiple Species Habitat Conservation Plan (Dec. 3, 2018)
- Florida Fish and Wildlife Conservation Commission. 2020. Annual report on the research and management of Florida panthers: 2019-2020. Fish and Wildlife Research Institute & Division of Habitat and Species Conservation, Naples, Florida, USA, p. 13
- US FWS, Bellmar Technical Assistance Form (Oct. 31. 2023)
- Frakes, Robert, IMPACTS TO PANTHER HABITAT FROM THE PROPOSED EASTERN COLLIER MULTIPLE SPECIES HABITAT CONSERVATION PLAN: A QUANTITATIVE ANALYSIS (October 7, 2018)
- Frakes, Robert, Letter to Amber Crooks (November 28, 2018)
- US Army Corps of Engineers Jacksonville District Website, Public Notices, Bellmar Mixed-Use Development, Permit Application No. SAJ-2024-01593 (SP-MAO),

https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3928688/saj-2024-01593-sp-mao/
- US Army Corps of Engineers Jacksonville District Website, Public Notices, Brightshore Village Mixed-Use Development Clean Water Act Section 404 Permit Application SAJ-2024-00966 (SP-MAO), https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3831959/saj-2024-00966sp-mao/
- US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3808962/saj-2024-00967-sp-sjf/ (Kingston CWA 404 application notice)
- US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3924391/saj-2008-03827-sp-lmg/ (Permit Application No. SAJ-2008-03827(SP-LMG) for FFD Corkscrew Road Property Project CWA 404 application notice)
- US Army Corps of Engineers Jacksonville District Website, Public Notices, https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/3869635/saj-2024-01216-sp-rwf/ (Immokalee Road Rural Village, Brentwood Holdings Limited Partnership, 27th Pico Blvd Limited Partnership), #SAJ-2024-01216 (SP-RWF)
- Conservancy of Southwest Florida, Comments RE: Immokalee Road Rural Village (Brentwood Holdings Limited Partnership, 27th Pico Blvd Limited Partnership), #SAJ-2024-01216 (SP-RWF) (Aug. 31, 2024).
- Riley, Patrick, "Collier commissioners approve 642-acre rural village near Golden Gate Estates," Naples Daily News (June 9, 2020), https://www.naplesnews.com/story/news/government/2020/06/09/collier-commissioners-approve-642-acre-rural-village-near-golden-gate-estates/5318652002/
- Hyde Park Village, https://hydeparkvillagenaples.com/
- Florida Fish and Wildlife Conservation Commission (FWC), Wildlife Conservation, Florida Panther Program, Description of Range, https://myfwc.com/wildlifehabitats/wildlife/panther/description/#:~:text=Today%20only%20about%20120%2D230,Florida%2C%20below%20the%20Caloosahatchee%20River (last accessed Jan. 14, 2024)
- Joan Morrison Report (Oct. 12, 2024)
- Joan Morrison Declaration (Dec. 1, 2023)
- Materials Cited in Joan Morrison Report and Declaration
- Joan Morrison and Caroline Poli, Post-fledging Movements and Factors that Influence Permanent Departure of Juvenile Crested Caracaras in Florida, Journal of Raptor Research 58(2):161–175, at 167 available at https://doi.org/10.3356/JRR-23-48.
- U.S. Fish and Wildlife Service, South Florida Ecological Services Office, Florida Bonneted Bat Consultation Guidelines, October – 2019, available at

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- Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Florida Bonneted Bat, 85 Fed. Reg. 35,510 (June 10, 2020)
- Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Endangered Florida Bonneted Bat, 89 Fed. Reg. 16,624 (Mar. 7, 2024)
- U.S. FWS (October 2018), Recovery Outline for Florida Bonneted Bat (Eumpos floridanus), available at https://ecos.fws.gov/docs/recovery_plan/Final%20FLBB%20recovery%20outline.pdf
- Sydney Lake, *Now might be the time to move to Florida as inventory levels surge and sellers slash prices*, Fortune, Apr. 25, 2024, https://fortune.com/2024/04/25/florida-inventory-levels-home-prices-redfin-report/?_ptid=%7Bkpdx%7DAAAAzr-RscLygQoKY2ZRajJmTTN6ahIQbHc%E2%80%A6
- Giulia Carbonaro, *Florida Housing Market 'at Risk' in 13 Different Cities*, US News Reporter, Jul. 1, 2024, https://www.newsweek.com/florida-housing-market-risk-13-different-cities-1919331
- Conservancy of Southwest Florida, Comments to U.S. Army Corps of Engineers and FWS re SAJ-2008-00210 (SP-RMT) Rural Lands West (FKA Town of Big Cypress) (Feb. 2, 2018)

Karimah Schoenhut <karimah.schoenhut@sierraclub.org>

Question re submitting comments on App. No. SAJ-2008-02431(SP-MAO)

Ornella, Michael A II CIV USARMY CESAJ (USA) <Michael.A.Ornella2@usace.army.mil> Tue, Sep 24, 2024 at 11:36 AM
To: Karimah Schoenhut <karimah.schoenhut@sierraclub.org>
Cc: Cris Costello <cris.costello@sierraclub.org>, Michael McGrath <michael.mcgrath@sierraclub.org>, Amber Crooks <amberc@conservancy.org>

Hi Karimah,

I have talked with some people and we believe CD/DVD(s) would be the best course of action for a large file transfer.

Let me know if you need any help. Be advised that I am in Jacksonville, so it should be sent to our office here.

Mike

From: Karimah Schoenhut <karimah.schoenhut@sierraclub.org>
Sent: Monday, September 23, 2024 2:17 PM
To: Ornella, Michael A II CIV USARMY CESAJ (USA) <Michael.A.Ornella2@usace.army.mil>
Cc: Cris Costello <cris.costello@sierraclub.org>; Michael McGrath <michael.mcgrath@sierraclub.org>
Subject: [Non-DoD Source] Question re submitting comments on App. No. SAJ-2008-02431(SP-MAO)

Dear Mr. Ornella,

I'm writing on behalf of the Sierra Club to ask whether the Corps will accept supporting materials for substantive comments that are submitted on a DVD or CD. I anticipate submitting extensive supporting materials such as scientific articles that will be cited in the substantive comments of the Sierra Club regarding permit application No. SAJ-2008-02431(SP-MAO). Since this may represent hundreds or possibly thousands of pages of printed materials, I'm hoping you can clarify whether they must be submitted as paper hard copies, or if alternatives such as submitting them copied onto a DVD/CD would be acceptable to the Corps.

With thanks,

Karimah

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Karimah Schoenhut
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Sierra Club Environmental Law Program

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Phone: 202-548-4584 Call direct at 301-732-2176

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[Quoted text hidden]

ROBERT FRAKES DECLARATION (DEC. 1, 2023)

MAIN TEXT ONLY – FULL DECLARATION INCLUDING ALL ATTACHMENTS IS ON DVD

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

CENTER FOR BIOLOGICAL DIVERSITY, et al.,

Plaintiffs,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY, et al.,

Defendants.

CASE NO. 1:21-cv-00119 (RDM)

DECLARATION OF ROBERT FRAKES, PH.D.

I, Robert Frakes, Ph.D., make the following declaration:

1. I am a resident of Fort Pierce, Florida.

2. I have been retained by the Center for Biological Diversity to provide my professional opinion regarding matters in this case. I exercised my own independent, scientific judgment when providing my opinion.

3. The facts set forth in this declaration are based on my personal and professional knowledge and if called as a witness, I could and would competently testify to these facts under oath. As to those matters that reflect a matter of opinion, they reflect my professional opinion and judgment upon the matter.

4. I earned a B.S. from the University of Cincinnati in Biology, an M.S. in Zoology (Animal Ecology) from Washington State University, and a Ph.D. in Environmental Toxicology from Utah State University. A Curriculum Vitae listing my publications and professional experience is attached to this declaration as Attachment A.

5. I have training in ecology, zoology, and environmental toxicology. Ecotoxicology involves a lot of modeling with a focus on environmental conditions and the food chain.

6. I began my career in 1986 as the State Toxicologist for the State of Maine (7 years). Following that, I served as a Supervisory Fish and Wildlife Biologist for the U.S. Fish & Wildlife Service (FWS) New Jersey Field Office (5 years) and later became the Deputy Refuge Manager for the Florida Keys National Wildlife Refuge (2 years). After my time at the Refuge, I was employed as a Supervisory Ecologist by the FWS South Florida Ecological Services Office for 14 years before I retired in 2014. After retiring, I have done freelance work as a consultant for conservation organizations. I have also trained a graduate student on an adult panther habitat model that myself and a colleague developed so she could research the impact of solar facilities on Florida panther habitat and intend to participate on her graduate committee.

7. In my role as the Supervisory Ecologist in the South Florida Ecological Services Office in Vero Beach, Florida, I developed food chain and habitat models for endangered species, including the Florida panther.

8. I began working on Florida panther regulatory issues around 2002 when the FWS first began working on developing an assessment tool for habitat compensation. I was invited to assist with the panther habitat assessment because of my skills with statistics and modeling. I worked on panther issues while also supervising the Environmental Contaminants Program and working on the Comprehensive Everglades Restoration Plan and wetland restoration. Although I have worked with several listed species, I moved towards working on panthers nearly full-time in 2010. I gained knowledge about the species through modeling, literature review, and working closely with panther experts. The team included those who focused on field work studying Florida panthers, Endangered Species biologists, GIS specialists, a hydrologist, and biologists

interested in species distribution modeling. I established and chaired a modeling team that included representatives from the Florida FWS offices.

9. During 2003 to 2006, I worked with a team assigned to develop the Florida Panther Habitat Assessment Methodology. The intent of this effort was to develop a consistent regulatory approach for assessing impacts for proposed projects in panther habitat and determining acceptable compensation ratios when losses could not be avoided. The methodology included assumptions based on available panther science at the time and took into account the amount of total panther habitat remaining, the amount at-risk (in private lands), and the amount conserved (protected) in the Primary and Secondary Zones. The methodology was supposed to be updated every two years, as panther science and the amount of habitat at-risk and amount conserved is constantly changing. Unfortunately, the FWS has not updated the acres of at risk and conserved lands since 2003, despite those factors being critical to the calculation of compensation ratios.

10. I have informed the FWS managers on multiple occasions that the methodology was flawed, outdated, and not consistent with the best science. The flawed habitat assessment methodology remains essentially unchanged. It is still used and distributed by the FWS today. This same methodology was used to calculate compensation for habitat losses due to the Bellmar and other development projects.

11. In order to better identify and prioritize panther habitat, my colleagues and I developed a Random Forest adult panther habitat model, which was the basis of a co-authored, peer-reviewed article titled "Landscape Analysis of Adult Florida Panther Habitat" (Frakes et al.

2015) published in 2015.[1] Using radio-collar data from 87 adult panthers taken from 2004 through 2013, we analyzed the characteristics of the occupied area and used those attributes to model a predictive distribution map for resident breeding panthers in southern Florida. This model was 87.5 % accurate in predicting presence or absence of panthers in the 16,678 km^2 study area. Our analysis indicated that the amount of forests and forest edge, hydrology, and human population density were the most important factors determining presence or absence of panthers. Presence of human populations, roads, and agriculture (other than pasture) had strong negative effects on the probability of panther presence. Forest cover and forest edge had strong positive effects. This is because panthers can use forest edge habitat to ambush prey like deer. Panthers' preference for edge habitat is about availability of prey and ability to capture that prey. Edge habitat is conducive to higher amounts of prey (deer, and to some extent hogs, tend to prefer open fields next to forests) and provides panthers cover that increases their success as ambush-style predators.

12. Using the model, we identified 5579 km^2 of suitable breeding habitat remaining in southern Florida. Because there is less panther habitat remaining than previously thought, we recommended that all remaining breeding habitat in south Florida should be maintained, and the current panther range should be expanded into south-central Florida. Our model is useful for evaluating the impacts of future development projects, in prioritizing areas for panther conservation, and in evaluating the potential impacts of sea-level rise and changes in hydrology.

13. The FWS has relied extensively on our models in a draft species status assessment for the Florida panther that was released in 2020. My model is also being used to help prioritize

[1] Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044. https://doi.org/10.1371/journal.pone.0133044.

areas for the Florida Wildlife Corridor and was the basis for a study at Florida Atlantic University on the impacts of large solar facilities on habitat connectivity.

14. In addition to the model, I have published peer-reviewed articles and reports relating to Florida panther conservation. A focus of my work has been predicting the impacts of habitat destruction in southwest Florida on the Florida panther's survival and recovery.

15. In 2018, I authored a publicly available report[2] that assessed the habitat impacts from proposed residential and mining developments across approximately 45,000 acres within the Florida panther's current occupied range in eastern Collier County, including the proposed Bellmar and Rural Lands West developments. I used the previously published model (Frakes et al. 2015) to predict how adult panther breeding habitat and habitat connectivity within the study area would be impacted by the proposed developments. My study predicted substantial losses of adult panther breeding habitat in terms of both habitat quantity (areal extent) and quality. The model also predicted damage to north-south panther corridors via narrowing of these important linkages that allow panthers to move to and from habitat areas north of the core breeding range, which is critical to the FWS's panther recovery goals. The report concluded that the cumulative effect of approving these proposed developments in the region would appreciably reduce the likelihood of survival and recovery of the Florida panther.

16. In 2021, I co-authored another peer-reviewed article titled "Location and extent of unoccupied panther (*Puma concolor coryi*) habitat in Florida: Opportunities for recovery."[3] In that study, we estimated the amount and location of breeding panther habitat still remaining in

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[2] Frakes, R. A. (2018). Impacts to panther habitat from the proposed eastern collier multiple species habitat conservation plan: A quantitative analysis. Report.

[3] Frakes, R. A., & Knight, M. L. (2021). Location and extent of unoccupied panther (*Puma concolor coryi*) habitat in Florida: Opportunities for recovery. *Global Ecology and Conservation*, 26, e01516.

Florida using a modified version of a published Random Forest habitat model. We found that a large proportion of the state (41%) is still suitable panther habitat. Most of this habitat is concentrated in the Panhandle, Big Bend region, and northern third of the peninsula, although there are also smaller islands of habitat in central Florida, in addition to the occupied range in south Florida. However, due to existing impediments to dispersal and anticipated rapid development in Florida, all of these areas except for the core breeding range in southwest Florida have remained unoccupied by panther populations, and natural recolonization of unoccupied habitat in north Florida seems unlikely.

17. In 2022, I co-authored another peer-reviewed article titled, "Impacting habitat connectivity of the endangered Florida panther in the transition to utility-scale solar energy."[4] In the study, we assessed the impact that rapidly increasing utility-scale solar energy facility installations have on Florida panther habitat and dispersal corridors. We compared Florida panther habitat suitability and connectivity pre- and post-installation of 45 solar facilities within Peninsular Florida using models to predict probability of panther presence and movement probability between the areas of suitable habitat. Our findings suggest a substantial bias in the locating of solar facilities within rural and undeveloped lands that may provide connectivity for Florida panther dispersal to habitat suitable for population establishment. We recommended that facility siting should consider landscape-scale connectivity in addition to environmental impacts within the footprint of new facilities because protection and restoration of dispersal corridors and gene flow throughout peninsular Florida is critical to the Florida panther.

[4] O.V. Leskova, R.A. Frakes, S.H. Markwith, Impacting habitat connectivity of the endangered Florida panther for the transition to utility-scale solar energy, *J. Appl. Ecol.*, 59 (3) (2022), pp. 822–834, 10.1111/1365-2664.14098.

18. While completing all of the work described above, I became knowledgeable about the Florida panther's life history and its threats. The Florida panther has been listed as endangered since 1967. The current official population estimate from Florida Fish and Wildlife Conservation Commission (FWC) is 120–230 adult and subadult panthers. The FWS has used this estimate in its 2020 species status assessment for the Florida panther.[5]

19. The Florida panther once ranged across the southeastern United States, including in Alabama, Arkansas, Georgia, Florida, Louisiana, Mississippi, and parts of Tennessee and South Carolina. Now the only remaining breeding population of panthers is largely confined to a small fraction of that range south of the Caloosahatchee River in southwest Florida. Individual panthers have very large home ranges. Male panthers may occupy a home range of 500 km^2 or more. Female home ranges are smaller.

20. Threats to the panther include habitat loss from development, roads, and traffic, which threaten panthers' ability to move north by closing off habitat corridors panthers could use. Panthers are often hit and killed by vehicles when crossing roads. Other threats include disease, sea level rise, and intraspecific aggression. Another threat to the panther's recovery is lack of human acceptance for sharing the landscape with a predator.

21. I am very familiar with the FWS's Recovery Plan for the Florida panther.[6] The recovery strategy for the Florida panther is to maintain, restore, and expand the panther population and its habitat in south Florida, expand its population into south-central Florida,

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[5] USFWS. 2020. Species Status Assessment for the Florida Panther. Version 1.0 September, 2020. Vero Beach, Florida, at 76, 87 (available at https://www.researchgate.net/publication/355080952_Species_Status_Assessment_for_the_Florida_Panther).

[6] U.S. Fish and Wildlife Service. 2008. Florida Panther Recovery Plan (*Puma concolor coryi*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 217pp.

establish at least two additional viable populations within the historic range outside of south and south-central Florida, and facilitate panther recovery through public awareness and education. The panther depends upon habitat of sufficient quantity, quality, and spatial configuration for long-term persistence. Therefore, the plan is built upon habitat conservation and reducing habitat-related and other threats.

22. One of the objectives of the Recovery Plan is to maintain, restore, and expand the panther population and its habitat in south Florida and expand the breeding portion of the population in south Florida to areas north of the Caloosahatchee River. The Recovery Plan calls for three self-sustaining, interconnected populations of 240 adult panthers for the species to be considered fully recovered. This goal was established based on population viability analyses that suggest at least 240 panthers are required for genetic health and long-term viability of a population. These populations would also need sufficient habitat to support them, as well as habitat corridors to facilitate movement between populations to maintain natural genetic flow.

23. The only existing population in south Florida (120–230 adults and subadults) is probably not genetically viable in the long-term, so further habitat losses are not acceptable. That has been stated in several peer-reviewed publications.[7] If there are any losses, the biological function of the habitat lost must be replaced. Preserving existing habitat does not replace the

[7] Kautz R, Kawula R, Hoctor T, Comiskey J, Jansen D, Jennings D, Kasbohm J, Mazzzotti F, McBride R, Richardson L, Root K (2006) How much is enough? Landscape-scale conservation for the Florida panther. Biol Conserv 130:118–133; Frakes RA, Belden RC, Wood BE, James FE (2015) Landscape Analysis of Adult Florida Panther Habitat. PLoS ONE 10(7): e0133044. https://doi.org/10.1371/journal.pone.0133044; Root, K.V., 2004. Using models to guide recovery efforts for the Florida panther. In: Akc¸akaya, H.R., Burgman, M., Kindvall, O.,Wood, C.C., Sjogren-Gulve, P., Hatfield, J., McCarthy, M. (Eds.),Species Conservation and Management: Case Studies. OxfordUniversity Press, New York, NY, USA, pp. 491–504.

function that was lost. Rather, new habitat must be acquired, restored, and protected to replace the lost function.

24. While hypothetically developing 500 acres and preserving another 500 acres may be acceptable for species that have abundant habitat, this is not viable for panthers. I have not seen any scientific publication that has stated Florida panthers can afford to lose more habitat.

25. The Recovery Plan also recognizes the need to establish populations outside of the Florida panther's current range. The Florida panther is restricted to less than 5% of its historic range in one breeding population located in southern Florida. As panther habitat in south Florida continues to be reduced and fragmented by residential development and sea level rise, the only pathway to recovery is to re-establish panthers in unoccupied habitat in North Florida and other parts of their historical range. This will require maintaining corridors for panthers to disperse northward and may require decades for female panthers to colonize these areas to the north. This will require panthers to move through Central Florida, which is the idea of the Florida Wildlife Corridor. There is adequate habitat available in north Florida and in the panhandle to establish a viable population and contribute to recovery of the species. If natural dispersal to unoccupied habitat does not occur due to barriers such as roads and development, panther recovery will likely require active reintroduction.

26. Protecting breeding habitat in southwest Florida is important because this is the only breeding population left. This population would be the source of recovery for the entire state. Without the population in southwest Florida, there is no hope for recovery. Accordingly, there is no real room for habitat loss in south Florida for the species until panthers are successfully established and populations are secured in north Florida or elsewhere in its historic range.

27. In other words, until the FWS and the FWC are ready to reestablish panthers elsewhere and secure their persistence in the long-term, the land in southwest Florida is all there is for the species.

28. There are several terms that are used to classify Florida panther habitat in southwest Florida. "Primary Zone" and "Secondary Zone" habitat are terms developed by the FWS's Panther Recovery Team and published by Kautz et al. in 2006. Primary Zone habitat is considered to be essential to the Florida panther's survival, while Secondary Zone habitat is near the Primary Zone that is used by panthers and could be used for population expansion and connectivity. These zones are primarily based on radio-telemetry data for resident panthers, dispersing panthers, and immature panthers considered together.

29. Adult or breeding habitat refers to areas predicted by the Random Forest model that panthers would use for establishing home ranges and reproducing. The model predictions are based on radio-telemetry data for adult (breeding) panthers with established home ranges only.

30. The Primary Zone and breeding habitat do not overlap perfectly. Some areas of Primary Zone are not included as breeding habitat, which means the total area of habitat identified as Primary Zone is a bit larger than the area identified as breeding habitat.

Opinion Regarding the Bellmar Project

31. The Bellmar development project (Bellmar) is one of several residential and commercial developments planned within or near the core breeding range for the Florida panther. I understand that Bellmar is now under consideration for imminent permitting under the state Clean Water Act 404 permitting program challenged in this case and has been reviewed by the FWS through technical assistance.

32. I have reviewed the FWS's State 404 Permit Application Review/Response Form (Technical Assistance Form) dated October 31, 2023.

33. I am also familiar with the Endangered Species Act's Section 7 consultation process and I have some experience preparing and reviewing biological opinions. I have also supervised staff who were responsible for drafting these documents.

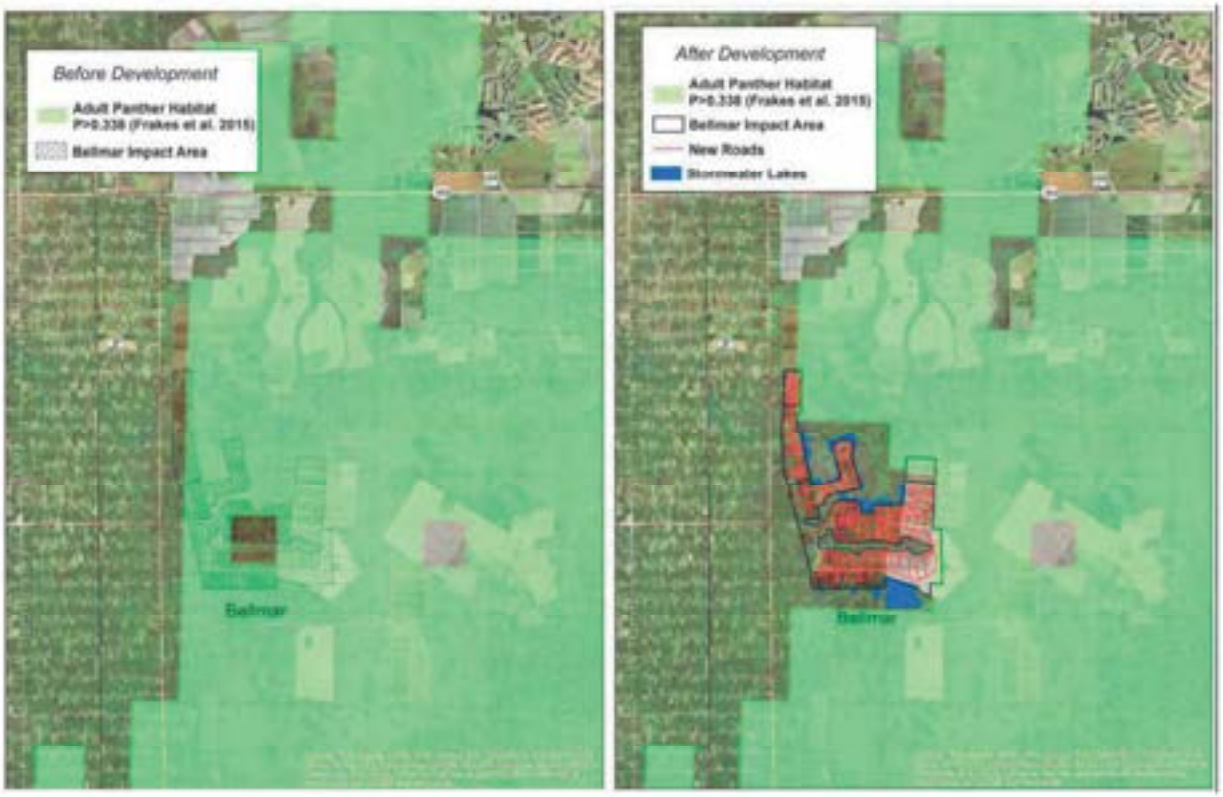
34. I have also completed a focused study of Bellmar's impacts on adult panther breeding habitat. To do this, I used the habitat model described by Frakes et al. (2015). I used more recent landscape data that was not available in my 2018 analysis of a broader suite of projects in the region. Therefore, this opinion should be considered an update to Frakes (2018), which provides a better understanding of these projects within the context of the Florida panther's range. The methods for using the model to predict impacts to adult panther habitat were the same or similar to those used in Frakes (2018).

35. The model analyzed landscape characteristics such as vegetative landcover, land use, human population density, road density, forest edge, and hydrology in 1 km^2 grid cells to predict the probability of panther presence in each cell.

36. I ran the grid cells to be impacted prospectively by Bellmar through the model under existing conditions (circa 2020) and again using various assumptions for variable values to depict conditions after development. I then compared model outputs for pre- and post-development in order to quantify impacts to adult panther habitat. I classified a grid as adult panther habitat when the model-predicted P value was > 0.338 (Frakes et al. 2015). For this analysis, the study area was defined by drawing a box 5 km wide (east to west) and 5 km long (north to south) to include the impact area of Bellmar. Accordingly, the study area contained 25 model grid cells (25 km^2).

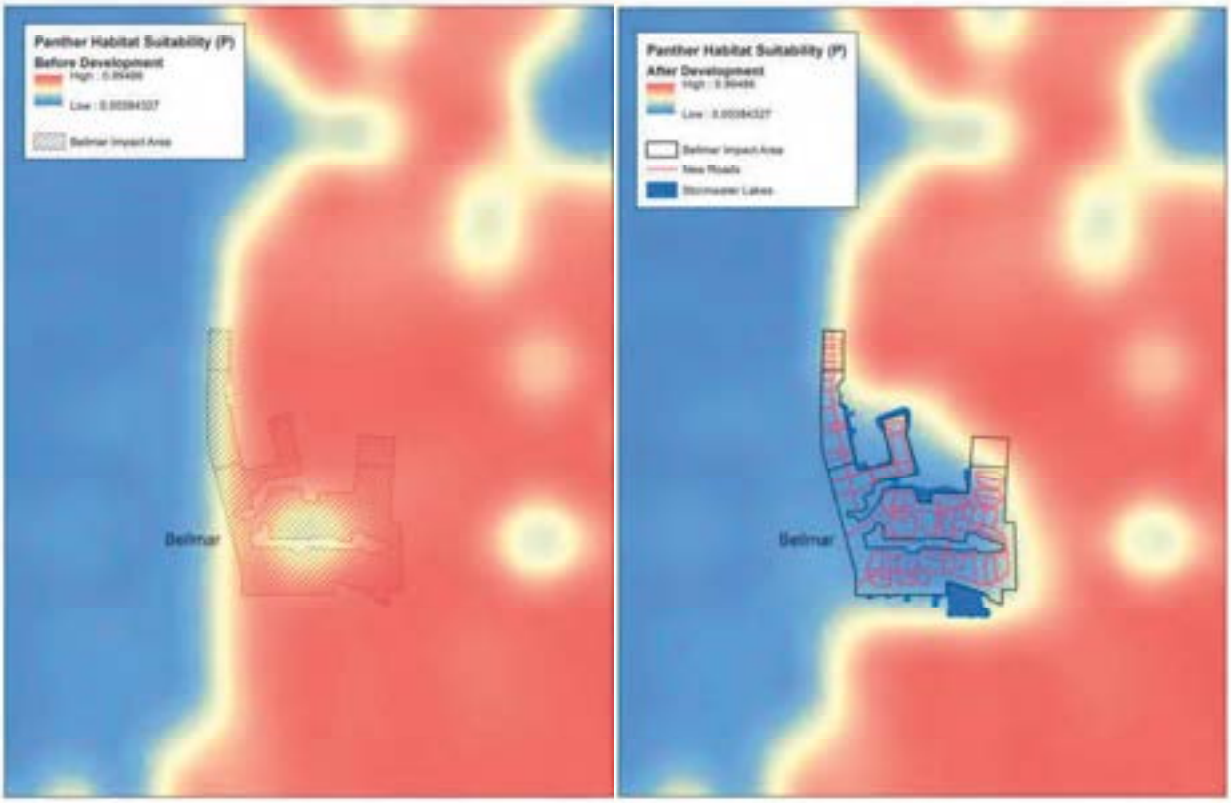
37. Figure 1, below, shows the pre-development adult panther habitat in the study area and surrounding areas as predicted by the adult panther habitat model, using a cutoff value of P=0.338 (Frakes et al. 2015). As shown in the figure, currently there is important panther breeding habitat within and near the proposed Bellmar development. Within the 25 km^2 study area, 19 grid cells (4695 acres) were classified as adult panther habitat under existing landscape conditions. Figure 2 shows the model output based on projected changes to the landscape that will occur if Bellmar is developed as proposed. Within the 25 km^2 study area, only 9 grid cells (2224 acres) were predicted to continue to be useful to adult panthers after development of the area. This represents a predicted loss of 10 km^2 (2471 acres) of panther habitat.

Figures 1 & 2



38. Figures 3 and 4, below, show interpolated or smoothed versions of the panther habitat suitability data predicted by the model. These interpolated maps allow relative habitat values and habitat corridors to be seen more easily.

Figures 3 & 4



39. After construction, the residential part of the Bellmar development, along with the stormwater lakes, will no longer be available as habitat for panthers. That habitat will be lost.

40. Although there appears to be a small area of natural habitat preserved in the middle of the project, this area will be inaccessible to panthers due to the surrounding development—even if it does still exist following construction.

41. In this case, the loss of panther habitat is not mitigated by the fact that the developer focused on developing agricultural land. For panthers, context matters. Many of these agricultural areas are just narrow strips near forests. At the landscape scale, these agricultural

areas are part of a mosaic of habitats that was classified by the model as valuable for panthers. Therefore, the development footprint, even though limited to an agricultural field, is still impacting important panther habitat when considered on a landscape scale. In other words, replacing agriculture with residential development in this case changes the entire area to non-habitat, resulting in a net loss of panther habitat.

42. This project would also constrain the west side of the Camp Keis corridor, an area panthers use to move between larger areas of habitat, making panthers less likely to use this corridor. As explained below, the narrowing of this corridor will only be intensified by the adjacent proposed Rural Lands West development.

43. The prospective habitat loss is likely to begin once construction commences and bulldozers and people come to the site. Generally speaking, if a panthers sees a person, it will go the other way. So loud noise and activity would likely deter a panther from using the area.

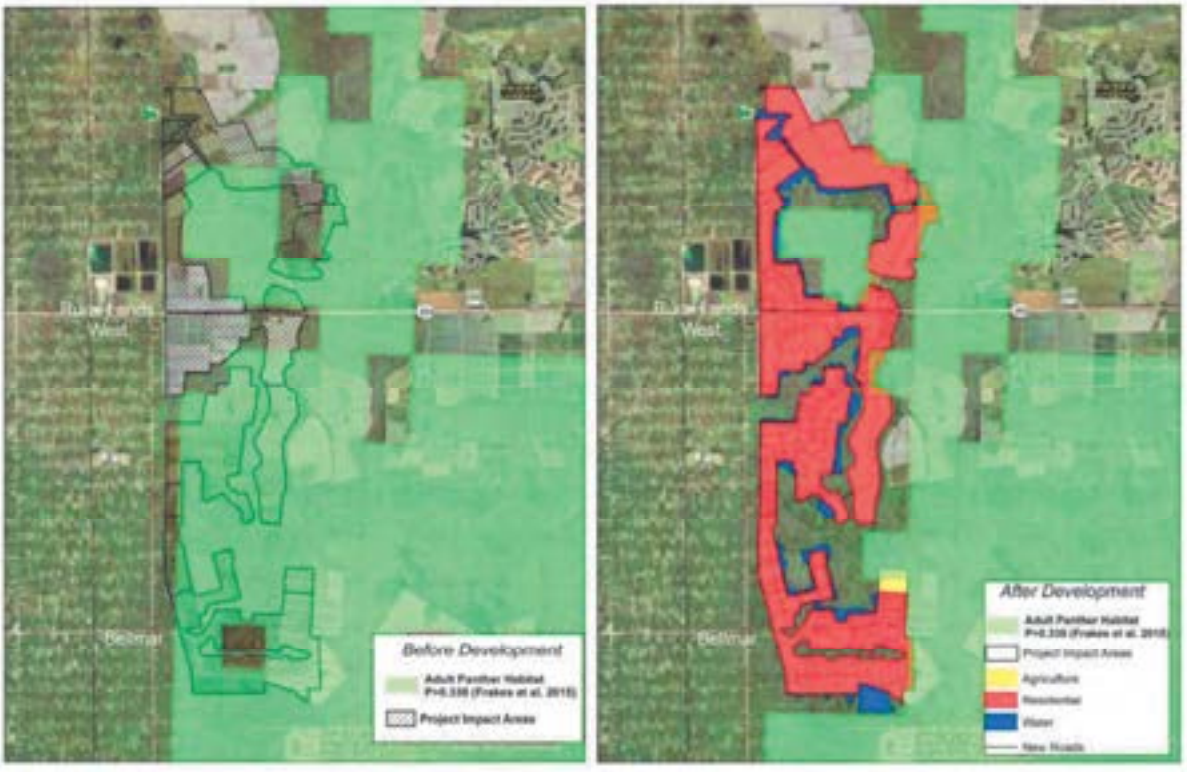
44. It must also be noted that although the FWS's Technical Assistance Form evaluates the impact of this habitat loss in terms of what percentage it reflects of the remaining habitat for the panther, this approach fails to consider that the panther population is already not large enough to survive long-term on its own without intensive management, and there is simply not enough remaining habitat available in the region to justify having even less. Moreover, this approach fails to take into account the project's location and impacts to the nearby corridor and the potential shifting of multiple panther home ranges that likely overlap with Bellmar.

45. I also analyzed the cumulative impact of Bellmar and the nearby proposed Rural Lands West development, which the FWS considers in its Technical Assistance Form. I used the same analysis methods described above, except for this analysis, the study area was defined by drawing a box 5 km wide (east to west) and 14 km long (north to south) to include the impact

areas of Bellmar and Rural Lands West. Accordingly, the study area contained 70 model grid cells (70 km^2).

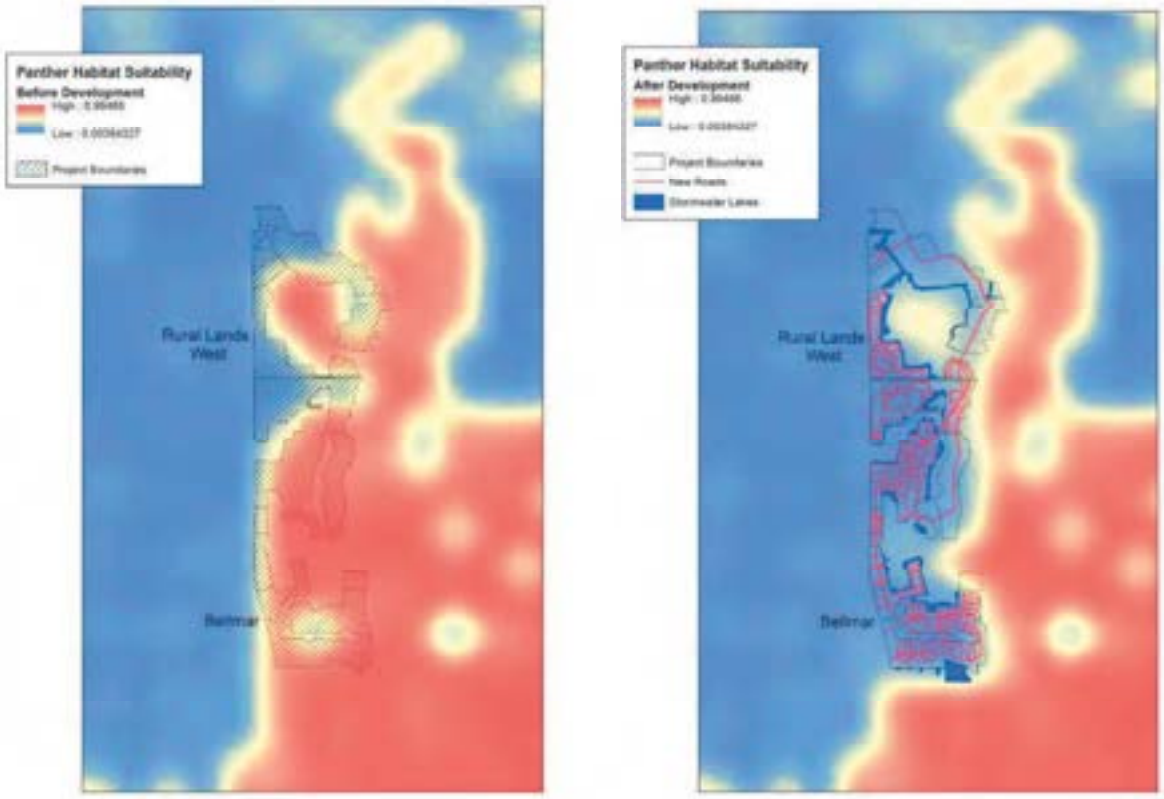
46. Figure 5, below, shows the pre-development adult panther habitat in the study area and surrounding areas as predicted by the adult panther habitat model, using a cutoff value of P=0.338 (Frakes et al. 2015). As shown in the figure, currently there is important panther breeding habitat within and near the proposed developments. Within the 70 km^2 study area, 43 grid cells (10,625 acres) were classified as adult panther habitat under existing landscape conditions. Figure 6, below, shows the model output based on projected changes to the landscape that will occur if the Bellmar and Rural Lands West projects are developed as proposed. Within the 70 km^2 study area, only 20 grid cells (4942 acres) were predicted to continue to be useful to adult panthers after development of the two areas. This represents a predicted loss of 23 km^2 (5683 acres) of panther habitat.

Figures 5 & 6



47. Figures 7 and 8 show interpolated or smoothed versions of the panther habitat suitability data predicted by the model. These interpolated maps allow relative habitat values and habitat corridors to be seen more easily.

Figures 7 & 8



48. Figure 7 shows the existing north-south panther habitat connection (Camp Keais Strand) between Florida Panther National Wildlife Refuge and Corkscrew Swamp, in relation to the proposed location of the Bellmar and Rural Lands West developments. Figure 8 shows the predicted impacts to this important corridor after development of the two projects. The predicted narrowing of this corridor as shown is likely to adversely impact north-south panther movements in this part of their range. Connectivity to the north is essential for panther recovery.

49. Panther home ranges overlap, and a project may affect multiple individuals and multiple panther home ranges. During previous habitat studies (Frakes et al. 2015; Frakes 2018)

we calculated minimum convex polygon home ranges for 87 adult panthers using radio telemetry data from 2004–2013. As demonstrated in Figure 9, below, overlaying these home ranges on the areas that will be affected by the prospective development shows that the Bellmar project alone would have impacted the home ranges of 7 out of 87 (8.0%) of all radio-collared adult panthers if it had been built during that time period. If the project is constructed, the actual number of panther home ranges impacted today will probably be greater because most panthers were not radio-collared, and thus not accounted for, and panther numbers have increased since then according to official estimates.

Figure 9

50. In summary, my analysis predicts at least three cumulative adverse effects to the Florida panther if the Bellmar and Rural Lands West projects are constructed as proposed.

51. First, it predicts direct loss of approximately 5,600 acres of prime panther breeding habitat. The FWS used an outdated and scientifically flawed methodology (see discussion below and in Frakes et al. 2015) to calculate compensation for this loss by preserving (i.e., not developing) part of the project area. Mere preservation of already existing habitat does not compensate for the lost biological function of the habitat that will be destroyed. "No net loss" of panther habitat function has been recommended repeatedly by panther scientists (Kautz et al. 2006, Frakes et al. 2015, others).

52. Second, it predicts narrowing and degradation of an important panther movement corridor. The Bellmar project is about a mile from the Florida Panther National Wildlife Refuge. It sits adjacent to an important dispersal corridor. This north-south corridor extends from the Florida Panther National Wildlife Refuge to Corkscrew Swamp where their home ranges extend. The proposed project substantially intrudes into the western side of this narrow habitat corridor, causing a "pinch point" that will impede panther movements to the north. Free movement of panthers through dispersal corridors such as this is essential to panther recovery. Context matters. There are a lot of radio telemetry points along this corridor, indicating high use by Florida panthers. The corridor is already narrow, and this development would cut into that corridor and narrow it even more. Mitigation in the form of underpasses will not compensate for narrowing the corridor. Narrowing the corridor affects the likelihood of recovery for the species because panthers need to disperse north across the Caloosahatchee River to move into central and northern Florida, which is a goal of the Florida Panther Recovery Plan. The more these

corridors are narrowed, the less likely panthers will use them. Proposed panther crossings don't compensate for damage to the corridor itself.

53. Third, the model predicts reductions and shifts in the home ranges of multiple adult panthers. The exact number of panthers that will be affected is unknown, but historical use data suggests the number is at least seven and probably more. Shifting and/or compression of home ranges may result in increased competition for limited resources and increase the probability of intraspecific aggression, a leading cause of panther mortality.

54. Generally, panthers are reluctant to approach too closely to densely populated residential areas, so impacts to panthers will extend outside the development footprint. They will also avoid the lakes that are planned along the edges of this development.

55. I have also analyzed Bellmar's cumulative impacts on panther habitat along with other foreseeable developments in the surrounding area. Bellmar is one of several foreseeable developments in southwest Florida that I analyzed in my 2018 report to assess their collective habitat impacts. All of these developments are foreseeable because the developers sought incidental take authorization for their projects under ESA section 10, but they later withdrew those applications to seek authorization through the State of Florida's Clean Water Act permitting process. While my detailed findings can be reviewed in the report, I concluded that the projected future, foreseeable development within eastern Collier County would likely cause substantial losses of adult panther breeding habitat in terms of both habitat quantity and quality. It is also likely that the cumulative effects of development will narrow and break existing north-south habitat corridors for adult panthers that link the main body of panther habitat to the south with panther habitat in the Corkscrew Swamp and Okaloacoochee Slough to the north. These impacts would appreciably reduce the likelihood of survival and recovery for the Florida panther.

56. In addition to the individual and cumulative adverse effects of Bellmar, it is important to address problems with the FWS's Technical Assistance Form. These problems stem from what appears to be a failure to use the best available science (as required under the Endangered Species Act) and the failure to engage in an analysis that is as rigorous as what is required when preparing a biological opinion. Below I provide a non-exhaustive review of some deficiencies with the Technical Assistance form.

57. For example, when analyzing Bellmar, FWS made a mistake by comparing the project area to the average size of a single panther home range and to conclude that the project only affects a small percentage of a single panther home range. This approach is incorrect and misleading. As revealed by analysis and mapping in paragraph 49 and Figure 9, the Bellmar project alone is likely to impact multiple panther home ranges.

58. As another example, the population baseline analysis included in the FWS's Technical Assistance Form is erroneous. The data do not support a population estimate as high as 773 panthers. The FWS obtained this upper bound number from a road mortality study. This study presented an upper bound of more than 500 panthers and was recently updated to be more than 700 panthers. This, however, is not possible as the habitat cannot currently support that many panthers. If it were correct, Florida would have three times the density of pumas found anywhere in North America. The authors of the study themselves recommended against using this ridiculously high estimate because it is well above the carrying capacity of the habitat. The authors also state that the actual number of panthers may have never exceeded 150. The FWS also found in its 2020 species status assessment for the panther that this estimate had a margin of error that was too wide to inform conservation decisions. As I explained above, the official Florida population estimate is actually between 120–230 adult panthers.

59. The validity of this method of calculating panther productivity and comparing it with the level of take is questionable. This method assumes constant population growth since 2000 and that this level of productivity and growth will continue indefinitely. Recent evidence suggests that panther population growth has leveled off and may now be declining. Methods for estimating the population in 2000 were very different from those used today and therefore various estimates of the panther population over this time period are not comparable.

60. Because of Bellmar's location roughly a mile from Florida Panther National Wildlife Refuge and presence of high-quality habitat, the site is very useful to panthers and they include it in their home ranges. Contrary to the 10 radio telemetry points cited by the FWS in its Technical Assistance Form, the FWC telemetry database shows 52 telemetry points in the project area. Additionally, there are dozens of telemetry points very close to the edges of the proposed residential community.

61. Indirect and cumulative impacts are also important considerations, and the FWS is required to analyze them under the Endangered Species Act. Context matters in this case because there are many other projects planned or proposed for this part of the panther's range. These projects, including Bellmar and numerous other developments in Collier County and within the action area, are foreseeable because the developers previously sought incidental take authorization for them under ESA section 10, before the State 404 permitting program offered an alternative avenue to obtain take authorization. Now many of those projects are moving through state permitting. The Endangered Species Act requires a detailed cumulative impacts analysis for non-federal projects (including state-approved projects), and is regularly included in a biological opinion, but the FWS did not adequately do that in its brief Technical Assistance Form. For its cumulative effects analysis, the FWS attempted to analyze projects which do not impact

wetlands and therefore would not require regulatory review at all. Instead, FWS should have considered all foreseeable projects whose wetland destruction would no longer require federal authorization, and therefore not be subject to ESA section 7 consultation requirements, which, unlike "Technical Assistance," ensure that impacts will not occur without affirmative action by FWS. It is not clear from FWS's explanation in the Technical Assistance Form why it mentioned the cumulative effects of some projects like Kingston and Florida Farms Development (FFD) but not other foreseeable projects. In fact, they did not even analyze the effects of these projects that they did mention. In addition, FWS did not analyze impacts to north-south corridors in its effects analysis, which are so essential for the panther's recovery, as detailed in my analysis above.

62. The FWS also failed to adequately consider indirect effects in its Technical Assistance Form. For instance, there is no discussion of how this development will affect ongoing management activities at the nearby Florida Panther National Wildlife Refuge. These activities include controlled burns, which are necessary to optimize habitat for panthers. However, people living near public lands subject to controlled burns often complain about the smoke drifting over their property and object to these necessary practices. In addition, there is no discussion of the impacts to hydrology over the 25-mile action area. Hydrology is an important factor determining panther use of an area.

63. It is also unclear how the FWS determined in its Technical Assistance Form that anticipated take would be 4 individuals at year of buildout (3 via vehicle collision, 1 due to habitat loss and reduction in carrying capacity), and 3 individuals a year thereafter. Home ranges overlap and it appears the FWS is not accounting for multiple home ranges when estimating take

of only one panther due to habitat loss and reduction in carrying capacity. Historical use data suggests the number of home ranges impacted is likely at least seven and probably more.

64. Further, the Panther Habitat Assessment Methodology used to calculate compensation for the Bellmar project contains the following serious flaws: (1) the FWS has not updated the acres of at risk and conserved lands remaining since 2003. These figures are critical to the calculation of compensation ratios; (2) the FWS methodology currently assumes that lands outside the Primary Zone have a 33–69% equivalency (so-called multipliers) with those inside the Primary Zone. More recent modeling (Frakes et al. 2015) shows that these lands, and a large portion of the Primary Zone itself, are of little value to support a breeding population of Florida panthers. Therefore, the methodology greatly overestimates the amounts of land available for use by panthers; (3) the density used (from Kautz et al. 2006) is outdated. Current panther densities are estimated to be 3 to 5 times higher; and (4) compensation ratios are based on a goal to protect habitat for 90 panthers. This is far below what is needed for survival and recovery and is also below the current population size.

65. In addition, the review of the scientific literature is very minimal in the FWS's Technical Assistance Form. Biological opinions usually include a detailed "Status of the Species" section in which important literature and research is reviewed with regard to habitat needs, population changes, birth and death rates, disease prevalence, etc. The FWS form mentions only one peer-reviewed publication in the status of the species section, even though several new, relevant studies have been published in recent years. This suggests that FWS is not adequately considering the best available science related to panther survival and recovery.

66. In summary, the Bellmar development will impact about 2,500 acres of Florida panther breeding habitat that could be part of several Florida panther's home ranges. Impacts

from the Bellmar development will, individually and in combination with the future Rural Lands West development, constrain the Camp Keis Strand panther habitat corridor, making it less likely panthers will use the corridor. FWS, through technical assistance, has failed to analyze and mitigate these harms the way the ESA requires the agency to do in a biological opinion. FWS's conditions do not require compensation for lost panther breeding habitat through replacement of the lost habitat function, and FWS does not compensate for damage to the migration corridor. Most conservation scientists agree that, at a minimum, the existing habitat function and extent within the panther's occupied range must be maintained.

Opinion Regarding the Kingston Project

67. I have also analyzed impacts to panther habitat from the proposed Troyer Mine and nearby Kingston and Florida Farms Development (FFD) residential developments, which have submitted applications for state Clean Water Act section 404 permits. These three major projects are also likely to significantly impact Florida panther habitat to the extent that it harms the species survival and recovery.

68. To reach this conclusion, I used the habitat model described by Frakes and Knight (2021), and the methods for using the model to predict impacts to adult panther habitat were the same or similar to those used in Frakes (2018) and my analysis of the Bellmar development's impacts.

69. Based on my analysis, I found that Troyer Mine, Kingston, and FFD will cumulatively cause the direct loss of 7,400 acres of prime panther breeding habitat.

70. These proposed developments are also located near important movement corridors for panthers, connecting areas of panther habitat within eastern Lee County and into Hendry and Collier counties. For example, Troyer Mine is proposed in an area that provides

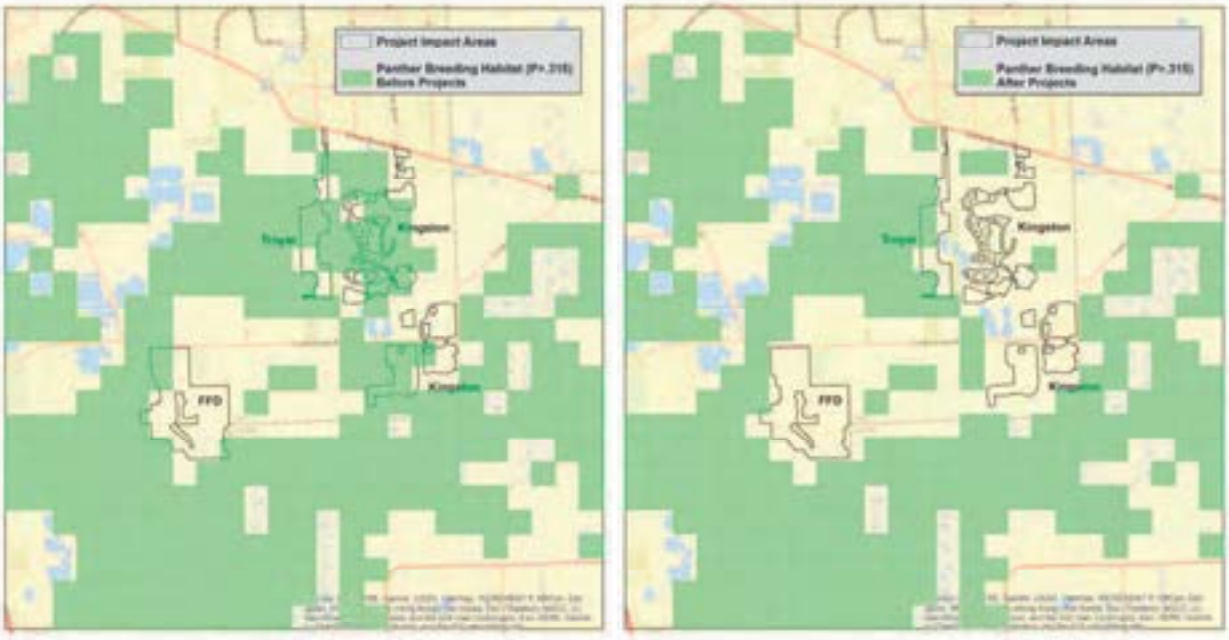
panthers access to habitat east of the project area. Kingston contains a significant amount of adult breeding habitat for Florida panthers, and its development would fragment connectivity to Corkscrew Regional Ecosystem Watershed and other environmentally valuable lands to the south and east. And FFD would restrict a Florida panther movement corridor that is already narrow near the only panther road underpass that exists on Corkscrew Road. Individually and together, these projects are likely to narrow or block movement corridors, making the areas of habitat less valuable for Florida panthers. The loss of habitat and damage to movement corridors is likely to reduce the panther's ability to survive and recover.

71. Below I provide my analysis and opinion on the individual impacts of the Kingston project.

72. The FWS states that the Kingston project will impact approximately 3400 acres of panther habitat, based on the size of the development footprint. However, the development will also impact nearby habitat outside the footprint as well as blocking access to some internal habitat. I used a previously published Random Forest panther habitat model (Frakes and Knight 2021) to predict habitat impacts on a landscape scale. The model predicted that the Kingston project will cause about 21 km^2 (5189 acres) of previously good habitat to become unsuitable for use by adult breeding panthers. This is because the model analyzes habitat impacts at the landscape scale, focusing on the mixture of land cover types. Development, roads, and human presence cause not only the loss of habitat in the project footprint, but also of habitat in proximity to high human density. Proximity to development reduces the value to adjacent habitat. For example, replacing agriculture near a forest edge with development would reduce habitat suitability for the panther to hunt.

73. Figure 10, below, shows the pre-development adult panther habitat in the area of the proposed Kingston development and two other nearby proposed developments called Troyer Mine and FFD, as predicted by the adult panther habitat model, using a cutoff value of P=0.315 (Frakes and Knight 2021). As shown in the figure, currently there is important panther breeding habitat within and near the proposed developments. Figure 11, below, shows the model output based on projected changes to the landscape that will occur if the projects are developed as proposed.

Figures 10 & 11



74. The Technical Assistance Form for Kingston includes many of the flaws identified in the Technical Assistance Form for Bellmar, as discussed above.

75. The Technical Assistance Form for Kingston says that, as an avoidance and minimization measure, the permittee will make payments to a Fish and Wildlife Foundation fund

to "fund panther conservation and research." While more panther research is to be encouraged, this does nothing to avoid or minimize the lost biological function of the destroyed habitat. Same is true for the rest of the avoidance and minimization measures.

76. Similar to my point above regarding Bellmar, the population baseline analysis included in the FWS's Technical Assistance Form is not valid. FWS obtained these population estimates from a vehicle mortality study that produced population estimates with extremely wide confidence intervals. Nevertheless, the FWS used the upper limits of the confidence intervals (509 to 773 panthers) to estimate population growth. The science does not support a population estimate this large, because the available habitat cannot currently support that many panthers. If it were correct, Florida would have three times the density of cougars anywhere in North America. The authors of the study themselves recommended against using this ridiculously high estimate because it is well above the carrying capacity of the habitat. The authors also state that the actual number of panthers may have never exceeded 150. The FWS also found in its 2020 species status assessment for the panther that this estimate had a margin of error that was too wide to inform conservation decisions. As I explained above, the official FWC population estimate is actually between 120–230 adult panthers.

77. The FWS calculates that the loss of habitat represents between 5 and 11 percent of a single panther's home range. Based on this, the FWS states that the project is expected to impact no more than one panther home range. This approach to estimating take from habitat loss is incorrect and misleading. Panther home ranges overlap, and a project may affect multiple individuals and multiple panther home ranges. I reviewed the historical (2004-2013) home range data, and the Kingston footprint would have impacted the home ranges of 6 out of 87 (7%) adult

radio-collared panthers if built during that time period. Therefore, the FWS underestimates the amount of take from habitat loss.

78. The FWS states that the applicant will restore and protect 3,273 acres of currently unprotected habitat. The best available science suggests that the current extent and function of habitat within the Primary Zone should be maintained or increased. Mere protection of existing habitat does not replace the biological function that was lost. Rather, new habitat must be acquired, restored, and protected to replace the lost function.

79. The applicant used the FWS Panther Habitat Assessment Methodology to determine the amount of preservation needed to compensate for the habitat that will be lost. However, as discussed above for Bellmar, this methodology is scientifically flawed and out of date. Assumptions used in this methodology such as habitat remaining, panther density, the relative values of the Primary and Secondary Zones, and the panther population goal, are no longer correct. The FWS should revise its methodology so that it is based on habitat suitability/function and a principle of no net loss of habitat. Compensation based on the current methodology is meaningless.

80. The FWS states that the project has been designed to maintain and improve existing wildlife corridors. On the contrary, my modeling shows that the project will impinge upon or block pathways that panthers use or could use to move from one area of habitat to another. The northern portion of the Kingston development sits across an area currently used by panthers to move east and west between adjacent areas of habitat (this pathway will be blocked even further by the cumulative impacts with the proposed Troyer Mine). Similarly, the southern portion of Kingston destroys several square kilometers of adult habitat that form a potential north-south bridge between two arms of the Primary Zone.

81. FWS proposes that highway underpasses will compensate for the narrowing of the established movement corridors. Underpasses are designed to limit panther mortality from vehicle strikes but they do not compensate for the narrowing of the corridor, which makes panthers less likely to use the corridor.

82. The FWS states in the Technical Assistance Form that it used a traffic analysis to estimate that an additional 16 panther deaths per year due to vehicle collisions would be caused by the increased traffic generated by the project. The FWS states that the 99% confidence interval around the point estimate of 16 is 3 to 22 panthers killed per year due to the project traffic. It is not clear how this confidence interval was calculated. It is not clear how 16 deaths per year is acceptable to FWS and why more could not be done to avoid, minimize, or mitigate the anticipated deaths. FWS did not do any analysis or explain how the loss of 16 panthers (roughly 10% of the estimated population) would affect the population.

83. Adding one panther from loss of habitat to the above increase in vehicle collision mortality, the FWS expects the amount of take (harm) to the subspecies to be no more than between 4 and 23 Florida panthers in the first year, and 3 to 22 panthers in each subsequent year. This estimate of take covers such a wide range that it is virtually useless for a jeopardy determination, which instead should focus on the level of take that is likely. FWS has never established a quantitative or qualitative jeopardy standard for the panther. However, they admit on pages 23 and 24 of the Technical Assistance Form that the upper end of their estimate of take exceeds the population growth rate. Assuming FWS's estimated population growth rate is accurate and remains the same, there would likely be a population decline as the level of take approaches the upper estimate.

84. In my opinion, the upper end of this range of estimated take, in combination with damage to established movement corridors for panthers, would jeopardize the survival and recovery of the Florida panther.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 1st day of December 2023, in Fort Pierce, Florida.

DocuSigned by:
Robert A. Frakes, Ph.D.
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Robert Frakes, Ph.D.

JOAN MORRISON REPORT (OCT. 12, 2024)

MAIN TEXT ONLY – FULL DECLARATION INCLUDING ALL ATTACHMENTS IS ON DVD

REPORT BY JOAN MORRISON, PH.D.

1. The facts set forth in this report are based on my personal knowledge and if called as a witness, I could and would competently testify to these facts under oath. As to those matters that reflect a matter of opinion, they reflect my personal professional opinion and judgment upon the matter.

2. I earned a Ph.D. in 1997 from the University of Florida Department of Wildlife Ecology and Conservation. I have a Master of Science degree in Resource Ecology from the University of Michigan (1979) and a B.A. in Biology from the College of Wooster (1975).

3. I am a researcher and retired professor of Conservation Biology and Environmental Science. I have been studying the Florida population of the Crested Caracara (*Caracara plancus*) for over 30 years, and this work was the focus of my doctoral degree. My research and that of my Ph.D. student, Post-doctoral student, and several undergraduate students has resulted in 27 publications in peer-reviewed journals, and numerous technical reports, to state and federal agencies all focused on the Florida population of the Crested Caracara. I am the original sole author and current co-author of the species account for the Crested Caracara in Birds of the World (Morrison and Dwyer 2023, https://birdsoftheworld-org/). A Curriculum Vitae listing my publications and professional experience as a researcher and professor is attached to this report as Appendix A.

4. Sierra Club contracted me to review and provide my independent evaluation of the impacts of the proposed Rural Lands West project on the Florida population of Crested Caracara. Although I have worked as an independent contractor on a number of projects in Florida related to caracaras, I have not previously been involved in work specifically on the Rural Lands West project for any party other than Sierra Club. Nor have I been involved in work on the formerly proposed Eastern Collier Habitat Conservation Plan, which would have encompassed the Rural Lands West project. Nor was I involved in development of the programmatic Biological Opinion for the State 404 Program.

5. For the reasons described below, it is my conclusion that the loss of habitat resulting from the Rural Lands West (RLW) development will likely cause the displacement of a minimum of two breeding pairs of caracaras from the area forcing these pairs to shift their territory into the territories of other breeding pairs, if the displaced pairs are able to find remaining suitable

nesting and foraging habitat. That displacement will occur when the fields are cleared for construction or are flooded. The likely result of that displacement is permanent loss of the reproductive capacity of at least two breeding pairs. Based on the currently available information about the proposed mitigation for the RLW project, the mitigation will not be sufficient to avoid that result or to make it no longer likely.

6. In evaluating the impacts of the Rural Lands West project on crested caracaras, I have reviewed information relevant to the project presented in the following documents:

- The U.S. Army Corps of Engineers Public Notice (with Attachments) for the Clean Water Act 404 Permit Application for Rural Lands West (Application No. SAJ-2008-02431(SP-MAO)), dated Sept. 19, 2024;
- The April 2024 Rural Lands West Biological Assessment prepared by Passarella & Associates, Inc.for Collier Enterprises (supplied by the Sierra Club);
- A copy of a 2019 deed from Collier Enterprises to Gargiulo Inc. regarding agricultural lands within and near the Rural Lands West project boundaries and a figure showing the locations of the relevant areas (supplied by Sierra Club).

These documents are included in Appendix D, following the list of literature cited.

7. I have also previously reviewed information related to the impacts of the Bellmar project on crested caracaras, a proposed development immediately south of the Rural Lands West project. In 2023, Sierra Club contracted me to review and provide my independent evaluation of the decisions that FWS made for the Bellmar project in the "State 404 Permit Application Review/Response Form" for "Permit Application No. Bellmar ST404_396364-001" dated October 31, 2023, referred to hereafter as "2023 FWS Bellmar Decision Document." I provided a declaration setting forth and explaining my conclusions. That declaration is attached to this report as Appendix B.

8. The Florida population of the Crested Caracara was listed as a federally threatened species under the Endangered Species Act ("ESA") in 1987 due to the threat posed by destruction of their habitat, see 52 Fed. Reg. 25,229 (July 6, 1987) and remains listed as threatened.

9. The U.S. Fish and Wildlife Service has used my research in Endangered Species Act documents and decisions regarding that listed entity.

10. For example, I wrote most of the account for the Crested Caracara in the U.S. Fish and

Wildlife Service Endangered Species Act South Florida Multi-species Recovery Plan (1999). Recovery plans are plans for the conservation and long-term survival of ESA-listed species, and the ESA requires the U.S. Fish and Wildlife Service to develop and implement such plans.

11. The U.S. Fish and Wildlife Service (FWS) also cited my research in its decision document for the Bellmar project. See Appendix B, Attachment B, "State 404 Permit Application Review/Response Form" for "Permit Application No. Bellmar ST404_396364-001" dated October 31, 2023 at 7, 27 (citing Morrison, J.L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Caracara cheriway audubonii*) in Florida. Technical Report Number 18. Florida Fish and Wildlife Conservation Commission; Tallahassee, Florida.).

12. The 300 meter radius primary zone around the nest used by FWS, see Appendix B, Attachment B at 3, is based on studies my research assistants and I conducted in the mid-1990s. The goal of these efforts was to determine at what distance a bird on a nest would flush from the nest given disturbance, which was a person walking toward the nest tree making noise and waving arms. We determined that the bird would show responses to this disturbance (flush from nest and fly out of the tree) when the disturbance was at a distance of about 300 meters (m) (Morrison 2001).

13. In contrast, the "1500 m radius secondary zone" that FWS has used in decisions related to caracaras is not based on a recommendation in any of my research, and I am unaware of any evidence to support the adequacy of this zone. The size of an area with a 1500 meter radius is not sufficient to encompass the average territory size of a breeding pair of caracaras in Florida and it is not sufficient to encompass the area used by fledglings during the critical post-fledging dependency period, approximately the first two months after the young caracaras fledge from the nest, when they remain in the territory and are dependent on their parents (Morrison and Poli 2024).

14. The average territory size of a breeding pair of caracaras in Florida is approximately 1296 hectares (~3200 acres), which can be described in simple terms as a circle of ~2000 m radius around a nest tree (Morrison and Humphrey 2001), although territories are never actually circular but rather are defined by the boundaries of the habitat areas used by the breeding pair. Information about the actual size, configuration and context of a territory and habitats actually used can only be understood by obtaining telemetry data from one or more members of the

breeding pair. The 1500 m radius "secondary zone," and a 2000 m radius area both have been frequently used in management decisions by FWS in the absence of telemetry data (USFWS 2004). However, using either of these areas to describe the area of a territory fails to capture the entire area used by a breeding pair, as the area of a circle with a 1500 m radius is only about 1746 acres, and a circle with a 2000 m radius is only about 3200 acres, neither of which likely describes the full area used by a breeding pair and their fledged young. As noted above, territories are never circular but rather are defined by the boundaries of the habitat areas used by the breeding pair. Also, areas of either 1500 m or 2000 m radius are not sufficient to encompass the area used by fledglings during the critical post-fledging dependency period, approximately the first two months after the young caracaras fledge from the nest and remain dependent on their parents. The area used by fledglings during this period may be up to six times the average home range size of an adult breeding pair (Morrison and Poli 2024).

15. Caracaras are highly territorial, breeding pairs remain on their territory all year (they do not migrate or leave Florida), and individuals remain on their territory for multiple years, up to decades (Morrison and Humphrey 2001). Caracaras are a long-lived raptor, adults may live as long as 24 years in the wild (Morrison et al. 2016).

16. Caracaras nest in Florida from October through April, although peak egg-laying season is January through March. Young caracaras from late nests fledge as late as July. Caracaras regularly renest after a nest failure (Morrison 1999), and approximately 10% of the studied pairs raised two broods successfully during each year of our studies (Morrison 1998). This means that a breeding pair may conduct reproduction-related activities, including fledging young and caring for them through the post-fledging dependency period (Morrison and Poli 2024), almost all year round.

17. While breeding pairs of caracaras are strongly site faithful, often nesting in the same tree in consecutive years, they do use alternate nest trees within the territory (Morrison 2001). Alternate nest trees may be used for a second brood or if the nest in a previously used tree is damaged, for example, by wind or rain, and falls out of the tree. These alternate nest trees are often within 0.5 km (0.31 miles) of each other but are within the same 3200 acre territory, and thus the breeding pair would depend on the same foraging areas.

18. Nesting pairs of caracaras and their territories in Florida primarily can be found on private ranchlands and other agricultural lands (Morrison and Humphrey 2001, Morrison 2007).

19. Habitat loss continues to threaten the Florida crested caracara population.

20. The available habitat in Florida is believed to be saturated, as FWS has recognized. See, e.g., Appendix B, Attachment B at 9.

21. Habitat saturation means that all habitat suitable for a species to survive, thrive, and reproduce successfully is already occupied by breeding individuals. In other words, offspring of those individuals cannot find a place to nest and reproduce because there is no more habitat in which to do so. I liken the scenario to a population living in a fishbowl. The fishbowl has the maximum number of individuals living in it that the fishbowl can support. These individuals may continue to reproduce successfully, although competition for remaining resources may eventually lead to density-dependent effects, for example, reduced reproductive success of these individuals. The fishbowl can only hold so many individuals and that many are already in there, leading to these density-dependent effects. An outcome of these effects is that the offspring of these individuals that do survive cannot establish a territory inside the already crowded (saturated) fish bowl. And the overall problem analogous to the situation in Florida is that the fishbowl is continually shrinking (continued habitat loss). That means there is even less area (habitat) in which the number of individuals and their young can survive, thrive and reproduce. As noted before, a breeding pair of caracaras is highly territorial. They will act aggressively toward other caracaras in their territory, meaning that individuals without a territory (i.e. floaters) will be forced to move throughout the species' range possibly suffering reduced survival and never finding a place to breed (Dwyer et al. 2012a, 2013). If these individuals cannot settle and breed, or do not survive, they will not be contributing to the long-term population persistence or to recovery. In a situation of habitat saturation, individuals experience competition, especially if breeding pairs continue to reproduce, and stress from competition among territorial pairs may preclude those pairs breeding successfully or result in reduced productivity or survival.

22. If the overall acreage of suitable habitat continues to shrink, the number of individuals in the population will eventually decline because a lost breeding pair is not likely to be replaced even if there are offspring to replace them, especially if habitat quality is also declining and reproduction has not been successful for many pairs. Even if all individuals inside the (saturated) fishbowl survive and breed, if the fishbowl keeps getting smaller (habitat loss), the population will eventually decline. When monitoring long-lived species like the caracara,

continued observations of pairs on a territory may lead to the erroneous conclusion that all is well and the pair is breeding successfully. However, in a situation of habitat saturation, pairs may not be breeding successfully or may be producing fewer young. Long-term persistence of a population depends on recruitment of young individuals into the breeding cohort when the older individuals die off. However, if reproductive rates have declined in a population due to stress from competition, loss of habitat or degradation of habitat quality, there may be fewer young birds to replace the lost adults. In this situation, a population can decline quickly.

23. In the 2021 draft Biological Opinion on the formerly proposed Eastern Collier County Property Owner's Habitat Conservation Plan (HCP), which would have encompassed the Rural Lands West and Bellmar projects, the FWS estimated the lower and upper bound for the number of breeding adults in Florida's crested caracara population at 300 and 1,224, respectively. That estimate does not reflect the best available scientific information. The best and most reliable estimate of population size for Florida's caracara population was recently published in Payne et al. (2023) and is based on genetic analyses. These analyses provide reliable estimates of Effective Population Size (EPS), which corresponds to the number of individuals in the population that are actually breeding thus are contributing to the population's long-term persistence (Wang et al. 2016). The estimate provided by Payne et al. (2023) for the EPS of Florida's caracara population is 565.4 individuals (95% CI: 458.2, 671.2), which represents approximately 280 breeding pairs.

24. The FWS' estimates of the lower and upper bound for the number of breeding adults as 300 and 1,224 are based on several flawed assumptions. In the draft HCP Biological Opinion, page 244, the FWS explained how these bounds were determined. FWS used a geospatial database of occurrences to record 265 discrete caracara territories from 1994 to 2016. It is not clear how FWS assigned these as 'territories' or why they assumed these 'territories' were occupied by breeding adults, as 'occurrences' may simply refer to sightings of one or more individual caracaras, not necessarily breeding pairs. To my knowledge there has been no effort to survey these assumed territories to determine if they continue to have suitable habitat and are occupied by breeding caracaras. The FWS also continues to refer to Layne's (1996) information, which is outdated as it was not based on any scientific or systematic sampling but only on anecdotal information. My doctoral work in the 1990s showed that Layne's assumptions about where birds occurred and about how many he was actually observing and

counting, were flawed resulting in his inaccurate estimates of population size. Finally, the land cover data available is grossly inaccurate, so the FWS' assumptions about how many acres of pasture and dry prairie habitat are within the caracara's range are flawed. Also, FWS assumed that all those acres are occupied by caracaras. My work has shown that caracaras do not occupy all acres of these habitats; they typically occupy large acreages, not small patches, and the FWS analysis provides no information about the sizes of the patches of these acreages. These assumptions underlying the FWS' population estimates in the draft HCP Biological Opinion, that all acres of pasture and dry prairie habitats are large enough and that are all occupied by breeding caracaras, have resulted in what I believe are faulty population estimates.

25. There is much evidence within the scientific literature that loss of reproductive potential within a closed population (i.e. a population in a "fish bowl" as described above) experiencing continued habitat loss will ultimately lead to population decline. In a classic paper in the field of conservation biology, Shaffer (1981) described four sources of uncertainty to which a population may be subject and that could lead to population decline or extinction, particularly for small, isolated populations. These are demographic stochasticity (i.e. arises from chance events causing changes in survival and reproductive success of a finite number of individuals), environmental stochasticity (i.e. temporal variation in habitat parameters and populations of competitors, parasites, or diseases that could affect survival and reproduction), natural catastrophes (i.e. extreme weather events with random occurrence such as hurricanes, floods, fires that could cause nest failures and death of individuals), and genetic stochasticity (i.e. changes in gene frequencies due to inbreeding, etc., which are particularly deleterious in a small population already subject to reduced genetic diversity). Given that the caracara population in Florida is isolated, relatively small, and is already known to have reduced genetic diversity (Payne et al. 2023), any of these four factors could lead to population decline especially when combined with range-wide habitat loss.

26. In short, the currently available evidence provides substantial reasons to believe that habitat loss that reduces the number of breeding pairs likely appreciably diminishes survival and recovery of this population. Continued loss of habitat that 'takes' nest sites and foraging areas is not making progress toward recovery as mandated by the ESA, which requires increasing a population's size and enhancing that population's ability to survive and reproduce over the long-term.

27. Further, at present, I am aware of no scientific study establishing that the current number of breeding pairs is sufficient for long-term population persistence. To establish whether the number of breeding pairs is sufficient for long-term persistence would require, at minimum, a population viability analysis (PVA).

28. Models used in a PVA are generally useful for examining extinction risks given certain demographic parameters and environmental changes (i.e. Beissinger and McCullough 2002). For Florida's caracara population, these models can give a better understanding of whether 280 breeding pairs (Payne et al. 2023) might be sufficient for long-term persistence. Examples where these models have been used for populations of listed species in Florida include the Florida panther (Maehr et al. 2002), Florida Scrub Jay (Breininger et al. 1999), and Florida's Snail Kite (Martin et al. 2008). The needed demographic information for a PVA is available for Florida's caracaras (see all of Morrison's and Dwyer's references) and the models can use a variety of initial population sizes, including the current best estimate of EPS, to arrive at estimates of extinction risk. To date, I am not aware of any effort to develop population models for Florida caracaras. Absent such a model, there is insufficient evidence to conclude that additional habitat loss and reduction to the number of breeding pairs is not likely to appreciably diminish survival and recovery.

29. Through my work, I am aware of a number of land conversion projects for which FWS recently authorized or reauthorized caracara take via Incidental Take Statements. From 2019 through 2021, FWS authorized or reauthorized caracara take from projects that will remove, cumulatively, more than 29,000 acres of caracara habitat, including at least 15 nest sites. See Appendix B, Attachment D (table listing projects). Some of those projects have already undergone land clearing, so habitat has been lost already, for example, projects "C-43," and "C-139 Flow Equalization Basin." Others have a longer time scale, and so the destruction is ongoing or will occur in the future. See id. If the pairs from those 15 nest sites cannot find another territory and reproduce successfully, in the long term, the contribution of those pairs toward long-term population persistence has been lost and recovery goals are likely not being met. Given habitat saturation, such loss is the likely result because as nesting habitat disappears and no new habitat is created, the displaced pairs will likely no longer have opportunities to reproduce. These projects already have resulted in, or will result in, losses or reduced reproduction of at least 15 pairs—and these are only the losses we know about because these

projects required an Endangered Species Act ("ESA") Section 7 consultation. Activities that result in habitat loss and thus, loss of nesting pairs on private lands, where there is no requirement for wetland permitting or Section 7 consultation are usually unknown. Such activities on inaccessible private lands may or may not be contributing to overall loss throughout the species' Florida range, but not considering any losses as contributing to cumulative effects is likely having a larger impact on population persistence than the FWS recognizes.

30. Since my initial studies of this population in the 1990s, many nest sites that I knew about then are now gone, the habitat having been converted to something not used by caracaras for nesting and foraging, i.e. urban or industrial development, or sod farms. Nest sites and the associated breeding territories are also lost when nesting habitat is converted to other agricultural uses and no suitable nesting trees remain close enough to the agricultural lands for such lands to be used for foraging by the breeding pair.

31. In the 2024 Biological Assessment for the RLW development project, page 17 and Exhibit 14, results from a crested caracara survey conducted from January through April 2023 documented two caracara nests within the proposed development area. One nest was in a cabbage palm located on the edge of the existing agriculture operation reservoir, approximately 2 miles south of Oil Well Road and 1.20 miles east of Desoto Boulevard (Nest 1, south nest. **Figure 1**). The other nest was in a cabbage palm located in a pasture approximately 1.25 miles north of Oil Well Road (Nest 2, north nest, **Figure 1**). The reports in Exhibit 14 did not provide any information on nest success or productivity at these two sites and indicated that "Additional monitoring of the nests through February 2024 did not document any caracara nesting activity at these nest locations." To the extent that there have been no significant changes to habitats at the proposed RLW development areas during 2024, there is no reason to expect that the caracaras would not still occupy both territories (Nest 1 and Nest 2). Caracaras are extremely territorial and site faithful and are likely to remain on a territory even if some changes to the landscape have occurred but suitable nest sites and sufficient foraging habitat remain (Morrison and Humphrey 2001).

32. From my experience, the survey methodology used in 2023 and 2024 as described in Exhibit 14 was insufficient. Surveys should not be conducted along transects; surveying only along transects results in missing possibly important areas of habitat. It is not clear that the

survey efforts followed through with sufficient time spent at the known nest locations to determine territory occupancy, nest outcomes, or whether the pairs may have begun a second nest attempt. Just because the February 2024 surveys did not document any caracara nesting activity at these two nests doesn't mean the sites are not active – the young may have already fledged, in which case the parents and young may not be around the nest site. Qualifications of personnel conducting the nest surveys are not provided – technicians conducting surveys who have not had extensive experience conducting caracara nest surveys or observing caracaras may not know how to interpret observations and may, in fact, arrive at erroneous conclusions about caracara presence, nest attempts, or nest outcomes.

33. The proposed RLW development will likely cause displacement of the caracara pairs at Nest 1 and Nest 2 because the known nest trees at these sites will be removed as will large acreages of foraging habitat. Table 1 explains the extent of loss of foraging habitat both within the assumed caracara territories as designated by the 2000 m buffer (total area ~3200 acres) and in adjacent areas outside the buffer containing suitable foraging habitat that is likely being used by the pairs of caracaras. In deciding what was foraging habitat and what was not, I used ArcGIS ver. 10.8.x and Google Earth© to identify land uses within polygons in the habitat layer plus my knowledge of what caracaras actually use based on thousands of telemetry datapoints and field observations. In addition to foraging on agricultural lands, caracara also forage in wetlands, marshes, open land, etc., so I considered all acreages of these habitats that will be lost to the development.

34. Table 1, below, summarizes the results of my evaluation of how the proposed RLW project will affect foraging habitat available for the two breeding pairs.

Table 1. Acreages of foraging habitat within and adjacent to the two caracara territories at the RLW site that will be affected by the development. Highlighted yellow values show summation (i.e., the values in row 8 reflect the sum of the values in rows 3 and 5).

	Acres	
Habitat	**Nest 1 (south)**	**Nest 2(north)**
(1) Area 2000 m radius buffer around nest	3200	3200
(2) Acreage of development area within the 2000 m radius buffer	1336 (42%)	923 (29%)
(3) Foraging habitat within 2000 m radius buffer that will be lost because of RLW development (% is that of these acres to the overall 3200 acres)	1316.2 (41%)	901.7 (28%)
(4) Foraging habitat **within** the 2000 m buffer that is **outside** the RLW development area	259.9 (8%)	0
(5) Foraging habitat **outside** the 2000 m buffer that may be used by both pairs and is **within** the RLW development area.	937.8	1704
(6) Foraging habitat **outside** 2000 m buffer that may be used that is **outside** the RLW development area but is within the overall RLW project boundary. These areas appear to be subject to a restrictive covenant limiting the use to "conservation or agricultural purposes" until June of 2049, unless released from the requirement earlier by Collier Enterprises or its assignee. (See 2019 Deed from Collier Enterprises to Gargiulo, Inc.)	493.1	184.1
(7) Foraging habitat **outside** the RLW project boundary likely being used by caracaras at Nest 2	0	1600
(8) Total acres likely currently being used for foraging by the pairs at Nest 1 and Nest 2 that will be lost due to RLW development	2254	2605.7

35. Nest 1. The project footprint includes development of ~ 1336 (42%) acres of the 2000 m radius buffer around Nest 1 (the southern nest). Within these 1336 acres are 1316.2 acres of foraging habitat (**Figure 2**), or 41% of the total buffer area; these 1316.2 acres will be lost to the RLW development. It is not appropriate to assume that a caracara's territory is circular around the nest, thus, the caracaras are likely also foraging in the ~937.8 acres of agricultural lands just north of the Nest 1 buffer. These acres are within 3 km of Nest 1, so their use by this pair is a reasonable assumption. These 937.8 acres are also within the RLW development area so will be lost (**Figure 2**).

36. Within the Nest 1 buffer are ~259.9 acres of foraging habitat not within the RLW

development area (**Figure 2**); these acres may continue to be used by the caracaras, although if the nest tree is gone, along with alternate nest trees and other foraging habitat, this pair will likely move and attempt to establish a territory in another area so they may or may not use these remaining acres. There are an additional 493.1 acres of agricultural land outside the Nest 1 buffer (**Figure 2**) that are likely being used by this pair for foraging. These acres are not within the RLW development footprint but are within the RLW boundary, in an area that appears to be owned by Gargiulo, Inc., and subject to a 30-year deed restriction imposed in 2019, and so ultimately may be subject to development after that time unless additional restrictions are somehow imposed. See 2019 Deed from Collier Enterprises to Gargiulo, Inc.

37. Nest 2. The project footprint includes loss of ~923 acres (~29%) overall, within the 2000 m radius buffer around Nest 2 (the northern nest) (**Figure 2**). Within these 923 acres are 901.7 acres of foraging habitat, or 28% of the total buffer area (**Figure 2**); these 901.7 acres will be lost to the RLW development. There are no acres of foraging habitat within the 2000 m buffer around Nest 2 that are not in the RLW development area. There are ~1704 acres of agricultural land outside the Nest 2 buffer but within the RLW development area and 184.7 acres of agricultural land outside the RLW development area but within the overall RLW project boundary (**Figure 2**). These ~1889 acres are likely being used as foraging habitat by the Nest 2 pair. Again, a breeding caracara pair's territory is likely not circular, and these other areas of foraging habitat are within 3 km of Nest 2, so their use by this pair is a reasonable assumption. The 1704 acres will be lost to the RLW development, whereas the 184.7 acres inside the RLW project boundary appear to be lands owned by Gargiulo, Inc. subject to a 30-year deed restriction imposed in 2019, and so ultimately may be developed after that time unless additional restrictions are somehow imposed. Finally, there are an additional 1600 acres of agricultural land outside the RLW project boundary (**Figure 2**) that are likely being used as foraging habitat by the Nest 2 pair. These acres also appear to be owned by Gargiulo and subject to a 30-year deed restriction imposed in 2019, and so ultimately may be subject to development unless additional restrictions are somehow imposed. Given the landscape north of the Nest 2 buffer, there likely is another pair of caracaras in this area, so if the Nest 2 pair are displaced to forage outside the RLW project boundary, they may incur competition from another resident pair.

38. To summarize, the RLW development will remove approximately 4860 acres of foraging habitat including lands within the 2000 m buffers and in the general areas of Nest 1 and Nest 2

(2254 and 2606 acres respectively) that are likely being used by these pairs (**Figure 2**), along with at least 2 nest trees and other habitats used for perching and resting. Such loss likely will cause loss of reproductive success for the affected pairs for more than just the first year of the Project because the habitat loss is permanent and because the displaced pairs will likely have to compete with adjacent pair(s) for nest sites and foraging habitat. Based on telemetry data from breeding caracaras associated with habitat conversion projects in other areas I have been involved with, loss of the nest tree and this proportion of acreage of foraging and other used habitats will likely cause the breeding pair to abandon the original site and shift to a nearby area, if one is available.

39. Based on previously identified nests in areas near the Rural Lands West site, there likely are other breeding pairs in these nearby areas. See **Figure 1** below. As shown in Figure 1, which I created based on nest locations that either have been documented in publicly available reports or that I have personally observed, there are several known caracara nests in the general vicinity of the proposed Rural Lands West development. The location of the two nests within the footprint of the Rural Lands West site are based on survey information in the 2024 Biological Assessment report for the Rural Lands West project (page 47 and Exhibit 14), which describes both nests as active in 2023. See Appendix D (Literature Cited). The location of the nest within the Bellmar site was reported in a Biological Assessment report for the proposed Bellmar project, which describes a nest located in 2009. See Appendix B at ¶¶ 32–34. The other three nests shown on Figure 1, at the Ave Maria sites are nests that I have observed personally within the last three years and all have been active and produced young during those years.

40. The distances between the three nests in Figure 1, two observed on the Rural Lands West site in 2023 and one observed in 2009 on the proposed Bellmar site indicate that these nests are associated with three different breeding pairs. The two nests on the proposed Rural Lands West development are ~5.4 km apart, and the distance between RLW Nest#1 (the southern nest) and the nest on the proposed Bellmar project area is ~4.3 km. The average distance between neighboring nests (3.4 km, $n = 29$ nest pairs, Morrison and Dwyer 2023), indicates that the two Rural Lands West nests and the Bellmar nest represent three pairs. Similarly, the three nests associated with the Ave Maria development are from 6 to 14 km from the two nests on the proposed Rural Lands West development and the Bellmar nest, and therefore represent yet another three breeding pairs. Although the three nest sites are associated with the Ave Maria

development, there are surrounding agricultural lands and wetlands within those caracaras' territories that provide good foraging habitat. However, if pairs within the RLW development are displaced because of habitat loss, they may incur competition with the Ave Maria pairs, on remaining foraging habitat. Given other suitable caracara habitat to the north of the proposed Rural Lands West development, including a matrix of agricultural, wetland, and forest lands (**Figure 1**), and the saturation of habitat discussed above, it is likely there are other adjacent pairs that could be affected by the 2023 Rural Lands West nesting pairs shifting away from the Rural Lands West development footprint. There are likely more nests adjacent to the Rural Lands West and other projects that are not known as many of these areas have not been surveyed for breeding pairs. Because breeding pairs of caracaras are highly territorial and act aggressively toward conspecifics intruding into their territories, displacement from a project site likely always results in competition between displaced pairs and pairs in adjacent territories.

41. Competition combined with any habitat destruction experienced by other breeding pairs adjacent to the RLW Project could result in more than two pairs being lost. As detailed above, caracaras are highly territorial. This high site fidelity makes them extremely vulnerable to certain amounts and types of changes within their territory. When a nest tree is taken or foraging area(s) are converted from suitable habitat to other land uses, the pair may remain for a short period if there is any foraging habitat remaining, and they will hold on long as they can. But ultimately, they must move to other areas with suitable habitat, in order to survive, and they may or may not reproduce successfully in these other areas.

42. In general, breeding pairs displaced by land conversion may experience the following outcomes:

(1) Disturbed caracara pairs may move to habitat adjacent to the project site and establish a new nest site and territory. If successful at establishing occupancy, they may be able to survive and reproduce successfully. Or, they may be unsuccessful in new areas either because of territorial aggressiveness from resident pairs or because the newly colonized habitat is insufficient to support reproduction.

(2) Disturbed caracara pairs may travel some distance from the project site to find another area of suitable habitat where they can establish a new nest site and territory. If successful at establishing occupancy, they may be able to survive and reproduce successfully. Or, they may be unsuccessful in new areas either because of territorial aggressiveness from resident pairs or because the newly colonized habitat is insufficient to support reproduction.

(3) Disturbed caracara pairs that move either adjacent to or far from project sites may fail to establish new territories and nest sites (i.e. become "floaters") traveling throughout the species' range without ever becoming established on another territory. If this happens, further contribution by that pair to long-term population persistence is lost. Unless they can acquire a territory, these individuals are not contributing to reproduction within the population. Floaters include individuals of all ages, even adults, suggesting there are adult individuals in this population that already cannot acquire a territory or mate. These floaters may be found in groups foraging together and at communal roosts (Dwyer et al. 2013, 2018).)

4) Disturbed caracara pairs that move to new areas may displace other breeding pairs already in those areas. These other displaced pairs may exhibit any of the responses described above.

5) Pair bonds of disturbed caracara pairs may dissolve, individuals may or may not find another mate and territory and exhibit any of the responses described above.

43. Evidence from multiple years of telemetry on one member of several breeding pairs of caracaras associated with land conversion projects substantiates shifts of displaced pairs and suggests that over time, reproductive rates decline.

44. FWS's effects conclusion for the Bellmar project acknowledged that "all suitable caracara habitat is believed to be saturated." See 2023 FWS Bellmar Decision Document at 9.

45. With regard to the impacts of the proposed Rural Lands West development, it is likely that displacement will result in permanent loss of the reproductive capacity of at least two breeding pairs. This is the case due to the population-wide saturation of the habitat and the presence of multiple other breeding pairs in the vicinity of the Rural Lands West site that will compete with the displaced pairs.

46. The proposed mitigation described in the 2024 Biological Assessment for Rural Lands West is inadequate to prevent the loss of the two breeding pairs within the project footprint resulting from destruction of the nest trees, any alternate nest trees, and the foraging habitat in their respective territories. Destruction of over 4800 acres of foraging habitat within the 2000 m buffers and in the general areas of Nest 1 and Nest 2 (2254 and 2606 respectively) that are likely being used by these pairs, along with loss of at least 2 nest trees and other habitats used for perching and resting likely will cause these pairs to abandon their respective territories or, at minimum, be unable to reproduce successfully given that amount of habitat loss.

47. On page 47 of the 2024 Biological Assessment, mitigation activities are stated as follows "Land clearing activities will be conducted outside the nesting season for areas that

occur within the primary zone (984 feet or 300 m radius around the nest) of any documented crested caracara nest site. Should it be necessary to conduct land clearing activities during the nesting season, land clearing within 984 feet (300 meters) of any nest identified during the survey referenced above will not occur until monitoring has determined the nest has either been abandoned, or chicks within the nest have fledged and left the nest site." Disturbance from the clearing and construction activities even outside the 300 m radius buffer during the nesting season may cause territory abandonment. For example, I am aware of a situation where dredging activities that occurred 500 meters from an active nest caused nest failure and subsequent territory abandonment. In addition, disturbance commencing as soon as a nest is deemed empty may cause reduced survival of fledglings and subsequent loss of that year's reproductive output because fledglings remain in the territory for several months after fledging, are dependent on their parents, and often return to the nest tree to roost (Morrison and Poli 2024).

48. The area within 300 m of a nest tree is approximately 70 acres, ~2% of a caracara's home range, insufficient area to support a breeding pair. See Figure 1, below, which I prepared using information about the location of the nests described in the Biological Assessment reports for the Rural Lands West project from surveys conducted in 2023, from the Biological Assessment report for the Bellmar project from surveys conducted in 2020, and from my own knowledge of nest sites. See Appendix B and Appendix D. Mitigating for destruction occurring only in this 70 acre area at each nest site is insignificant if other habitat is destroyed.

49. Mitigation for habitat loss only within the 300 m radius zone while allowing destruction of 28% (Nest 2) and 41% (Nest 1)of foraging habitat within the overall 2000 m radius buffers (assumed territories) will likely result in abandonment of these nesting pairs within the footprint. Plus, even if 70 acres of nesting habitat for each territory is restored (which must include providing one or more nest trees), there must be adequate foraging habitat associated with the nest trees for a pair to occupy the area and be successful. Restoring only 70 acres of nesting and foraging habitat will not ensure presence of a successful breeding pair in the absence of sufficient suitable foraging habitat near the nest tree(s) that is not already being used by another breeding pair. Page 47 of the 2024 Biological Assessment states, "Restoration activities will be conducted by restoring native dry or wet prairie with scattered cabbage palms or creating improved pasture and planting scattered cabbage palms. Restoration activities will

occur on existing agricultural lands located within the Project site or on agricultural lands adjacent to the Project site that is under the applicant's ownership." This statement does not sufficiently describe who or how mitigation lands will be identified, designated, and managed to maintain the habitats, and whether anyone will monitor restored lands going forward to determine whether caracara pairs actually occupy those areas and breed successfully. From Figure 1, there will only be approximately 753 acres of remaining agricultural lands located within the RLW boundary following construction of that project, an insufficient amount of habitat to support a breeding pair of caracaras. And, as described above, the agricultural lands north of the RLW boundary are likely already being used by another breeding pair.

50. In addition, even if the nest trees used in 2023 do not appear to be active when construction occurs, the pairs are likely to have an alternate nest within their respective territory where they will make a nest attempt. As discussed above, while breeding pairs of caracaras are strongly site faithful, they do use alternate nest trees that are often with 0.5 km of each other but are within the same territory, and thus the pairs rely on the same foraging areas even if using alternate nest trees. It is important to identify alternate nest trees when evaluating possible impacts of a land conversion project. When conducting surveys for caracara nests, it is important to not just observe at a known nest tree but to closely observe the birds for flights and other behaviors leading to their possibly nesting in another tree. Even if a nest site does not have signs of active nesting when construction occurs, the pair would likely be nesting in an alternate tree thus would still experience the impact of losing the extensive amounts of foraging habitat in their respective territory, as shown in Table 1. A nest site/territory can be declared "inactive" only after a 3-year period of documented inactivity and absence of observations (USFWS Draft Species Conservation Guidelines 2004). But such a declaration is only rational and supported if the surveys have been conducted properly.

51. Further, mitigation requirements that allow construction to occur immediately post-fledging are inadequate to minimize impacts to the newly fledged young. The assumption that land clearing activities may be conducted inside the 300 m primary zone, or even within the 2000 m buffer once young have fledged from the nest, without causing impacts to the fledged young, is faulty. Extensive telemetry data indicate that recent fledglings remain mostly within 1 km of the nest for at least the first two months post-fledging and are still dependent on their parents during that time (Morrison and Poli 2024). Thus, land clearing activities around the nest

during this post-fledging period are likely to have negative effects on the young birds, including reduced survival. In past decisions, such as the Technical Assistance decision for Bellmar, FWS has adopted such inadequate measures. (See 2023 FWS Decision Document for Bellmar at 3, "Condition 2").

52. For the reasons described above, even with the proposed mitigation, likely effects of the RLW Project include the permanent displacement and permanent loss of the reproductive capacity of at least two breeding pairs (Nest 1 and Nest 2). Survival of the breeding pairs may also be impaired if the individuals cannot find suitable sites to relocate, i.e. sites having sufficient foraging resources and lack of stress from competition with neighboring pairs (see discussion above). For the same reasons, survival of the newly fledged offspring of these pairs is also likely to be impaired, even with the conditions FWS has required, as noted above. Displacement of the breeding pairs will occur when the fields are cleared for construction or flooded. The pairs may continue to forage in the cleared areas temporarily if not disturbed by clearing and construction activities. But by the next nesting season the pair will have to relocate to attempt to establish a new territory and attempt to secure a new nest site.

53. With regard to the impacts of the proposed RLW development, it is likely that habitat loss and displacement will result in permanent loss of the reproductive capacity of at least two breeding pairs. This is the case due to the saturation of the species' habitat and the presence of multiple other breeding pairs in the vicinity of the RLW site, which will compete with the displaced pairs. Furthermore, the impacts to those other breeding pairs from the competition will accumulate with impacts to them from other sources, such as habitat loss in their territories. To fully assess the cumulative impacts of the RLW project with other reasonably foreseeable development, the Corps should first require thorough nest surveys to be conducted by qualified, vetted biologists to identify all pairs in and adjacent to a proposed development project and to require telemetry studies conducted by properly permitted biologists to identify important foraging habitats. In addition, the Corps should evaluate whether adjacent breeding pairs affected by competition from displaced (project) pairs also experience stress from other sources, such as habitat loss or degradation in habitat quality, in addition to the competition.

54. For the reasons provided above, the proposed mitigation fails to minimize the impacts of the RLW Project. To minimize those impacts, the Corps and FWS should require equivalent habitat replacement elsewhere within the population's Florida range that is sufficient to create a

new breeding territory. This would include ensuring the presence of multiple potential nest sites (i.e. planting cabbage palms) and at least 1296 hectares (about 3200 acres) (average home range size) of good foraging habitat within the breeding territory associated with those nest sites, and further confirm that such foraging habitat is not already within the breeding territory of another breeding pair. And all mitigation activities must include follow-through (surveying and monitoring) over multiple years to verify that newly created habitat is actually being retained and used by breeding caracaras.

55. In drawing conclusions about the effects of the development in recent decision documents for other nearby projects, such as the Bellmar project, the FWS has failed to properly evaluate the baseline condition of the Florida population. As explained above, since 2019, FWS has authorized or reauthorized destruction of approximately 29,000 acres of caracara habitat resulting in take of around 15 breeding pairs. Yet FWS's Bellmar Decision Document did not consider that loss in assessing the impact of the additional habitat and breeding pairs that will be lost due to the Bellmar Project or additional pairs that might be lost due to displacement of the Bellmar pair onto adjacent caracara territories, leading to stress from competition.

56. Nor did FWS consider the cumulative impacts of Bellmar coupled with reasonably foreseeable future development that will destroy additional caracara habitat, such as RLW. Instead FWS restricted its cumulative impacts analysis only to the footprint of Bellmar, despite recognizing that the habitat destruction from Bellmar would send the displaced breeding pair into the territories of other breeding pairs, where the pair will compete with other pairs, as explained above and shown in Figure 1 and where habitat loss may also be occurring.

57. As explained above, displacement of the breeding pairs from RLW is likely to have effects that extend outside the RLW project boundary, because the displaced pairs will compete with pairs in adjacent territories. Further, displacement of the breeding pairs from RLW is likely to have a "domino effect" on other breeding pairs, meaning the area affected by the displacement is likely even broader than just the most adjacent territories. The Corps' cumulative impacts analysis therefore should consider how habitat loss from other reasonably foreseeable future impacts will combine with this "domino effect" from displacement of the breeding pairs from Rural Lands West. Given these concerns for both the RLW and Bellmar development projects, if these projects are completed, effects would be widespread and include

displacement by several pairs of caracaras which may also be experiencing other stresses from habitat loss, or other nearby development.

58. In January 2024, Sierra Club contracted me to review and provide my independent evaluation of the assertions that the U.S. Fish and Wildlife Service made regarding impacts of the Bellmar development on the Florida crested caracara in the documents titled "Federal Defendants' Opposition to Motion for Temporary Preliminary Restraining Order and Preliminary Injunction by the Center for Biological Diversity and Sierra Club," filed on January 12, 2024 in case 1:21-cv-00119-RDM (Docket No. 148) ("Federal Defendants' Opposition"), and Exhibit A to that document, "Declaration of Robert Carey" (Docket No. 148-1). See Appendix C. I reviewed the assertions in those documents regarding Florida crested caracaras.

59. Those documents contain a number of errors that reflect a fundamental lack of understanding regarding the biology, habitat use and needs of crested caracaras, and of already documented outcomes incurred by known pairs affected by similar development projects. These outcomes include displacement of pairs into adjacent areas, loss of individuals, and reduction in productivity. In assessing the effects of the Rural Lands West development, the agencies should not repeat these errors and should especially consider those effects in conjunction with these effects incurred by caracara pairs on other lands slated for development and habitat loss.

60. Federal Defendants' Opposition implied that the breeding pair associated with the Bellmar site will experience only temporary loss of reproductive capacity, not permanent loss of reproductive capacity, because the pair has alternate nest trees, and will therefore not be harmed by removal of the previously used nest tree at the site. *See* Appendix C, Docket No. 148 at 32-3; Docket No. 148-1 at ¶¶ 46-47. That assertion irrationally ignored that the foraging habitat associated with the nest trees used by the pair would be destroyed by the construction at the Bellmar site and converted into something not used by caracaras (housing). For Rural Lands West, it would also be erroneous to assert that impacts to reproduction will be temporary merely because the breeding pairs have alternate nest trees. The loss of known and possibly alternate nest trees of the two pairs within the RLW development area notwithstanding, the extensive loss of foraging habitat that would result from this development likely will result in impacts as described above, including displacement and permanent loss of

the reproductive contribution of the two known breeding pairs.

61. With regard to Bellmar, Federal Defendants' Opposition also stated that there currently are no active nests in the footprint of the Bellmar site, Appendix C, Docket No. 148 at 12, and the declaration Robert Carey states that the active nests observed on-site in 2020 and 2022 were "determined to be inactive in 2023, and a different nest was found offsite to the north." Docket No. 148-1 at ¶ 47. A nest site/territory can be declared "inactive" only after a 3-year period of documented inactivity and absence of observations determined after conducting thorough and accepted surveys (USFWS Draft Species Conservation Guidelines 2004). Thus, the fact that both pairs at the RLW development site had active nests in 2023 means that these pairs should still be considered to be active and using their respective territory within the RLW site. Note that the different nest 'found offsite to the north' as described by Mr. Carey, above, in reference to the Bellmar site is actually the southernmost nest (Nest #1) within the RLW development project footprint, for reasons stated above (Figure 1).

62. From mapping and given the distance between the Bellmar nest and the nest 'north' of the Bellmar site, I believe that the nest 'north' of the Bellmar site is the same as Nest #1 of the RLW site (see **Figure 1**). To clarify, there are at minimum three pairs that would be affected directly by completion of both the Bellmar and the RLW developments. (As explained above and in Appendix B, there is not adequate evidence to show that the breeding pair previously detected nesting on the Bellmar site is no longer using that breeding territory.) All three pairs would be harmed by the loss of foraging habitat from the construction footprints that will destroy foraging habitat at both developments. Other adjacent pairs would likely be affected as well, as the pairs displaced from the Bellmar and RLW developments try to establish territories in adjacent areas that may already be occupied. This is an example of the larger, cumulative effects of multiple projects being conducted across the caracara's range in Florida. Removal of foraging habitat and nest trees resulting from both developments further limits areas where 'displaced' pairs from all three nest sites can move to.

63. With regard to Bellmar, Federal Defendants' Opposition also asserted that impacts on breeding success will be only temporary, not permanent, for the breeding pair because even if "the project may cause caracara to permanently shift their territory…such shifts occur with some regularity." Appendix C, Docket No. 148 at 12. Relatedly, Federal Defendants' Opposition asserted that the suitability of the cropland foraging habitat on the Bellmar site

varies seasonally with farming activities, and implied, therefore, that the "footprint of the Bellmar project does not constitute a significant percentage of a crested caracara pair's home range." Appendix C, Docket No. 148 at 32. In making this assertion, that document relied on the declaration of Robert Carey where Mr. Carey stated that the caracaras use the cropland opportunistically, during tilling, but may reduce activity levels during harvesting or when the fields are fallow. Appendix C, Docket 148-1 at ¶ 43. Mr. Carey also stated that the loss of reproductive success for the pair is only temporary (for no more than one season) because "we anticipate that this pair uses suitable habitat offsite and is accustomed to shifting its use of the 1440.33 acres onsite in response to agricultural use change/presence of people and machinery." Appendix C, Docket No. 148-1 at ¶ 45. These statements demonstrate a fundamental lack of understanding of Florida crested caracara habitat use and behavior with regard to their territories. Caracaras use croplands during all periods of the agricultural cycle - during tilling but also during harvesting and when fields are fallow, feeding on insects and other small prey (Morrison and Pias 2006, Morrison et al. 2008).

64. Pairs are highly faithful to a territory and do not "shift" their territory if no alteration of the habitat within it occurs. They may shift their nest site and use alternate trees within that territory from year to year or even within a season if they attempt double brooding, but the territory itself does not shift. This is likely because, as has been noted, pairs are highly site faithful and because evidence suggests that all suitable habitat for breeding pairs of caracaras in Florida is saturated. Thus, pairs do not have an option to "shift territories with some regularity," and telemetry data indicates they do not do so unless habitat within their territory is lost. And pairs can 'shift' territories in response to such loss only if suitable habitat is available elsewhere.

65. Telemetry data show that caracaras use as many types of habitats as food resources are available there. Even if farming activities such as tilling are not ongoing at a site, caracaras often continue to use that site for foraging because they regularly forage on insects and other small organisms (small reptiles and mammals) that continue to be present even in fallow fields. If the footprint of the RLW project includes areas of seasonally used farming activities, those areas are still within the territory of the pair and likely will continue to be used by the pair unless the habitat is converted. Yes, caracaras use areas opportunistically, but the fact remains that they do use these areas, so removal of used areas constitutes loss of habitat for this pair. It

would be erroneous to conclude that the loss of such foraging habitat will be minimal merely because of the seasonal nature of the farming activities. Even taking into account the seasonal nature of the agricultural activities, the loss of foraging habitat detailed above in Table 1, within their respective territories, will affect the ability of these pairs to acquire sufficient resources for themselves and their young, resulting in displacement and competition with other nearby pairs, and likely permanent loss of reproductive success.

66. As previously mentioned, due to habitat saturation, areas of suitable habitat are likely already occupied by one or more other breeding pairs. Given this situation, pairs displaced by the RLW development likely will not be able to just "shift" somewhere else successfully because they are likely dependent on the nest sites and foraging habitat within the RLW site. Loss of that habitat will likely result in permanent loss of reproduction because other areas of habitat are already occupied by other pairs, and displaced pairs will incur competition with those pairs. In addition, the impacts of the RLW development will be exacerbated by combining with the impacts from other reasonably foreseeable future developments (such as Bellmar and Kingston) that will result in the reduction of other areas of suitable habitat offsite.

67. I have been conducting telemetry to monitor pairs of caracaras affected by land conversion projects for almost a decade. Data indicate that pairs forced to shift their territory by habitat destruction experience declines in reproductive success and productivity that begin within two to three years after displacement. Even though they may make a nest attempt, over time, nest success and productivity (number of young produced) is likely to decline.

68. With regard to Bellmar, Federal Defendants' Opposition asserted that permit conditions preventing clearing immediately around nest trees from occurring during nesting season are adequate to minimize the likelihood of take. Appendix C, Docket No. 148 at 34. Again, such a condition does not address the impacts from converting a substantial portion of the foraging habitat within a breeding territory to housing, which will result in permanent loss of that habitat. Even if clearing activities occur outside the nesting season, those activities will result in permanent loss of habitat, likely resulting in permanent displacement and permanent loss of reproductive success due to the saturation of caracara habitat.

69. The very small amount of habitat replacement (about 70 acres) that will be required if habitat destruction within the "primary zone" around a nest occurs does not rationally address the impacts of destroying 28% (Nest 2) and 41% (Nest 1) of foraging habitat within the 2000 m

buffers (territory) and additional foraging habitat outside the buffers that likely is used by the breeding pairs at the RLW site (see Table 1). The primary zone is the area within a 300-meter radius of a nest, and its total area is approximately 70 acres. Replacing a destroyed nest site and up to 70 acres around it does not address the destruction of the substantial amount of foraging habitat associated with the breeding territory for that nest and would not prevent the likely permanent displacement caused by the loss of foraging habitat, and likely would result in permanent loss of reproductive success for the displaced breeding pairs. Establishing 70 acres of replacement primary zone habitat elsewhere would be meaningless unless it was surrounded by approximately 3200 acres of suitable foraging habitat that is not already within the breeding territory of another caracara pair and would not result in encroaching on another pair's territory. Considering the saturation of caracara habitat, it is not at all evident where such conditions would possibly occur. No information is presented in the currently available documents as to where such suitable nesting and foraging habitat that are not already within the breeding territory of another caracara pair is located, or how it would be identified.

70. The 2024 Biological Assessment for the RLW development states that "restoration activities will occur on existing agricultural lands located within the Project site or on agricultural lands adjacent to the Project site that is under the applicant's ownership." It seems that the proposed construction footprints for RLW will result in no remaining adequate foraging habitat within the 2000 m buffer of Nest 2 (Table 1). Although ~263 acres of foraging habitat inside the 2000 m buffer of Nest 1 is not within the RLW development area so will remain, at least in the short term, this acreage is not sufficient to support a breeding pair of caracaras and their young. Other agricultural lands that could serve as foraging habitat that are **outside** the development area (approximately 2277 acres, [1600+493.1+184.1] Table 1) are not sufficient to support the two pairs currently nesting at the RLW site. Also, these lands appear to be owned by Gargiulo Inc. and subject to a 30-year deed restriction imposed in 2019, such that absent additional measures to restrict use of those lands after that time, they may be developed eventually.

71. With regard to Bellmar, Federal Defendants' Opposition stated that no "lethal take" is anticipated for crested caracaras. Appendix C, Docket No. 148 at 30. However, reproductive failure for an adult breeding pair encompasses circumstances when newly hatched young (nestlings) die due to conditions such as inadequate food delivery. "Take" can either be direct or

indirect. Indirect take can include death of embryos in eggs or mortality of nestlings resulting from, for example, weather or disturbance to parents causing them to reduce time spent in incubation or brooding, or reduced rates of food deliveries to the young. Even if a pair is using an offsite nest tree, disturbance activities onsite such as clearing, noise and disturbance from machinery, etc. can cause these outcomes if they occur during the nesting season. Indirect take can also include death of fledglings, which can happen during the period when fledglings remain near the nest site and within the territory, which they do, from 2 to up to 11 months post-fledging (Morrison and Poli 2024). Fledglings remain dependent on their parents for food for the first 2 months post fledging. If clearing or construction activities occur near the nest site during these 2 months, adult food delivery rates to fledglings can be reduced, causing mortality of young. If a pair is displaced out of the project footprint and into an area occupied by another breeding pair, due to habitat saturation, a pair is likely to experience permanent loss of reproductive success, either failing to make a nest attempt at all, or losing their young for any of the reasons listed above. I have observed resident pairs harass the young of other pairs in their territory with potential to cause injury or even mortality. If a pair and their young are displaced from a territory into an area where another pair resides, the young will be at risk of such harassment.

72. With regard to Bellmar, the declaration of Robert Carey asserted that impacts from 29,125 acres of habitat destruction from past projects that FWS authorized between 2019 and 2021 would not have any combined effect with the impacts of the Bellmar development because those projects were all at least 10 miles or 8 caracara territories away from Bellmar. Appendix C, Docket No. 148-1 at ¶ 48. This statement demonstrates a lack of understanding regarding population biology and the need to consider those prior authorized impacts when establishing the baseline condition of the Florida crested caracara population. Those projects resulted in loss of nesting and foraging habitat, which means that pairs affected by those projects were displaced. Those pairs may have temporary or permanent loss of reproduction. Even if productivity is only reduced, that affects the population in the long-term because that means fewer young birds would eventually become breeders themselves. Notably, the overall probability of a nestling surviving to age 3, when it could potentially become a breeder is only 0.334 (Morrison 2003). In short, regardless of the distance of those projects from Bellmar, the Service should have considered the contraction of the population authorized by the combined

habitat losses from those past projects as part of evaluating the baseline condition of the population and should have considered Bellmar's impacts on top of that baseline. The same is true for Rural Lands West. In considering the baseline condition of the population, the Corps and FWS should take into account the extensive impacts that FWS has already authorized in prior decisions.

73. Finally, as breeding pairs of caracaras are displaced from preferred habitat and sites where they can be observed by the birdwatching public, opportunities for the public to find and observe these birds are reduced. Caracaras are most often observed along roads as they fly or walk along them looking for food. These raptors are particularly easy to observe if habitats along roads are pasture, prairie, or agricultural lands. If these habitats along roads are lost or converted caracaras will likely be displaced from previously occupied areas, as noted above. A consequence is that members of the public will not be able to see caracaras along roads where the birds may have been seen previously. And this consequence reduces overall opportunities for people to see this unique raptor because other areas where they occur (mostly on private lands, as noted above) are not accessible to the birding public. Thus, displacement of the breeding pairs from the nest sites and foraging habitats on the Rural Lands West site is likely to reduce the opportunity to see the pairs on public areas along roads adjacent to the Rural Lands West site. Notably, birders from all over the world actually come to Florida to see caracaras because they are so unique.

74. A list of the scientific literature cited in this report is presented in Appendix D.

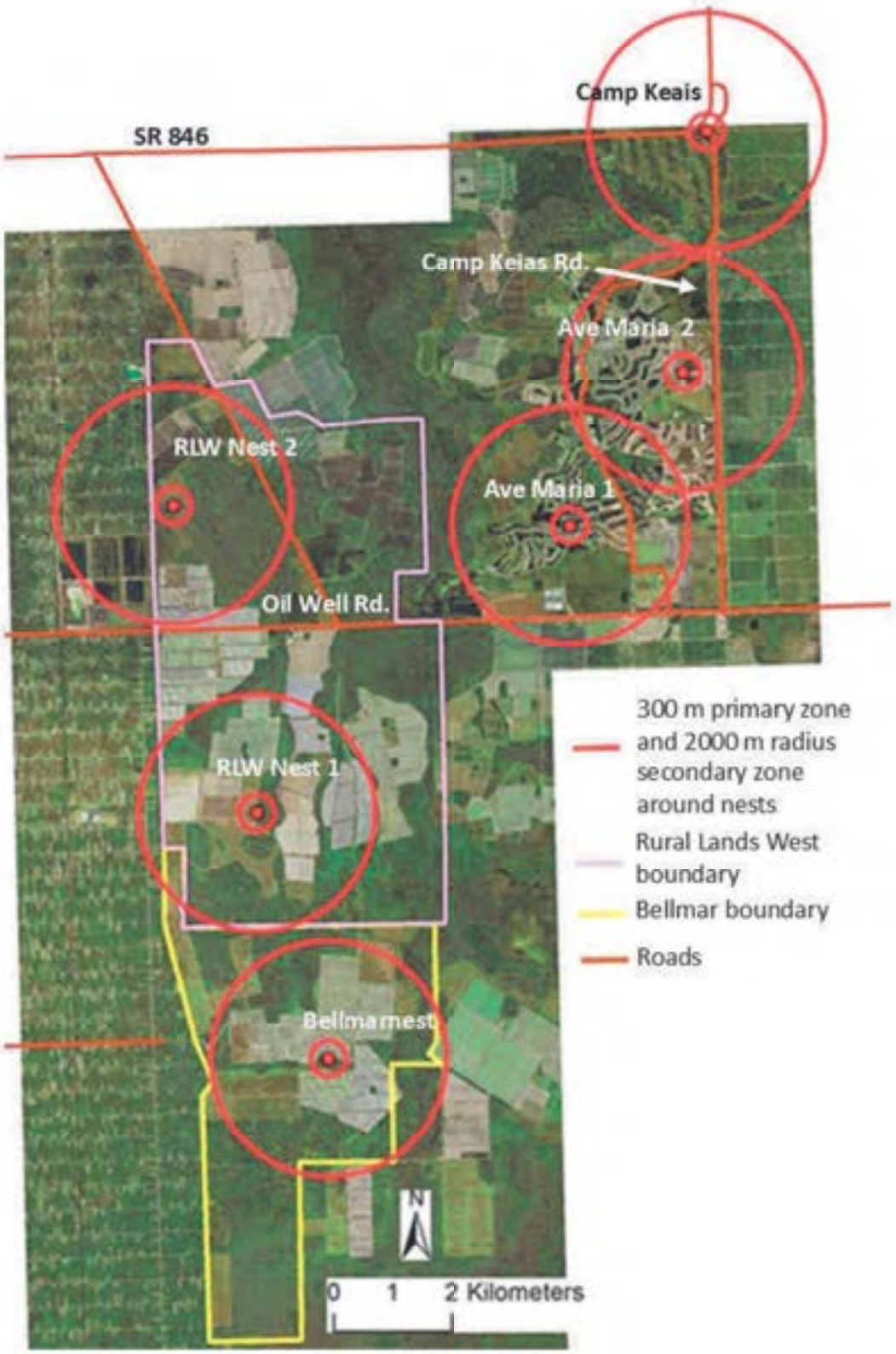

Figure 1. Locations of known caracara nests associated with the Rural Lands West project and known nests in adjacent areas.

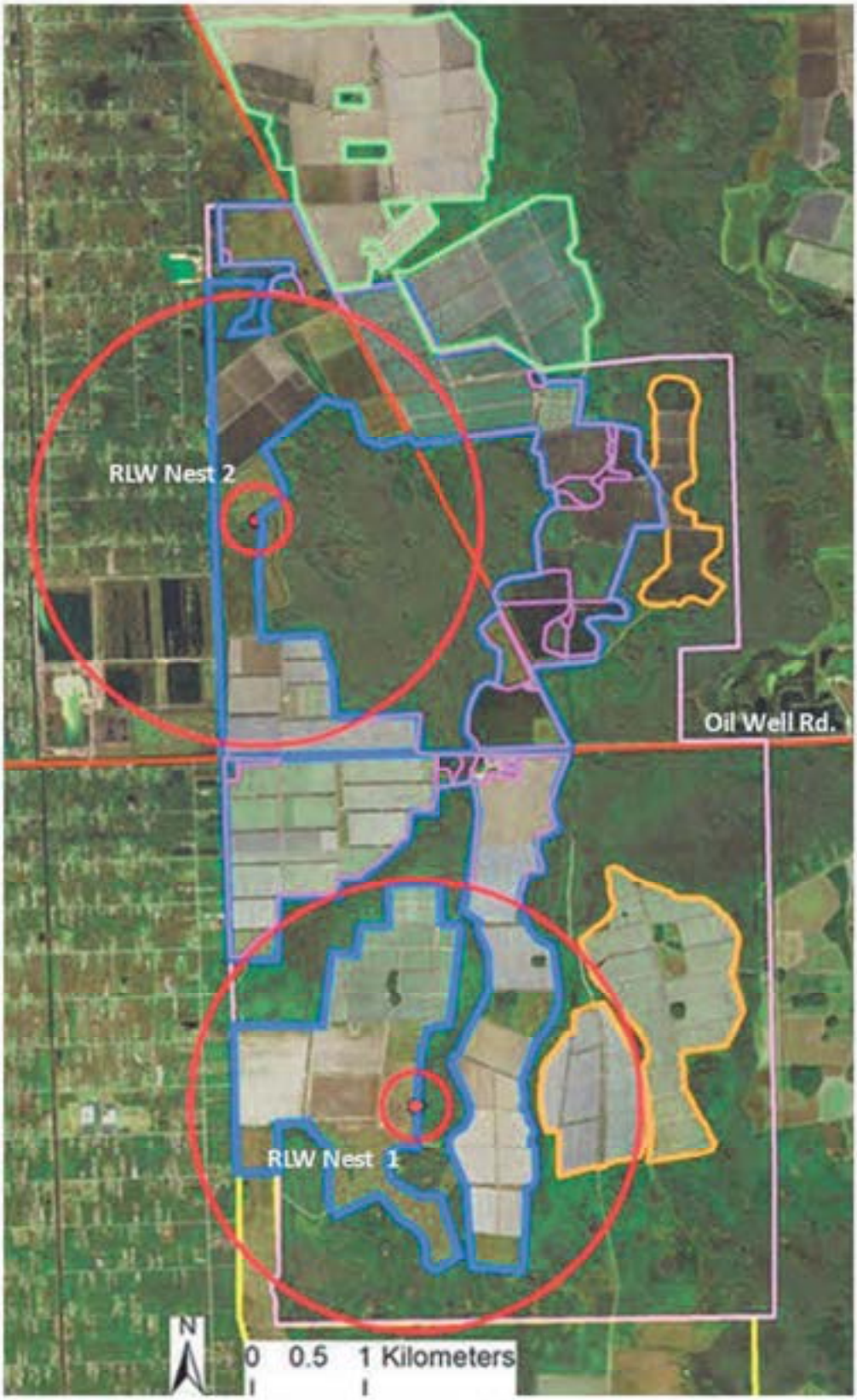

Figure 2. All acreages that contain at least some foraging habitat that may be used by caracaras at Nest 1 and Nest 2. See legend on next page.

LEGEND FOR FIGURE 2.

Rural Lands West development area boundary, some of these lands include foraging habitat within the 2000 m buffer areas of Nest 1 and Nest 2.

Lands within the RLW development area but outside the two caracara territories as delineated by the 2000 m buffers. Some of these acreages are foraging habitat likely used by the pair at both Nest 1 and Nest 2.

Agricultural lands outside the RLW development area but within the RLW overall project boundary. Some areas are within the 2000 m buffer of Nest 1, some areas are outside the buffer. These lands are likely used as foraging habitat by the pair at Nest 1, the more northern acres are likely used as foraging habitat by the pair at Nest 2.

Agricultural lands outside the RLW project boundary. These lands are likely used as foraging habitat by the pair at Nest 2.

300 m primary zone and 2000 m radius secondary zone around nests

Rural Lands West project boundary

Bellmar boundary

Roads

Date: October 12, 2024

Joan Morrison, Ph.D.

Appendices

- Appendix A – Curriculum Vitae of Joan Morrison, Ph.D.
- Appendix B –Declaration of Joan Morrison (Regarding Bellmar Project)
- Appendix C – Agency Brief and Robert Carey Declaration Related to Bellmar Project Analysis
- Appendix D – Literature Cited and Key Documents Related to Rural Lands West