IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA

Case No. 05-23045-CIV-MOORE/SIMONTON

MICCOSUKEE TRIBE OF INDIANS
OF FLORIDA, a federally-recognized Indian tribe,

Plaintiff,

v.

UNITED STATES OF AMERICA, U.S. FISH &
WILDLIFE SERVICE, et al.,

Defendants.
_______________________________________/

ORDER GRANTING IN PART AND DENYING IN PART THE MICCOSUKEE TRIBE OF FLORIDA'S MOTION TO ENFORCE THE MANDATE

THIS CAUSE came before the Court upon the Miccosukee Tribe of Florida's Motion to Enforce the Mandate (dkt # 205).

UPON CONSIDERATION of the Motion, the Responses, the pertinent portions of the record, and being otherwise fully advised in the premises, the Court enters the following Order.

I. BACKGROUND

The Cape Sable seaside sparrow ("sparrow") represents one out of eight subspecies of North American seaside sparrow.[1] Biological Opinion 2006 at 21 ("BiOp 2006") (dkt # 70-1) (the "sparrow['s] distribution is limited to the short-hydroperiod wetlands at the bottom of the greater Everglades system"). The sparrow is protected under the Endangered Species Act of 1973 ("ESA"). Id. The sparrow requires low water levels for nesting because sparrows build

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1 See Appendix for photograph of the sparrow.

their nests between four and eight inches above the water. Id. at 23-24. Therefore, higher water levels in the sparrow's nesting areas can diminish its nesting success rate. Id. "At water levels over 2 ft above ground surface . . . the majority of the vegetation in sparrow habitat is completely inundated, leaving sparrows with very few refugia." Id. at 27. "[S]parrows are generally sedentary and avoid forested areas, [and] they are not likely to travel great distances to find mates or to find outlying patches of suitable habitat." Id. at 25. Thus, according to the Fish and Wildlife Service ("FWS"), the survival of the sparrow depends largely upon maintaining a lower water depth within its habitat.[2]

The Everglade snail kite ("snail kite") is another endangered species.[3] The snail kite's primary forage is the apple snail mollusk. Id. at 35. The apple snail, and therefore the snail kite, thrive in areas that have "interdigitated areas of open water" that are between 0.5 and 4.3 feet deep. Id at 36. Increased water levels in snail kite habitat negatively affect the snail kite because it reduces the number of apple snails. Id. at 61. "High water levels result in reduced position and reduced growth rates of young snails, and fewer adult-size snails are available for snail kites." Id. at 69.

The wood stork is an endangered species with its primary habitat in the southeastern United States.[4] To hunt successfully, wood storks rely on shallow and open water about two to

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[2] One group of sparrows, labeled Subpopulation A, is considered crucial to maintenance of the species because it is separated from the other sparrow subpopulations. The other subpopulations are located in close proximity to one another and could all be wiped out by one local catastrophic event. Id. at 66. Subpopulation A is located west of the Shark River Slough, while all the remaining populations are located to the east of the Slough. Id. at 29.

[3] See Appendix for photograph of the snail kite.

[4] See Appendix for photograph of the wood stork.

six inches deep that is free of dense aquatic vegetation. Id. at 45. When nesting, wood storks seek out locations where drying wetlands concentrate prey. Id. at 46. Water levels that are too high or too low are not suitable for foraging and may cause the wood stork to abandon the prey site when water depth and prey density drops below a certain efficiency threshold. Id. at 47. Thus, maintenance of water levels in certain sections of the Everglades affects the viability of the sparrow, snail kite, and wood stork.

"In the early 1980's Congress authorized a restructuring of the [Army Corps of Engineers' (the "Corps")] water management system in order to restore wildlife in the Everglades." Miccousukee v. United States, 566 F.3d 1257, 1263 (11th Cir. 2009). A series of trial and error tests were conducted. One of these tests, called Test 7, was conducted in 1995 and was scheduled to last four years. Id. Under Test 7, large amounts of water were released through the S-12 gates, located just north of the Everglades. Id. In 1998, the Corps and FWS, with whom the Corps collaborates, began to modify the water management activity in response to a serious decline in the sparrow population. Id. The sparrow relies on low water levels below the S-12 gates during its nesting season. Id. at 1262. The snail kite relies on steady and moderate to low water levels above the S-12 gates to ensure the availability of the apple snail. Id. When the S-12 gates are open, the water level below the gates rises, negatively impacting the sparrow. Id. When the gates are closed, water builds up behind the gates, negatively impacting the snail kite. Id.

FWS issued biological opinions in 1999, 2002, and 2006, analyzing the ecological impacts of the water management actions. Between 1999 and 2002, the Corps and FWS collaborated to develop the Interim Operational Plan for the Protection of the Cape Sable seaside sparrow ("IOP"). Id. The IOP sets forth procedures for water management activities and provides for the monitoring and management of environmental impacts. The Corps has operated under the IOP since 2002.

On March 3, 2006, Plaintiff Miccosukee Tribe of Indians (the "Miccosukee Tribe") filed an Amended Complaint (dkt # 30) seeking various forms of relief for an allegedly faulty biological opinion dated March 28, 2002. The Amended Complaint alleges that in late 1997, FWS began demanding the closure of certain gates along Tamiami Trail to stop the flow of water out of WCA-3A[5] to benefit the endangered sparrow located downstream to the south. Am. Compl. ¶ 7. The Miccosukee Tribe alleges that the closing of these gates has kept water levels above the gate abnormally high, resulting in harm to both Plaintiff and the snail kite and its critical habitat. Id. This restriction of water allegedly continued after the FWS issued a Biological Opinion in 1999 ("BiOp 1999"), and an Amended Biological Opinion in 2002 ("BiOp 2002").

On November 17, 2006, FWS promulgated its BiOp 2006, which is now the operative biological opinion, superseding the 2002 and 1999 Opinions. See Am. Compl. ¶ 11. The BiOp 2006 included an Incidental Take Statement ("ITS"). BiOp 2006, at 74. In response, Plaintiff filed a Second Amended Complaint (dkt # 76) seeking (1) injunctive and declaratory relief from the BiOp 2006 which allegedly violated the ESA and its implementing regulations, pursuant to the Administrative Procedure Act ("APA") (Count I); (2) injunctive and declaratory relief for violations of Section 7 of the ESA and its implementing regulations (Count II); (3) injunctive and

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5 Water Conservation Area 3-A ("WCA-3A") is an Everglades marsh comprised of more than 100,000 acres in Miami-Dade and Broward counties.

declaratory relief for violations of Section 9 of the ESA and its implementing regulations (Count III); and for improper agency action under the APA (Count IV).

The Parties cross-moved for summary judgment and this Court granted summary judgment in favor of Defendants. Miccosukee v. United States, 528 F. Supp. 2d 1317 (S.D. Fla. 2007). The Miccosukee Tribe appealed and the Eleventh Circuit Court of Appeals affirmed in part and reversed and remanded in part. Miccosukee v. United States, 566 F.3d 1257 (11th Cir. 2009). The Eleventh Circuit affirmed on all grounds except for its holding that the ITS was defective because (1) FWS failed to meet its burden of demonstrating that it is impractical to provide a numerical trigger for reconsultation; and (2) the habitat markers used in the ITS were arbitrary and capricious. Id. at 1275. The Eleventh Circuit ordered that the ITS be modified accordingly and remanded the action for proceedings consistent with its Order. Id.

On November 12, 2009, Defendants filed an Amended Incidental Take Statement ("Amended ITS") (dkt # 204-1). The Amended ITS uses habitat markers in lieu of numerical triggers to measure incidental take for the sparrow, snail kite and wood stork. The Amended ITS also removed the numerical triggers for the sparrow and wood stork contained in the first Incidental Take Statement and replaced them with habitat markers. The Miccosukee Tribe now asserts that the Amended ITS is invalid because it utilizes habitat markers instead of numerical incidental take triggers.

II. STANDARD OF REVIEW

The standard of review employed by this Court is provided by the APA and the ESA. See Fund for Animals, Inc. v. Rice, 85 F.3d, 535, 547-548 (11th Cir. 1996); see also Sierra Club v. Flowers, 423 F. Supp. 2d 1273, 1283-84 (S.D. Fla. 2006). Under both the APA and the ESA, this Court is only permitted to overrule agency action that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." See 5 U.S.C. § 706(2)(A). In deciding whether agency action is arbitrary and capricious, a court assesses "whether the decision was based on a consideration of the relevant factors and whether there has been clear error of judgment." Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983).

The Supreme Court has stated that the strong deference that courts give to agencies when reviewing APA and ESA claims is to "protect agencies from undue judicial interference with their lawful discretion, and to avoid judicial entanglement in abstract policy disagreements which the courts lack both expertise and information to resolve." Norton v. Southern Utah Wilderness Alliance, 542 U.S. 55, 56 (2004). Further, the Supreme Court has held that when a court reviews agency decisions that are technical and require scientific determinations, the "reviewing court must generally be at its most deferential." Marsh v. Or. Natural Resources Council, 490 U.S. 360, 377 (1989). Thus, this Court may not substitute its judgment for that of an agency's. See Preserved Endangered Areas of Cobb's History, Inc. v. U.S. Army Corps of Eng'rs., 87. F.3d 1242, 1246 (11th Cir. 1996). A reviewing court must still, however, engage in a 'thorough, probing, in-depth review." See Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971), *overruled on other grounds by* Califano v. Sanders, 430 U.S. 99, 105 (1977).

Judicial review of an agency decision is limited to the administrative record in existence at the time of the decision and may not be based on a new record made by the reviewing court. CIR v. Neal, 557 F.3d 1262, 1279 (11th Cir. 2009) (citing Camp v. Pitts, 411 U.S. 138, 142 (1973)). "The reviewing court may obtain additional explanation of the agency decision through affidavits or testimony or the agency officials but it may not substitute its own facts for those of the agency." Id.

III. ANALYSIS

The Miccosukee Tribe argues that the Amended ITS is invalid because it does not include numerical figures for incidental take.[6] An incidental take statement authorizes harm to an endangered species, but must include a trigger for reconsultation at the point when there is a risk of jeopardizing the species. 50 C.F.R. § 402.14(i)(1)(i). The trigger must be a numerical trigger describing the take in terms of specific population data unless it is impractical to do so. Miccosukee v. United States, 566 F.3d 1257, 1275 (11th Cir. 2009); Or. Natural Resources Council v. Allen, 476 F.3d 1031, 1038 (9th Cir. 2007) (stating that "Congress has clearly declared a preference for expressing take in numerical form, and an Incidental Take Statement that utilizes a surrogate instead of a numerical cap on take must explain why it was impracticable to express a numerical measure of take"). "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

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6 Defendants argue that the Miccosukee Tribe may only challenge the Amended ITS by filing a new claim because the Amended ITS constitutes final agency action. A new claim challenging the Amended ITS would require review of the same administrative record and would presumably result in identical briefing of the issues. On the other hand, the manner in which Plaintiff has styled its motion is somewhat of a misnomer given that Plaintiff is merely challenging the validity of the Amended ITS. Nevertheless, judicial efficiency and the interests of all Parties in expeditiously concluding this phase of the litigation militates in favor of resolving Plaintiff's claims on the merits in the most timely manner possible. Accordingly, Plaintiff may amend its complaint to encompass its challenge to the Amended ITS, and shall limit the amendment to matters already raised in the Motion to Enforce the Mandate. After considering the factors pertinent to deciding whether to permit amendment of a complaint, including undue delay, bad faith or dilatory motive, and undue prejudice, this Court concludes that allowing Plaintiff to amend the complaint is warranted and promotes judicial efficiency.

Plaintiffs argue that issuance of the Amended ITS necessitates reopening the administrative record. The remand, however, only required Defendants to cure the deficiency identified by the Court. In doing so, Defendants' reliance on the administrative record and BiOp 2006 was appropriate.

16 U.S.C. § 1532(19).

If an agency's incidental take statement uses an ecological surrogate as a trigger instead of a number, the agency must establish that (1) "no such numerical value could be practically obtained," and (2) that the "use of ecological conditions as a surrogate for defining incidental take . . . [is] linked to the take of the protected species." Ariz. Cattle Growers Ass'n v. U.S. Fish and Wildlife, 273 F.3d 1229, 1250 (9th Cir. 2001). Thus, if an ecological surrogate, also known as a habitat marker or habitat proxy, is used as a trigger, the agency must demonstrate that a reasonable nexus exists between the ecological surrogate and the take. Id.; see Miccosukee, 566 F.3d at 1275 (holding that use of habitat marker was arbitrary and capricious absent an upper threshold for water levels because reconsultation would not be triggered no matter how many snail kites died due to high water levels); see also Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1066 (9th Cir. 2004) (stating that the "test for whether a habitat proxy is permissible . . . is whether it reasonably ensures that the proxy results mirror reality") (internal quotation marks omitted).

To justify the use of habitat markers instead of numerical triggers for incidental take, an agency must first demonstrate that establishing a numerical trigger based on population data was impractical. In this context, impracticality means that it was not possible to use some form of numerical population count. Miccosukee, 566 F.3d at 1275 (citing the legislative history of the ESA in support of the requirement that numerical population counts should be used where possible); see also Mausolf v. Babbit, 125 F.3d 661, 666 (8th Cir. 1997) (incidental take of gray wolves due to snowmobiling activities set at two wolves per year); Fund for Animals v. Rice, 85 F.3d 535, 540 n.8 (11th Cir. 1996) (incidental take of eastern indigo snake set at fifty two snakes within the footprint of landfill and two per year on access roads for the life of the project); Ramsey v. Kantor, 96 F.3d 434, 441 n.12 (9th Cir. 1996) (incidental take trigger established as the number of fish caught as a percentage of the estimated population). Three important factors relevant to assessing the practicality of establishing a numerical incidental take trigger include: (1) the availability and quality of actual or estimated population figures; (2) the ability to measure incidental take; and (3) the ability to determine the extent to which incidental take is attributable to the action prompting the biological opinion and incidental take statement, as opposed to other environmental factors.

Use of an ecological surrogate when no attempt has been made to obtain population data increases the likelihood that the incidental take statement will be invalid because an agency's failure to do so undermines its ability to demonstrate that obtaining such data was impractical. See Allen, 476 F.3d at 1038 (finding that agency's reliance on out-of-date spotted owl survey data to demonstrate impracticality was insufficient to warrant the use of an ecological surrogate because the agency failed to update the survey or suggest that doing so was impractical); Ctr. for Biological Diversity v. Bureau of Land Mgmt., 422 F. Supp. 2d 1115, 1137-38 (N.D. Cal. 2006) (finding incidental take statement invalid because agency's failure to attempt to estimate the desert tortoise population did not demonstrate that doing so was impractical); see also Natural Resources Def. Council v. Evans, 279 F. Supp. 2d 1129, 1185-86 (N.D. Cal. 2003) (finding incidental take statement invalid where the agency made no attempt to estimate the number of Pacific gray whales and Hawaiian monk seals that would be taken given that information on population distribution and abundance was too limited and variable).

The unavailability or unreliability of population data increases the likelihood that use of a habitat marker will be permissible because of impracticality. Northwest Envtl. Def. Ctr. v. Nat'l Marine Fisheries Serv., 647 F. Supp. 2d 1221, 1237-38 (D. Or. 2009) (finding use of ecological surrogate valid where it was impossible to estimate the population of salmonids, a type of fish, because their distribution and abundance was subject to wide and random variations); Pac. Shores Subdivision Cal. Water Dist. v. U.S. Army Corps of Eng'rs, 538 F. Supp. 2d 242, 257 (D.D.C. 2008) (finding use of an ecological surrogate valid as to the tidewater goby, an elongate gray fish approximately two inches long, because of difficulties inherent in determining population numbers and habitat or numbers that would be killed or injured by the project); Heartwood v. Kempthorne, No. 1:05-cv-313, 2007 WL 1795296, at *20 (S.D. Ohio 2007) (finding use of a habitat proxy valid as to Indiana bats because of the gaps in scientific data and difficulties inherent in documenting or estimating their numbers and location); see also City of Santa Clarita v. U.S. Dep't of Interior, No. CV02-00697, 2006 WL 4743970, at *13 (C.D. Cal. 2006) (finding use of a habitat proxy valid as to unarmored threespine stickleback, a type of fish, given that number taken could not be predicted because of unavailability of population data resulting from the stickleback's small size, difficulty of detection, and fluctuating habitat occupancy).

Conversely, the availability of population data increases the likelihood that establishing a numerical incidental take trigger is practical. This is so because the ability to compile actual or estimated population figures indicates that it is either possible to track individual animals or that it is possible to identify changes in total population numbers that occur between the intervals that the estimates are made. See Ramsey, 96 F.3d at 441 n.12 (stating that numerical incidental take trigger was established by estimating the fish population and designating take as a percentage of the estimated population actually harvested); see also Swan View Coalition v. Barbouletos, No. CV 06-73-M-DWM, 2008 WL 5682094, at *23 (D. Mont. 2008) (incidental take trigger established as the injury or mortality of one grizzly bear).

The quality of available population data is also relevant to the practicality of establishing a numerical incidental take trigger because a population estimate that is less accurate will be less useful in identifying changes in actual population numbers than a population estimate that is more accurate. For example, suppose a population is estimated by multiplying each animal actually observed by ten to account for the number of animals that were not observed during the survey, and that the survey's estimated rate of error is plus or minus 200 animals.[7] If the total species population is estimated at 1000 animals in year one, 900 animals in year two, and 1100 animals in year three, it is difficult if not impossible to determine with precision if a change in population has occurred or if the variance is due to the error rate of the population estimate. This problem is further compounded if the error rate is unknown.

Despite the oversimplification of this example, it illustrates one reason why the accuracy of a population estimate is relevant to the practicality of using a numerical trigger. In the example above, if an incidental take trigger was established in year one as 100 animals taken, it would be triggered in year two, despite the fact that it is unclear whether the population had increased, decreased, or stayed the same. Rather, with an error rate of plus or minus 200, the population in year two could be anywhere between 700 and 1100, thus calling into question the

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7 The use of a population estimate that utilizes a multiplier or correction factor suggests the impracticality or impossibility of compiling population data by tracking and counting each animal in the relevant population.

effectiveness or practicality of using a numerical trigger for incidental take.[8] Therefore, as the error rate of a population estimate increases, the practicality of using a numerical trigger for incidental take decreases.

A. Cape Sable Seaside Sparrow[9]

The Miccosukee Tribe asserts that the Amended ITS is invalid as to the sparrow because it improperly uses a habitat marker, instead of a number, as a trigger for incidental take.[10] Specifically, under the Amended ITS, incidental take will be exceeded for the eastern marl prairies if: (1) the footprint of the construction area of the S-332 Detention Area increases; (2) operation of the detention areas results in transition from groundwater conditions to surface water conditions beyond 0.6 mile from the detention area prior to June 1; or (3) operations increase surface water levels by greater than 3.9 inches beyond 0.6 mile from the detention areas. Amended ITS at 4 (dkt # 204-1). Incidental take will be exceeded for the western marl prairies if more than 66 square-miles (42,240 acres) of habitat are unavailable due to water releases for 60 consecutive days in any one year. Id. at 5. Habitat is unavailable due to water releases unless

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[8] To ensure that an actual incidental take of 100 animals is exceeded, the trigger could be set at 300 animals to account for the error rate. In other words, even if the population decreased from 1000 to 800, it would still be possible that the decrease was due entirely to the error rate. A decrease in the population from 1000 to 700 would ensure that at least one-third of that decrease would be attributable to something other than the error rate because a maximum of 200 is attributable to the error rate. Thus, establishing a trigger of 300 ensures a 100% likelihood that 100 animals have actually been taken. The downside, of course, is that once there is a 100% probability that an actual take of 100 animals has been exceeded, as in the above example, the actual population could be as low as 500 or as high as 900.

[9] As an initial matter, the Parties citations to sources that may be dozens or hundreds of pages long without referencing a page number is not particularly illuminating and leaves it to the Court to sift through extensive and often technical documents to assess the validity of reliance on the source.

[10] "The Cape Sable seaside sparrow is a medium-sized sparrow, 5.1 to 5.5 inches" in length. BiOp2006 at 22. "Adult sparrows are light grey to white ventrally, with dark olive-grey streaks on the breast and sides." Id. "The throat is white with a dark olive-grey or black whisker on each side." Id.

water is below ground surface level at NP-205.[11] Id.

Although the Amended ITS does not directly say so, these 60 consecutive days must occur during the sparrow's breeding season which runs from March through August, since the purpose of keeping water levels low is to prevent interference with sparrow nesting. Id. at 4-5; see BiOp 2006 at 23 (dkt # 70-1). This 60-day period is most likely to occur between mid-March and July 15th because, as the Amended ITS concedes, water levels are already high by July 15th in most years and the IOP allows water releases beginning on July 15th. The combination of these factors reduces nesting activity and nesting success rates after July 15th.[12] Id.

1. Practicality of Using a Numerical Trigger

The Amended ITS concludes that it is impractical to use a numerical trigger for incidental take of the sparrow. Specifically, the Amended ITS states: "The Service concludes that the current method used to estimate population abundance is insufficient to predict the number of sparrows that would be incidentally taken as a result of this action or to track incidental take of individual sparrows." Amended ITS at 2. Defendants put forth three primary reasons in support of this conclusion. First, although population estimates are available that reliably provide a trend

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11 NP-205 is a hydrological monitoring index station that lies on the ridge that separates Shark River Slough from the western prairies. Pimm, S.L., J.L. Lockwood, C. N. Jenkins, J. L. Curnutt, M. P. Nott, R. D. Powell and O. L. Bass, Jr. (2002) Sparrow in the Grass; A Report on the First Ten Years of Research on the Cape Sable Seaside Sparrow (Ammodramus maritimus mirabilis) Report to the National Park Service, Everglades National Park, FL at 102 (AR 224) (hereinafter "Pimm 2002")

12 This effectively results in a breeding season that runs from approximately March 15th to July 15th, or 122 days. Pimm 2002 at 26, 103 (stating that the sparrow nest found earliest in the nesting season was found on March 20, 1997, with two eggs in it). "The sparrow nesting cycle from nest construction to independence of young, lasts about 30 to 50 days and sparrows may renest following both failed and successful attempts." BiOp 2006 at 24 (internal citation omitted). "Females lay eggs every day until the clutch is complete, laying an average of 3.1 eggs per nest." Pimm 2002 at vi. Incubation lasts for 12.1 days with an average of 0.4 unhatched eggs per nest. Id. at vii. The average nestling period was 9.2 days. Id.

in population over time, it is not possible to determine the actual population by tracking and counting individual birds and nest sites. Id. Second, the inability to track individual birds and nest sites prevents Defendants from assessing incidental take in terms of individual sparrows. Id. at 3. Third, even if it were possible to track individual sparrows and nests, it would be difficult to attribute nest success or failure to the proposed action and not to other environmental factors. Id. Unsurprisingly, these three reasons correspond to the three factors listed above that are pertinent to assessing the practicality of establishing a numerical incidental take trigger.

a. Population Data

The first step in determining whether establishing a numerical trigger based on population data is practical is to assess the availability and quality of population data. Given that a primary purpose of establishing an incidental take trigger is to initiate reconsultation at a point where there is a risk of jeopardizing the species, it follows that the availability of population data is relevant to establishing a meaningful trigger. See Miccosukee, 566 F.3d at 1271-72. Here, population estimates for the sparrow are available. "The first comprehensive, range-wide sparrow survey was conducted in 1981." BiOp 2006 at 28. "After this initial survey, it was not conducted again until 1992, but has been surveyed every year since 1992, including twice in 2000." Id. (citing Pimm 2002). "In 1981, there was an estimated 6,656 sparrows distributed among the six subpopulations." Id. In 2006, there was an estimated 3,088 sparrows. Id. The total population of sparrows dropped as low as an estimated 2,624 sparrows in 1996.[13] Id. at 29, Table 2.

[13] The sparrow population was estimated at 2,416 in 1994. However, four of the six subpopulations were not included in the estimate. BiOp 2006 at 29, Table 2.

The methodology used to conduct the sparrow surveys deserves a brief explanation here, as it bears on the quality of the population estimates and on the Amended ITS's assessment of the quality of the estimates. When conducting the survey, a helicopter is used to drop observers at 600 to 800 points spaced one kilometer apart within a grid that covers all known sparrow habitat. Pimm 2002 at 65; Jeffrey R. Walters et al., <u>The American Ornithologists Union Conservation Committee Review of the Biology, Status, and Management of Cape Sable Seaside Sparrows: Final Report</u> at 1098 (2000) (AR 317) (hereinafter "Walters 2000"). The helicopter flights begin around sunrise and continue for three to four hours. Oron L. Bass, Jr. & James A. Kushlan, <u>Status of the Cape Sable Sparrow</u>, Report to the National Park Service, Everglades National Park, FL at 1 (1982) (AR 9) (hereinafter "Bass & Kushlan 1982"). During this period, the helicopter lands and turns off its engines while an observer listens for singing sparrows during a seven minute interval. <u>Id.</u> Using this method, up to ten sites can be covered each morning. Pimm 2002 at 66. This survey continues throughout peak breeding season, which runs from mid-March until May. Walters 2002 at 1098.

To estimate the number of sparrows from the actual number observed, a correction factor, or multiplier, of 16 is used. Pimm 2002 at 67. This correction factor is based on the range at which an observer can hear a singing male's song, and on the assumption that each singing male is accompanied by one female. <u>Id</u>. The soundness of this correction factor of 16 was compared to actual known numbers of birds at intensive study plots, which confirmed that 16 is an appropriate multiplier.[14] <u>Id.</u> This method of estimating the sparrow population has been the

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[14] The correction factor of 16 takes into account the fact that some of the intensive study plots were selected because of known concentrations of birds. This bias towards high density sites, which drives the correction factor higher, is adjusted for in the correction factor of 16. The correction factor

subject of peer review which concluded that the "methodology employed is a reliable and accurate measure of abundance." Amended ITS at 2 (citing Walters 2000). The Amended ITS also concluded that the methodology used to estimate sparrow populations "provides a reliable trend in population estimates comparable over time."[15] Id.

b. Ability to Measure Incidental Take

The second step in determining whether it is practical to establish a numerical trigger based on population data is to assess the ability to measure incidental take. Incidental take can be measured in terms of (1) individual animals taken, (2) percentage of the population taken, or (3) by use of an ecological surrogate or habitat marker if the first two options are impractical. See Swan View, 2008 WL 5682094, at *23 (incidental take trigger established as injury or mortality of one grizzly bear); City of Santa Clarita v. U.S. Dep't of Interior, No. CV02-00697 DT (FMOx), 2006 WL 4743970, at *13 (C.D. Cal. 2006) (incidental take of arroyo toad set at three toads outside of breeding pools); Ramsey, 96 F.3d at 441 n.12 (incidental take trigger established by estimating the fish population and designating take as a percentage of the estimated population actually harvested); Northwest Envtl. Def. Ctr., 674 F. Supp. 2d at 1239-40 (incidental take trigger established as 3600 pile strikes per day or more than seventeen boats docked simulateously); Pac. Shores Subdivision, 538 F. Supp. 2d at 257 (incidental take trigger established as loss of 75,000 acres of habitat over ten years).

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also takes into account that under good conditions there is approximately a 60 percent likelihood that an observer will detect a sparrow that is within observable range. Amended ITS at 2; Walters 2000 at 1099.

[15] The Amended ITS also states that the methodology used to estimate the sparrow population is not a reliable method for tracking and counting individual sparrows, a point that is rather self-evident based on the nature of the methodology. Amended ITS at 2.

The primary reason put forth in the Amended ITS for the impracticality of using a numerical trigger is the impossibility of tracking the take of individual sparrows. The Amended ITS states that "not every adult, egg, nestling and/or juvenile may be accounted for" and it is therefore "impractical to determine (count) or predict (estimate) how many sparrows would be incidentally taken as a result of water management actions." Amended ITS at 3. The impossibility of locating and monitoring the condition of individual sparrows is evident from the methodology used to estimate sparrow populations. Given the inability to compile population data based on tracking each individual sparrow, it follows that it is not possible to measure take by counting individual sparrows that are taken as a result of the water management actions. Thus, take may either be measured in numerical terms based on changes in the population estimates, or by use of an ecological surrogate or habitat marker if using a numerical trigger is impractical.

The Amended ITS's use of a habitat marker instead of a numerical trigger suggests that FWS concluded that establishing take in terms of changes in population estimates was impractical. It is, however, less clear that FWS considered this as an option, or if it did, that FWS adequately demonstrated that doing so was impractical. One way to attempt to demonstrate the impracticality of using the annual change in estimated population numbers to measure incidental take is to attack the estimate's methodology to demonstrate that the estimate produces results that are too unreliable to serve as a practical measure of take. The Amended ITS states: "The Service concludes that the current method used to estimate population abundance is insufficient to predict the number of sparrows that would be incidentally taken as a result of this action." Amended ITS at 2. Although the Amended ITS focuses on the impracticality of identifying the take of individual sparrows, it also appears that FWS does not believe it is practical to use the difference in the estimated population numbers from year to year to measure incidental take.

The Amended ITS explains that monitoring and tracking take of individual sparrows is impractical. This reason, however, does not support the conclusion that utilizing the changes in estimated population numbers is impractical to measure incidental take. The Amended ITS also states that the available population estimates "provide[] a reliable trend in population estimates over time." Amended ITS at 2. While this statement does not unequivocally support the proposition that using changes in population estimates is a practical way to measure take, it certainly does not support the contrary proposition that doing so is impractical.[16] The Amended ITS provides no other information as to why the sparrow population estimates produce numerical results that are too unreliable to be a practical measure of incidental take.[17]

c. Attribution of Population Change to Other Environmental Factors

The most straightforward way of measuring incidental take is by monitoring the take of individual animals that were killed by, or as a result of, the project or activity at issue. <u>See City</u>

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[16] The Amended ITS also makes reference to intensive ground surveys conducted during the 2006 nesting season in three of the six subpopulations using a method called adaptive line transects, but concluded that this method "did not produce enough sparrow detections to estimate density or abundance in the small subpopulations surveyed." Amended ITS at 3 (citing Julie L. Lockwood, et al., <u>Detailed Study of the Cape Sable seaside sparrow nest success and cause of nest failure: 2006 annual report</u> (2006) (AR 142)).

[17] The Amended ITS also lists the following impediments to establishing a numerical incidental take trigger: (1) inability to locate all the nest sites; (2) estimated size of territories differ and each changes in size each year; (3) polygamous nature of sparrow under some circumstances; and (4) gaps in territories between suitable habitats. While each of these has some bearing on the impracticality of counting and tracking individual sparrows, it does not undermine the methodology used to produce the yearly population estimates.

of Santa Clarita, 2006 WL 4743970, at *13 (incidental take statement required cause of death of arroyo toads to be determined to see if death was caused by project activities). When take is measured by changes in population estimates, however, it becomes more difficult to determine if the change is caused by the project or activity prompting the biological opinion, other environmental factors, or both. The Amended ITS echoes this difficulty by noting that changes in sparrow population estimates "cannot be directly attributed to perturbations in habitat suitability due to the project versus other environmental factors." Amended ITS at 3. The Amended ITS presents four reasons why changes in population estimates from year to year cannot be directly attributed to changes in water levels caused by water management actions: (1) "variability in the breeding ecology of sparrows, such as beginning or ending nest initiation[,] based on water levels independent of water management actions and/or rainfall; (2) "the sparrow's ability to nest several times within a year;" (3) "the fact that nest success rates vary between 12 and 53 percent;" and (4) "more than 75 percent of all documented nest failures are attributed to predation," which increases as water levels rise. Id. This Court will address each of these reasons in turn.

First, the Amended ITS contends that using changes in population estimates as a trigger is impractical because sparrow breeding ecology varies based on water levels, and that other environmental factors, such as rain, affect water levels. Thus, if a numerical trigger was used and water levels rose due to rain or other environmental factors, followed by a decline in the sparrow population in excess of the numerical trigger, reconsultation would be required even though the water management actions did not cause the increased water levels. By the same token, however, under the Amended ITS, if water levels were to exceed the levels used as habitat markers in the Amended ITS, reconsultation would be triggered even if there were an increase in the sparrow population. On the flip side, if a numerical trigger was used, water levels could rise an unlimited amount and no reconsideration would be necessary until, at the earliest, the next population survey during the next sparrow breeding season. Likewise, under the Amended ITS, if water levels increased but remained below the existing trigger levels, no reconsultation would be required even if the sparrow population went into a precipitous decline. Thus, the fundamental difference in the use of a numerical trigger versus an ecological surrogate is that when a numerical trigger is based on changes in population estimates, the cause of a decline is implicitly presumed to be agency action. When an ecological surrogate is used, the reason for the lack of a triggering event is implicitly presumed to be the absence of jeopardy to the species below the threshold at which take is triggered. Each of these presumptions carries with it inherent dangers of mistakenly attributing cause and effect.

Defendants are correct that establishing a numerical trigger for incidental take based on changes in population estimates is problematic because it would not be possible to definitively conclude that changes in population estimates were caused by the water management actions. Thus, one risk of using a numerical trigger is that reconsultation would be required if a population decline sufficient to trigger take occurred, even if water levels remained at optimal levels for sparrow breeding and survival throughout the year, or if the decline was caused by increased water levels resulting from ecological conditions unrelated to water management. The risk, then, is requiring reconsultation under circumstances where it is clear that agency action was not responsible for a decline in the sparrow population, thereby rendering the reconsultation process futile.

The degree to which this risk makes using a numerical trigger impractical turns, at least in part, on the risks presented by the alternative trigger that will be used if a numerical trigger is deemed impractical. In the case of a numerical trigger based on changes in population estimates, it might be the case that a population decline was in fact caused by increased water levels but that the water level increases were caused by ecological factors unrelated to water management actions. This fact contributes to the impracticality of using a numerical trigger based on population estimates. Nevertheless, the alternative approach put forth in the Amended ITS presents the same difficulty. The water level triggers in the Amended ITS do not distinguish between water level changes caused by water management actions as opposed to other ecological conditions. Under the Amended ITS, reconsultation would be triggered even if increased water levels were caused by ecological conditions unrelated to water management. Therefore, to the extent that using changes in population estimates as a trigger is problematic because changes in water levels might not be due to agency action, the use of a numerical trigger is no better or worse than the Amended ITS's habitat markers, which are also subject to the same defect.

Moreover, the risks associated with making erroneous presumptions concerning cause and effect when using a numerical trigger based on population estimates, or when resorting to an ecological surrogate, are also germane to the practicality of using a numerical trigger. As stated above, using a numerical trigger based on population estimates presumes that population changes are caused by agency action, whereas use of an ecological surrogate presumes that the species will not be jeopardized before incidental take is triggered. If the former presumption proves false, the consequence is that reconsultation may be required due to population changes not caused by agency action. If the latter presumption proves false, the consequence is that the species will be jeopardized, thereby increasing the likelihood of extinction. The possibility of unnecessary or futile reconsultation is less grave and more easily remedied than jeopardizing the sparrow and risking its extinction. The balancing of these risks militates in favor of the practicality of using a numerical trigger. Accordingly, the fact that the breeding ecology of sparrows is affected by water levels that may change for reasons other the water management actions does not support the impracticality of using a numerical incidental take trigger.

Second, Defendants rely on the sparrow's ability to nest several times within a season as a reason why changes in population estimates cannot be directly attributed to changes in water levels caused by water management actions. Except with respect to population increases, this Court is unable to ascertain how this reason supports that conclusion, and no explanation is provided in the Amended ITS. The fact that the sparrow can nest several times in a season increases the likelihood that the sparrow population will increase. All things being equal, a sparrow that has the capability of nesting multiple times in a season is likely to produce more offspring than a sparrow than can only nest once. Thus, if the sparrow population increased overall, one reason might be the sparrow's ability to nest multiple times. That sparrows can nest multiple times, however, does not help to explain population decreases. Moreover, increases in the sparrow population have little relevance to the issue of incidental take because take focuses on decrease, or harm, to a species. Accordingly, this reason does not support the impracticality of using a numerical incidental take trigger.

Third, Defendants rely on the fact that sparrow nest success rates vary between 12 and 53 percent per year as a reason why changes in population estimates cannot be directly attributed to changes in water levels caused by water management actions.[18] In other words, in years when the nest success rate is low, a decline in the estimated population could be attributable to a low nest success rate and not to water management actions.[19] The details of the sparrow's nest success rate merit further discussion. Between 1996 and 2000, 329 sparrow nests were located. Pimm 2002 at 44. Ten were found in subpopulation A, 278 in subpopulation B, and 39 in subpopulation E.[20] Of 240 nests where observers were able to determine the outcome, 117 fledged young, 61 failed during incubation, and 62 failed during the brooding of the nestlings. Id. at 23. Predation by rats, snakes and other birds caused the vast majority of failed nests. Id. Four nests failed when water levels rose above the height of the nest. Id. at 24. Researchers also suggest that predation pressure increases as water levels rise. Pimm 2002 at 34 (citing Lockwood 1997 (AR 140) and Schaub 1992).

This nest success rate information and other collected data have been used to create demographic models in an attempt to predict best and worst case scenarios for sparrow population growth. This demographic modeling predicts population growth rates between 86 percent and negative 22 percent. The best case scenario was created by assuming that: (1) all

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18 A nest success rate of 53 percent describes successful fledging "equal to the maximum observed, discounted over the length of time eggs and nestlings are in the nest." Julie L. Lockwood et al., The implications of Cape Sable seaside sparrow demography and Everglades restoration, Animal Conservation (2001) at 278 (AR 143) (hereinafter "Lockwood 2001"). Nest success rate was observed at 60 percent in 1998. Pimm 2002.

19 This argument assumes that a low nest success rate was not caused by water management actions.

20 Of these nests, 205 were early season, 91 were late season, and 34 could not be classified. Pimm 2002 at 43. The nest success rate for early nests in subpopulation B was 28 percent and the success rate for late nests in subpopulation B was 11 percent. Id.

breeding individuals produce large clutches (3.8, the mean plus one standard deviation); (2) clutches fledge equal to the maximum observed success rate (.60); (3) early and late breeding attempts produce the same clutch size; (4) all breeding individuals produce early and late nests; (5) all adults have a high survival rate (.72, the mean plus standard error); and (6) juveniles survive nearly as well as adults (.50).[21] Pimm 2002 at 44. Utilizing this data in the demographic model predicted 86 percent annual population growth rate.

The worst case scenario was modeled using some of the lowest recorded observed values. This model incorporated the following assumptions: (1) all breeding individuals have smaller clutches (3.1); (2) clutches fledge equal to the lowest observed success rate (.13); (3) early and late breeding attempts produce the same clutch size; (4) only 10 percent of breeding individuals produce early and late nests; (5) adult sparrows have a lower survival rate (.66); and (6) juveniles survive nearly as well as adults (.50). Pimm 2002 at 44-45. Utilizing this data in the demographic model predicted annual population growth of negative 22 percent.

This demographic modeling supports the conclusion that decreases in the sparrow population may be due to factors other than water management actions, including a low nest success rate. This conclusion, however, requires some qualification. First, a low nest success rate is merely a parameter of population change, one that may have its own underlying cause. In other words, a low nest success rate is one reason why a sparrow population might decline, but is not itself the ultimate cause of the decline. The real cause of the population decline would be the factor that caused the low nest success rate to occur in the first place. If the reason for low nest

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21 Juvenile survival rates reflect values typical of small landbirds. Pimm 2002 at 44.

success rates is unknown, then the ultimate cause of the population decline attributable to a low nest success rate remains a mystery.

Field observations demonstrate, however, that most nest failure is caused by predation. Id. at 23. If higher water levels increase predation, as some researchers suggest, then a nexus may exist between higher water levels caused by water management actions and population decline. See Pimm 2002 at 24 (citing Lockwood 1997 (AR 140) and Schaub 1992). The strength of this nexus is relevant when considering the extent to which agency action may contribute to a decline in the sparrow population. While the extent of this causal relationship appears to be largely unknown, the fact that predation is the main cause of nest failure and that there may be a link between higher water levels and increased predation weakens the argument that a decline in the estimated sparrow population is not attributable to changes in water levels caused by water management actions.

Moreover, that fact that sparrow populations may decrease due in part to low nest success rates does not unequivocally support the conclusion that the variability of nest success rates makes it impractical to establish a numerical trigger for incidental take. Where potential population decline caused by a factor other than agency action is quantifiable, through demographic modeling or otherwise, a numerical incidental take trigger could account for the potential decline by including the maximum amount of potential decline in the level of authorized take.

While Defendants have a great deal of discretion in deciding whether such an approach is practical, they do not adequately demonstrate that doing so is impractical simply by stating in tautological fashion that a parameter of population change, such as nest success rates, affects the size of the sparrow population. If demonstrating impracticality required so little, no agency would ever be required to do more than seize upon a single variable factor other than agency action that has some nexus to population size. This is particularly true where the factor's variability is driven in part by the agency action at issue. Moreover, it is difficult to imagine any situation where agency action is the only force having a potential impact on an endangered species. A better approach for an agency seeking to demonstrate impracticality is to provide a reasoned basis for concluding that it is impractical to account for the variable factor within a numerical trigger, to discredit the method by which the variable factor's effect on population size is quantified, or to otherwise demonstrate why it is impractical to reconcile the variable factor's impact on population size. To merely point to the existence of a factor other than agency action that affects population size without further analysis or explanation is insufficient to demonstrate that establishing a numerical trigger is impractical. Accordingly, this reason does not adequately support the impracticality of using a numerical incidental take trigger.

Fourth, Defendants assert that the fact that more than 75 percent of all documented nest failures are attributed to predation supports the conclusion that changes in population estimates from year to year cannot be attributed to changes in water levels caused by water management actions. Observation has demonstrated that nest success rates are predominantly a function of predation. If the effect of nest success rates on population size is quantifiable, then the effect of predation on population size is quantifiable, if there is a known rate of predation and given that predation affects population size by decreasing nest success rates. Thus, there is no meaningful distinction between relying on the predation rate or the nest success rates as a reason supporting the conclusion that there is no nexus between changes in population size and water management actions. Therefore, for the reasons stated above concerning nest success rates, reliance on the predation rate is insufficient to support the conclusions that changes in population size are not attributable to water management action, or that establishing a numerical trigger is impractical.[22]

This Court recognizes that establishing a numerical incidental take trigger by counting individual sparrows is not possible. Other alternative approaches include establishing a numerical trigger measured by changes in sparrow population estimates, establishing a trigger that combines changes in population estimates with ecological surrogates, or establishing an ecological surrogate that is adequately supported by a showing of the impracticality of using a numerical trigger. Even at its most deferential, this Court cannot conclude that the Amended ITS provided reasons that adequately support its conclusion that establishing a numerical incidental take trigger for the sparrow was impractical. Accordingly, the Amended ITS is invalid as to the sparrow because the use of an ecological surrogate was arbitrary and capricious.[23]

B. Everglade Snail Kite

The Miccosukee Tribe asserts that the Amended ITS is invalid as to the snail kite because it improperly uses a habitat marker, instead of a number, as a trigger for incidental take.[24]

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22 The inclusion of a numerical incidental take trigger for the sparrow in the First Incidental Take Statement also belies Defendants' contention that using a numerical trigger is impractical.

23 This Court need not address at this time whether Defendants adequately demonstrated whether the "use of ecological conditions as a surrogate for defining incidental take . . . [is] linked to the take" of the sparrow. Ariz. Cattle Growers Ass'n, 273 F. 3d at 1250.

24 The snail kite is a medium-sized raptor approximately 14-15.5 inches long and with a wingspan of 43 to 46 inches. BiOp 2006 at 33. Adult males have slate gray plumage and adult females have brown plumage dorsally and pale white to cream plumage ventrally. Id. Both sexes have a square-tipped tail with a distinctive white base. Id.

Specifically, the Amended ITS states that incidental take will be exceeded if: (1) water levels rise above 11.0 feet NGVD[25] at the 3A-28 gauge for 80 consecutive days in three consecutive years; or (2) water stages in WCA-3A recede by more than 1.7 feet from February 1 through May 1 in any year.

i. Practicality of Using a Numerical Trigger

To reiterate, three factors relevant to determining whether establishing a numerical incidental take trigger is practical include: (1) the availability and quality of actual or estimated population figures; (2) the ability to measure incidental take; and (3) the ability to determine the extent to which incidental take is attributable to the action prompting the biological opinion and incidental take statement, as opposed to other environmental factors. The Amended ITS puts forth a number of reasons for concluding that establishing a numerical trigger for incidental take of the snail kite is impractical. Specifically, the Amended ITS states:

> The Service has determined (1) it is impractical to quantify the number of individual snail kites that may be incidentally taken as a result of the indirect effects of water management operations on habitat, as no direct lethal effects are anticipated; (2) it would be impractical to discern the number of individual snail kites that were incidentally taken as a result of habitat impacts from other demographic and environmental parameters that will be occurring at the same time as the action, even if it were practical to monitor each individual snail kite; and (3) current methodologies for tracking population trends are insufficient to document the incidental taking of individual snail kites or their reproductive success from a specific action in a subset of the range of the species.

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25 NGVD refers to the National Geodetic Vertical Datum of 1929, the vertical control datum established for vertical control in the United States by the general adjustment of 1929. National Geodetic Survey FAQ's, available at http://www.ngs.noaa.gov/faq.shtml#WhatDatum (last visited Feb. 19, 2010). The North American Vertical Datum of 1988 ("NAVD 88") is the vertical control datum established in 1991, and was computed because approximately 625,000 kilometers of leveling had been added to the NGVD since 1929, thousands of benchmarks had been destroyed and others had been affected by postglacial rebound, crustal motion, and subsidence caused by withdrawal of underground fluid. Id.

Amended ITS at 6. These reasons correlate with the three factors reiterated above.

Two reasons that the Amended ITS puts forth in support of impracticality merit further discussion: (1) the snail kite population estimates are not sufficiently accurate to permit changes in population estimates to be used to measure take; and (2) given the range-wide distribution of the snail kite population it would not be possible to determine whether a change in the number of snail kites within WCA-3A is related to changes in overall population estimates.

The snail kite's range is "distributed among a network of heterogeneous wetland units in central and southern Florida." Victoria J. Dreitz et al., The Use of Resighting Data to Estimate the Rate of Population Growth of the Snail Kite in Florida, Journal of Applied Statistics, Vol. 29, nos. 1-4, 2002 at 611 (AR 83) (hereinafter "Dreitz 2002"). The range includes adjacent and non-adjacent wetland areas extending from as far north as West Lake Tohopekiliga in Osceola County to the southern tip of Florida in Everglades National Park. Id.

WCA-3A is one of the wetland habitat areas and contains 319,078 acres of designated critical habitat, which comprises approximately 38 percent of the snail kite's total critical habitat. Amended ITS at 6. To illustrate the significance of WCA-3A as an area of snail kite habitat, ten percent of active nests were located in WCA-3A in 2005, although of the 39 young snail kites that successfully fledged, none were in WCA-3A. Julien Martin et al., Snail Kite Demography Annual Report 2005, prepared for U.S. Fish and Wildlife Service (2006) at 12 (AR 393) (hereinafter "Martin 2006"). The most productive area was Lake Tohopekaliga with 47 active nests and 21 young fledged. Id. Six areas had no active nests. Id. Six other areas had between one and 23 active nests with between zero and 12 young fledged. Id.

Given the extent of the snail kite's range and the difficulty of detection, the snail kite's total population size is based on an estimate rather than an actual count of individual birds. Amended ITS at 6-7. No contention has been made that it would be possible to determine the snail kite population by counting each individual bird and the literature does not support the feasibility of such an approach. Thus, a numerical trigger would have to be based on changes in the population estimates from year to year. Without describing the methodology used to formulate the snail kite population estimates, it is possible to address the practicality of using a numerical trigger based on population estimates.

"The snail kite is a highly nomadic species with approximately 25% of the population moving at least once during any given month to a different wetland." Id. at 612. Snail kites temporarily shift among wetlands over the period of a day or for longer periods and may escape detection by foraging in unsurveyed wetlands. Drietz 2002 at 620. When conditions are unfavorable in one habitat area, the snail kite may use other areas within its range as refugia until conditions improve. See BiOp 2006 at 39; Martin 2002 at 15. In addition to moving within its identified range, snail kites may use nearly any southern Florida wetland during some portion of their life, even wetlands outside of its identified range. BiOp 2006 at 42. Thus, if snail kite habitat in WCA-3A were to become unsuitable for snail kite foraging and nesting, it appears based on the documented behavioral patterns of the snail kite that the affected population would emigrate to another part of the range until conditions improve. Even if that were not the case, it is not feasible to determine the amount of change in the total population estimates attributable to the habitat changes in WCA-3A because there are numerous other wetland areas in the snail kite's range, each of which has some effect on changes in the total estimated population. No suggestion has been made as to how any habitat changes in WCA-3A could be quantified in terms of its effect on the total population and the methodology by which the estimates are made is not conducive to such an approach. See generally Dietz 2002.

Efforts have been made in the various wetland areas within the snail kite's range to monitor nest success rates and the causes of nest failure. Nest failure in one wetland area within the snail kite's identified range, however, is not an adequate method of accounting for changes in total population estimates. First, nest failure is only one component affecting changes in total population estimates. Other factors affecting total population estimates include the mortality of adults or juveniles, conditions that deter reproduction, and fluctuations in detection rates, among others. Second, as habitat conditions change from year to year in the various wetland areas within the snail kite's range, the degree to which a certain wetland area is utilized for nesting fluctuates, limiting the value of comparing nest success rates from year to year within a particular wetland area. Third, the vast majority of failed nests are caused by predation events but it is unclear how periods of flooding or drought affect snail kite predation rates. Martin 2006 at 12. Fourth, it is unclear if nest detection rates correlate with the detection rates upon which the population estimates rely, making it difficult to determine the degree of correlation between nest failure and changes in population estimates. Moreover, there is no other evidence or methodology supporting the conclusion that nest success rates within WCA-3A can be independently relied upon to account for changes in population estimates from year to year. Therefore, the information available concerning nest success rates is insufficient to provide a basis for a numerical incidental take trigger.

There can be little doubt that degrading the quality of a large portion of a species' critical habitat will have a negative impact on the overall population. The issue here, however, is how best to measure that impact. In light of the fact that it is not possible to monitor the take of individual snail kites, nor is it practical to rely on changes in population estimates to measure take, the use of an ecological surrogate or habitat proxy is appropriate. The Amended ITS adequately demonstrates why using a numerical incidental take trigger to measure snail kite take is impractical.

2. Nexus Between the Ecological Surrogate and Take

Given that use of a numerical trigger is impractical, the ecological surrogate used must be linked to the take of the protected species. Ariz. Cattle Growers Ass'n, 273 F.3d at 1250. The primary concerns with respect to the effect of water management actions on the snail kite are: (1) changing hydrological conditions that reduce the abundance of apple snails, which makes up the great majority of the snail kite's diet; and (2) degradation of snail kite nesting and foraging substrate. BiOp 2006 at 34; Amended ITS at 8. Higher water stages in WCA-3A reduce the abundance, growth, and reproduction of apple snails. Amended ITS at 8. Rapid dry-season water recession affects snail kite nesting because it increases the risk of nest loss when it occurs during the snail kite's nesting season. Therefore, the Amended ITS adequately explains how the ecological surrogate is linked to the take of the species.[26]

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[26] The Miccosukee Tribe also contends that the Amended ITS is invalid because it cites a document, Armentano 2006, that the Tribe was unable to locate in the administrative record. Armentano 2006 is cited in a string cite that includes cites to Nott 1998 and Ross 2006, both of which are in the administrative record. Therefore, assuming that Armentano 2006 is not part of the administrative record, this Court can still assess the validity of the Amended ITS's reliance on Nott 1998 and Ross 2006. These two documents are cited in support of the conclusion that it would require three consecutive years of prolonged high water to sufficiently alter the habitat in a way that would rise to the level of incidental take. The Miccosukee Tribe argues that the reliance on these documents is misplaced because they are documents pertinent to the sparrow, not the snail kite. The FWS, however, does not act arbitrarily or capriciously by drawing on documents that deal with birds other than the snail kite in assessing the rate of habitat change under certain conditions.

Finally, the Amended ITS concludes that incidental take will be exceeded when water levels rise above 11.0 feet NGVD at the 3A-28 gauge for 80 consecutive days in three consecutive years.[27] Amended ITS at 9. The Miccosukee Tribe contends that utilizing a trigger of 11.0 feet NGVD at the 3A-28 gauge is arbitrary and capricious. The Amended ITS relies on research concluding that prolonged water stages above 10.5 feet NGVD would be detrimental to snail kite nesting. Id. The Amended ITS states that the research on which this conclusion is based utilized water level gauge 3AS3W1, which is located in an area where the average ground surface level is 7.95 feet NGVD. Id. The incidental take trigger of 11.0 feet NGVD will be based on readings at water level gauge 3A-28, which is located in an area where the average ground surface level is 8.98 feet NGVD. Id.

The Amended ITS relies on the difference between the average ground surface levels at the locations of these water level gauges to justify increasing the triggering water level from 10.5 to 11.0 feet. The Amended ITS states that "[s]ince the average ground surface around the 3AS3W1 gauge (8.98-ft NGVD) is roughly 1 foot higher than that around the 3A-28 gauge (7.95-ft NGVD), if the 3A-28 gauge is conservatively raised from a 10.5-ft threshold to 11.0-ft threshold it is likely to provide the same or slightly more protection as 10.5-ft measured at the 3AS3W1 gauge." Id. The Federal Defendants now concede that an incidental take trigger of 10.5

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[27] The Miccosukee tribe asserts that the Amended ITS erroneously quotes the Snail Kite Annual Demography Report 2005 by using a ">" symbol instead of a "<" symbol in concluding that water levels should not rise above 11 feet NGVD for more than three months. See Amended ITS at 9; Martin 2006 at 18. While this is true, the Snail Kite Annual Demography Report 2005 states that water levels should not rise above 10.5 feet NGVD for a prolonged period, which is to say that such a water stage should last for less than three months. Given that the 80-day component of the trigger is less than three months, the Amended ITS's conclusion comports with the Snail Kite Annual Demography Report's opinion.

feet NGVD at water level gauge 3AS3W1 is appropriate and have agreed to modify the Amended ITS accordingly. Therefore, once the aforementioned modification is made, the Amended ITS will be valid as to the snail kite.

C. Wood Stork

The Miccosukee Tribe asserts that the Amended ITS is invalid as to the wood stork because it improperly uses a habitat marker, instead of a number, as a trigger for incidental take.[28] Specifically, the Amended ITS states that incidental take will be exceeded if water depth increases by more than 8 inches across an area of greater than 16 square-miles from December 15 through May 1 within the core foraging area of any active wood stork colony. Amended ITS at 14.

1. Practicality of Using a Numerical Trigger

The Amended ITS states that using a numerical incidental take trigger is impractical because wood stork population numbers are based on estimates and it would be difficult to attribute any changes in these population estimates to agency action as opposed to other environmental factors. Wood stork nesting currently occurs in Florida, Georgia, South Carolina, and North Carolina. BiOp 2006 at 51. Wood stork breeding colonies exist in all southern Florida counties except for Okeechobee County. Id. The BiOp 2006 reported that the wood stork population was at its highest level since it was listed as an endangered species in 1984, with an estimated 11,232 nesting pairs, 7,261 of which were in Florida. Id. at 53. In the counties south of Lake Okeechobee, from Lee County on the west coast to Palm Beach County on the east coast, the

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28 "The wood stork is a large, long-legged wading bird, with a head to tail length of 33 to 45 inches and a wingspan of 59 to 65 inches." BiOp 2006 at 45. "The plumage is white, except for the iridescent black primary and secondary wing feathers and short black tail." Id.

number of nesting pairs varied from approximately 400 to 4,000 in the ten years preceding the BiOp 2006. Id. This wide fluctuation in nesting pairs is attributed primarily to variable hydrologic conditions during the nesting seasons. Id. at 55.

There have been annual statewide aerial surveys of known wood stork nesting colonies between 2001 and 2006. Id. at 58. The surveys of each area are only conducted once during the nesting season, and therefore do not account for storks that initiated nesting but abandoned their efforts prior to the survey or that initiated nesting after the survey. Id. Since 1996, there have been 13 wood stork nesting colonies within the area at issue, although the number of active colonies between 1997 and 2006 ranged from 1 to 7. Id. These nesting colonies have included as many as 2,585 nesting pairs in 2001 and as few as 25 pairs in 1998. Id. Although these figures represent data of activity recorded in the relevant area, these were not comprehensive surveys of the entire area. Id.

This population data presents a number of challenges to the practicality of establishing a numerical incidental take trigger. First, the wood stork's range is expansive, making it difficult to measure the impact on total population estimates of an action that negatively affects wood storks in a particular region. Second, the population estimates in the region at issue vary dramatically from year to year, making it difficult if not impossible to determine whether a portion of any fluctuation in population estimates is attributable to agency action. Other reasons for population fluctuations include: (1) failure to return to the same nesting site; (2) poor foraging conditions; (3) permanent or temporary changes in hydrological conditions not attributable to agency action; (4) the migration patterns of wood storks in the southeastern United States; (5) increasing wood stork productivity in central-north Florida and a general northward population shift; (6) human disturbance, and (7) chemical contamination. Amended ITS at 45, 49, 50, 52. While there may be a nexus between some of these factors and water management actions, neither the Parties nor the administrative record suggests that any such nexus is quantifiable. Third, the population estimates in the region at issue here are not comprehensive, decreasing the accuracy of the estimates as well as the likelihood that the observed fluctuations are attributable to population declines and not a decrease in detection rates within the region. Therefore, the reasons put forth in the Amended ITS are sufficient to support the conclusion that establishing a numerical incidental take trigger for the wood stork is impractical.

2. Nexus Between the Ecological Surrogate and the Take

Given that use of a numerical trigger is impractical, the ecological surrogate used must be linked to the take of the protected species. Ariz. Cattle Growers Ass'n, 273 F.3d at 1250. "An increase in water depth of 8 inches during the nesting season across a large part of the core foraging area would lower the suitability of foraging habitat . . . to the point where wood storks ability to forage would be severely impaired and most likely result in widespread abandonment of nests and fledglings within the affected colony." Amended ITS at 14. Thus, there is a sufficient nexus between the ecological surrogate and the take. Accordingly, the Amended ITS is valid as to the wood stork.

IV. CONCLUSION

For the foregoing reasons, it is

ORDERED AND ADJUDGED that the Miccosukee Tribe of Florida's Motion to Enforce the Mandate (dkt # 205) is GRANTED IN PART and DENIED IN PART. The Amended ITS is invalid as to the sparrow, and valid as to the snail kite and wood stork.

DONE AND ORDERED in Chambers at Miami, Florida, this 19th day of March, 2010.

K. MICHAEL MOORE
UNITED STATES DISTRICT JUDGE

cc: All counsel of record

APPENDIX

Cape Sable seaside sparrow photograph by David A. La Puma. This photograph is available at Wikimedia Commons. See http://commons.wikimedia.org/wiki/File:CapeSableSeasideSparrow_2.jpg. The photograph is published under a license that provides: "I, the copyright holder of this work, hereby publish it under the following license: This file is licensed under the Creative Commons Attribution 3.0 Unported license. You are free: to share - to copy, distribute and transmit the work; to remix - to adapt the work [u]nder the following conditions: attribution - You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work)."

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