Big Cypress

National Park Service
U.S. Department of the Interior

Big Cypress
National Preserve

Enabling Legislation

P.L *93-440,* AN ACT TO ESTABLISH BIG CYPRESS NATIONAL PRESERVE, AS AMENDED BY P.L 100-301, THE BIG CYPRESS NATIONAL PRESERVE ADDITION ACT

(ALL UNDERLINED SECTIONS ARE FROM THE 1988 ADDITION LEGISLATION)

An Act to establish the Big Cypress National Preserve in the Stats of Florida, and for other purposes. (88 Stat. 1255) (P.L. 93-440)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) in order to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed in the State of Florida and to provide for the enhancement and public enjoyment thereof, the Big Cypress National Preserve is hereby established.

(b) The Big Cypress National Preserve (hereafter referred to as the "preserve") shall comprise the area generally depicted on the map entitled "Big Cypress National Preserve", dated November 1971 and numbered 60-91,001, which shall be on file and available for public inspection in the Offices of the National Park Service, Department of the Interior, Washington, District of Columbia, and shall be filed with appropriate offices of Collier, Monroe, and Dade Counties in the State of Florida. The Secretary of the Interior (hereafter referred to as the "Secretary") shall, as soon as practicable, publish a detailed description of the boundaries of the preserve in the Federal Register which shall include not more than five hundred and seventy thousand acres of land and water.

(c) The Secretary is authorized to acquire by donation, purchase with donated or appropriated funds, transfer from any other Federal agency, or exchange, any lands, waters, or interests therein which are located within the boundaries of the preserve or the Addition: *Provided,* That any lands owned or acquired by the State of Florida, or any of its subdivisions in the preserve may be acquired by donation only and any land acquired by the State of Florida. or any of its subdivisions, in the Addition shall be acquired in accordance with subsection (d): *Provided further,* That no Federal

funds shall be appropriated until the Governor of Florida executes an agreement on behalf of the State which (i) provides for the transfer to the United States of all lands within the preserve *previously owned* or acquired by the State and (ii) provides for the donation to the United States of all lands acquired by the State within the preserve pursuant to the provision of "the Big Cypress Conservation Act of 1973 (Chapter 73-131 of the Florida Statutes) or provides for the donation to the United States of any remaining moneys appropriated pursuant to such Act for the purchase of lands within the preserve. No improved property, as defined by this Act, nor oil and gas rights, shall be acquired without the consent of the owner unless the Secretary, in his judgment, determines that such property is subject to, or threatened with, uses which are, or would be, detrimental to the purposes of the preserve. The Secretary may, if he determines that the acquisition of any other subsurface estate is not needed for the purposes of the preserve and the Addition, exclude such interest in acquiring any lands within the preserve and the Addition. Notwithstanding the provisions of section 301 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (84 Stat. 1894, 1904) the Secretary (i) may evaluate any offer to sell land within the preserve and the Addition by any landowner and may, in his discretion, accept any offer not in excess of $10,000 without an appraisal and (ii) may direct an appraisal to be made of any unimproved property within the preserve and the Addition without notice to the owner or owners thereof. Notwithstanding any other provision of law, and federally owned lands within the preserve or the Addition shall, with the concurrence of the head of the administering agency, be transferred to the administrative jurisdiction of the Secretary for the purposes of this Act, without transfer of funds. Nothing in this Act shall be construed to interfere *with* the right of the State of Florida to acquire such property rights as may be necessary for Interstate 75.

(d)(i) The aggregate cost to the United States of acquiring lands within the Addition may not exceed 80 percent of the total cost of such lands.

(2) Except as provided in paragraph (3), if the State of Florida transfers to the Secretary lands within the Addition, the Secretary shall pay to or reimburse the State of Florida (out of funds appropriated for such purpose) an amount equal to 80 percent of the total costs to the State of Florida of acquiring such lands.

(3) The amount described in paragraph (1) shall be reduced by an amount equal to 20 percent of the amount of the total cost incurred by the Secretary in acquiring lands in the Addition other than from the State of Florida.

(4) For purposes of this subsection, the term 'total cost' means that amount of the total acquisition costs (including the value of exchanged or donated lands' less the amount of the costs incurred by the Federal Highway Administration and the Florida Department of Transportation, including severance damages paid to private property owners as a result of the construction of Interstate 75.

Sec. 2. (a) In recognition of the efforts of the State of Florida in the preservation of the area, through the enactment of chapter 73-131 of the Florida statutes, 'The Big Cypress Conservation Act of 1973", the Secretary

is directed to proceed as expeditiously as possible to acquire the lands and interests in lands necessary to achieve the purposes of this Act.

(b) Within one year after the date of the enactment or this Act, the Secretary shall submit, in writing, to the Committee on Interior and Insular Affairs and to the Committees on Appropriations of the United States Congress a detailed plan which shall indicate:

(i) the lands and areas which he deems essential to the protection and public enjoyment of this preserve.

(ii) the lands which he has previously acquired by purchase, donation, exchange or transfer for administration for the purpose of this preserve, and

(iii) the annual acquisition program (including the level of funding) which he recommends for the ensuing five fiscal years.

(c) It is the express intent of the Congress that the Secretary should substantially complete the land acquisition program contemplated by this Act within six years after the date of its enactment.

SEC 3. (a) The owner of an improved property on the date of its acquisition by the Secretary may, as a condition of such acquisition, retain for himself and his heirs and assigns a right of use and occupancy of the improved property for a definite term of not more than twenty-five years or, in lieu thereof, for a term ending at the death of the owner or the death of his spouse, whichever is later. The owner shall elect the term to be reserved. Unless this property is wholly or partially donated to the United States, the Secretary shall pay the owner the fair market value of the property on the date of acquisition less the fair market value, on that date, of the right retained by the owner. A right retained pursuant to this section shall be subject to termination by the Secretary upon his determination that ft is being exercised in a manner inconsistent with the purposes of this Act, which shall include the exercise of such right in violation of any applicable State or local laws and ordinances, and it shall terminate by operation of law upon the Secretary's notifying the holder of the right of such determination and tendering to him an amount equal to the fair market value of that portion of the right which remains unexpired.

(b) As used in this Act, the term "improved property" means:

(i) a detached, one family dwelling, construction of which was begun before November 23, 1971, <u>with respect to the preserve and January 1, 1986 with respect to the Addition</u> which is used for noncommercial residential purposes, together with not to exceed three acres of land on which the doweling is situated and such additional lands as the Secretary deems reasonably necessary for access thereto, such land being in the same ownership as the dwelling, and together with any structures accessory to the dwelling which are situated on such lands and

(ii) any other building, construction of which was begun before November 23**,** 1971, with respect to the preserve and January 1, 1986 with respect to the Addition which was constructed and is used in accordance with all applicable State and local laws and ordinances, together with as much of the land on which the building is situated, such land being in the same ownership as the building, as the Secretary shall designate to be reasonably necessary for the continued enjoyment and use of the building in the same manner and to the same extent as existed in November 23, 1971, or January 1. 1986, as the case may be, together with any structures accessory to the building which are situated on the lands so designated. In making such designation the Secretary shall take into account the manner of use in which the building, accessory structures, and lands were customarily enjoyed prior to November 23, 1971 or January 1, 1986 as the case may be.

(c) Whenever an owner of property elects to retain a right of use and occupancy as provided in this section, such owner shall be deemed to have waived any benefits or rights accruing under sections 203, 204, 205, and 206 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (84 Stat. 1894), and for the purposes of such sections such owner shall not be considered a displaced person as defined in section 101(6) of such Act.

SEC 4. (a) The area within the boundaries depicted on the map referred to in section 1 shall be known as the Big Cypress National Preserve. Such lands shall be administered by the Secretary as a unit of the National Park System in a manner which will assure their natural and ecological integrity' in perpetuity' in accordance with the provisions of this Act and with the provisions of the Act of August 25, 191 6 (39 Stat. 535; 16 U.S.C. 1-4), as amended and supplemented.

(b) In administering the preserve, the Secretary shall develop and publish in the Federal Register such rules and regulations as he deems necessary and appropriate to limit or control the use of Federal lands and waters with respect to:

(1) motorized vehicles,

(2) exploration for and extraction or oil, gas, and other minerals,

(3) crazing,

(4) draining or constructing of works or structures which alter the natural water courses,

(5) agriculture,

(6) hunting, fishing, and trapping,

(7) new construction of any kind, and

(8) such other uses as the Secretary determines must be limited or controlled in order to carry out the purposes of this Act: *Provided,* That the Secretary shall consult and cooperate with the Secretary of

Transportation to assure that necessary transportation facilities shall be located within existing or reasonably expanded rights-of-way and constructed within the reserve in a manner consistent with the purposes of this Act.

SEC. 5. The Secretary shall permit hunting, fishing, and trapping on lands and water under his jurisdiction within the preserve and the Addition in accordance with the applicable laws of the United States and the State of Florida, except that he may designate zones where and periods when no hunting, fishing, trapping, or entry may be permitted for reasons of public safety, administration, floral and faunal protection and management, or public use and enjoyment. Except in emergencies, any regulations prescribing such restrictions relating to hunting, fishing, or trapping shall be put into effect only after consultation with the appropriate State agency having jurisdiction over hunting, fishing, and trapping activities. Notwithstanding this section or any other provision of this Act, members of the Miccosukee Tribe of Indians of Florida and members of the Seminole Tribe of Florida shall be permitted, subject to reasonable regulations established by the Secretary, to continue their usual and customary use and occupancy of Federal or federally acquired lands and waters within the preserve and the Addition, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonials.

SEC. 6. Notwithstanding any other provision of law, before entering into any contract for the provision of revenue producing visitor services,

(i) the Secretary shall offer those members of the Miccosukee and Seminole Indian Tribes who, on January 1, 1972, (January 1, 1985 in the case of the Addition) were engaged in the provision of similar services, a right of first refusal to continue providing such services within the preserve and the Addition subject to such terms an conditions as he may deem appropriate, and

(ii) before entering into any contract or agreement to provide new revenue-producing visitor services within the preserve or within the Addition the Secretary' shall offer to the Micccsukee Tribe of Indians of Florida and the Seminole Tribe of Florida the right of first refusal to provide such services, the right to be open for a period of ninety days. Should both tribes respond with proposals that satisfy the terms and conditions established by the Secretary, the Secretary may allow the Tribes an additional period of ninety days in which to enter into an inter-Tribal cooperative agreement to provide such visitor services, but if neither tribe responds with proposals that satisfy the terms and conditions established by the Secretary', then the Secretary shall provide such visitor services in accordance with the Act of October 9, 1965 (79 Stat. 969, 16 U.S.C. 20). No such agreement may be assigned or otherwise transferred without the consent of the Secretary.

SEC. 7. Within five years from the date of the enactment of this Act, with respect to the preserve and five years from the date of the enactment of the Bid Cypress National Preserve Addition Act. with respect to the Addition the Secretary shall review the area within the preserve or the area within the Addition (as the case

may be) and shall report to the President, in accordance with section 3 (c) and (d) of the Wilderness Act (78 Stat. 891; 16 U.S.C. 1132 (c) and (d)), his recommendations as to the suitability or nonsuitability of any area within the preserve or the area within the Addition (as the case may be) for preservation as wilderness, and any designation of any such areas as a wilderness shall be accomplished in accordance with said subsections of the Wilderness Act.

SEC. 8. (a) Except as provided in subsection (b), there are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act, but not to exceed $116,000,000 for the acquisition of lands and interests in lands and not to exceed $900,000 for development. Any funds donated to the United States by the State of Florida pursuant to chapter 73-131 of the Florida statutes shall be used solely for the acquisition of lands and interests in land within the preserve.

(b) There is hereby authorized to be appropriated from the Land and Water Conservation Fund not to exceed $49,500,000 for the acquisition of lands within the Addition. There is hereby authorized to be appropriated such sums as may be necessary for development in the Addition.

Approved October 11, 1974.

(The following are completely new sections added from Addition Legislation)

Sec. 9. (a) In order to -

(1) achieve the purposes of the first section of this Act:

(2) complete the preserve in conjunction with the planned construction of Interstate Highway 75: and

(3) insure appropriately managed use and access to the Big Cypress Watershed in the State of Florida.

the Big Cypress National Preserve Addition is established.

(b)The Big Cypress National Preserve Addition (referred to in this Act as the 'Addition') shall comprise approximately 146,000 acres as generally depicted on the map entitled Big Cypress National Preserve Addition. dated April 1987. and numbered 176-910000, which shall be on file and available for public inspection in the Office of the National Park Service. Department of the Interior, Washington. D.C., and shall be filed with appropriate offices of Collier County in the State of Florida. The Secretary shall, as soon as practicable publish a detailed description of the boundaries of the Addition in the Federal Register.

(c) The area within the boundaries depicted on the map referred to in subsection (b) shall be known as the 'Big Cypress National Preserve Addition' and shall be managed in accordance with section 4.

(d) For purposes of administering the Addition and notwithstanding section 2(c), it is the express intent of the Congress that the Secretary should substattially complete the land acquisition program contemplated with

respect to the Addition in not more than five years after the date of the enactment of this paragraph.

Sec. 10. The Secretary and other involved Federal agencies shall cooperate with the State of Florida to establish recreational access points and roads, rest and recreation areas, wildlife protection, hunting, fishing, frogging and other traditional opportunities in conjunction with the creation of the Addition and in the construction of Interstate Highway 74. Three of such access points shall be located within the Preserve (including the Addition).

Sec. 11. Not later than two years after the date of the enactment of this section, the Secretary shall submit to the Congress a detailed report on, and further plan for, the preserve and Addition including -

(1) the status of the existing preserve, the effectiveness of past regulation and management of the preserve, and recommendations for future management of the preserve and the Addition:

(2) a summary of the public's use of the preserve and the status of the access points developed pursuant to section 10:

(3) the need for involvement of other State and Federal agencies in the management and expansion of the preserve and Addition:

(4) the status of land acquisition; and

(5) a determination, made in conjunction with the State of Florida, of the adequacy of the number, location, and design of the recreational access points on 1-75/Allicator Alley for access to the Big Cypress National Preserve, including the Addition.

The determination required by paragraph (5) shall incorporate the results of any related studies of the State of Florida Department of Transportation and other Florida State agencies. Any recommendation for significant changes in the approved recreational access points, including any proposed additions, shall be accompanied by an assessment of the environmental impact of such chances.

Sec. 12. (a) Within nine months from the date of the enactment of the Big Cypress National Preserve Addition Act the Secretary shall promulgate, subject to the requirements of subsections (b)-(e) of the section, such rules and regulations governing the exploration for and development and production of non-Federal interests in oil and gas located within the boundaries of the Big Cypress National Preserve and the Addition, including but not limited to access on, across, or through all lands within the boundaries of the Big Cypress National Preserve and the Addition for the purpose of conducting such exploration or development and production, as are necessary and appropriate to provide reasonable use end enjoyment of privately owned oil and gas interests, and consistent with the purposes for which the Big Cypress National Preserve and the Addition were established. Rules and regulations promulgated pursuant to the authority of this section may be made by appropriate amendment to or in substitution of the rules and regulations respecting non-Federal oil and gas rights (currently codified at 36 CFR 9.30, et seq.. (1986)),

(b) Any rule or regulation promulgated by the Secretary under subsection (a) of this section shall

provide that -

(1) exploration or development and production activities may not be undertaken, except pursuant to a permit issued by the National Park Service authorizing such activities or access; and

(2) final action by the National Park Service with respect to any application for a permit authorizing such activities shall occur within 90 days from the date such an application is submitted unless -

(A) the National Park Service and the applicant agree that such final action shall occur within a shorter or longer period of time: or

(B) the National Park Service determines that an additional period of time is required to ensure that the National Park Service has, in reviewing the application, complied with other applicable law, Executive orders and regulations; or

(C) the National Park Service, within 30 days from the date of submission of such application, notifies the applicant that such application does not contain all information reasonably necessary to allow the National Park Service to consider such application and requests that such additional information be provided. After receipt of such notification to the applicant, the applicant shall supply any reasonably necessary additional information and shall advise the National Park Service that the applicant believes that the application contains all reasonably necessary information and is therefore complete, whereupon the National Park Service may -

(i) within 30 days of receipt of such notice from the applicant to the National Park Service determine that the application does not contain all reasonably necessary additional information and, on that basis, deny the application; or

(ii) review the application and take final action within 60 days from the date that the applicant provides notification to the National Park Service that its application is complete.

(c) Such activities shall be permitted to occur if such activities conform to requirements established by the National Park Service under authority of law.

(d) In establishing standards governing the conduct of exploration or development and production activities within the boundaries of the Big Cypress National Preserve or the Addition, the Secretary shall take into consideration oil and gas exploration and development and production practices used in similar habitats or ecosystems within the Big Cypress National Preserve or the Addition at the time of promulgation of the rules and regulations under subsection (a) or at the time of the submission of the application seeking authorization for such activities, as appropriate.

(e) Prior to the promulgation of rules or regulations under this section, the Secretary is authorized, consistent with the purposes of which the Big Cypress National Preserve Addition was established, to enter into interim agreements with owners of non-Federal oil and gas interests governing the conduct of oil and gas exploration, development or production activities within the boundaries of the Addition, which agreements shall be superseded by the rules and regulations promulgated by the Secretary when applicable: Provided. That such

agreement shall be consistent with the requirements of subsections (b) -(d) of this section and may be altered by the terms of rules and regulations subsequently promulgated by the Secretary: Provided further, That this provision shall not be construed to enlarge or diminish the authority of the Secretary to establish rules and regulations applicable to the conduct of exploration or development and production activities within the Big Cypress National Preserve or the Addition.

(f) There is hereby authorized to be established a Minerals Management Office within the Office of the Superintendent of the Big Cypress National Preserve, for the purpose of ensuring, consistent with the purposes for which the Big Cypress National Preserve was established, timely consideration of and final action on applications for the exploration or development and production of non-Federal oil and gas rights located beneath the surface of lands within the boundaries of the Big Cypress National Preserve and the Addition.

(g) There are hereby authorized to be appropriated such sums as may be necessary to carry out the activities set forth in this section.

Legislative History.

House Report No. 93-502 (Comm. on Interior and Insular Affairs).

Senate Report No. 93-1128 (Comm. on Interior and Insular Affairs).

Congressional Record:

Vol. 119 (1973): Oct. 3, considered and passed House.

Vol. 120 (1974); Sept 9, considered and passed Senate, amended.

Sept. 24, House concurred in Senate amendments with amendments.

Oct. 1 Senate concurred in House amendments to Senate amendments.

Appendix B

National Park Service /
Florida Fish and Wildlife Conservation Commission
Cooperative Partnership Agreement

COOPERATIVE PARTNERSHIP AGREEMENT

BETWEEN

THE NATIONAL PARK SERVICE AND

THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

This Cooperative Partnership Agreement ("Agreement") is made and entered on this 1st day of December, 2010 by and between the National Park Service, represented by the Superintendent of the Big Cypress National Preserve ("NPS," "Preserve") and the Executive Director of the Florida Fish and Wildlife Conservation Commission ("FWC").

WHEREAS, the Preserve was established as a unit of the National Park System by Public Law 93-440, effective October 11, 1974. As established, the Preserve consisted of 580,000 acres for purposes of assuring the preservation, conservation and protection of natural, scenic, hydrologic, floral and fauna, and recreation values of the Big Cypress Watershed and providing for the enhancement and public enjoyment thereof; and

WHEREAS, Public Law 100-301, effective April 29, 1988, added 147,000 acres ("the Addition") to the Preserve and further stated that NPS shall cooperate with the State of Florida to establish recreational access points, roads, rest and recreation areas, wildlife protection, hunting, fishing, frogging and other traditional recreational opportunities in conjunction with the creation of the Addition; and

WHEREAS, NPS's special regulations for the Preserve at 36 CFR § 7.86 (a)(2)(iii) state with respect to Motorized Vehicle travel: "...Prior to making a temporary or permanent closure the Superintendent shall consult with the executive director of the Florida Game and Freshwater Fish Commission..."; and

WHEREAS, 36 CFR § 7.86 (e) states that hunting, fishing and trapping are permitted in the Preserve in accordance with the NPS general regulations and applicable Florida law governing Cooperative Wildlife Management Areas; and

WHEREAS the NPS is fulfilling its mission to assure the preservation, conservation and protection of natural, scenic, hydrologic, floral and fauna, and recreation values of the Big Cypress Watershed and to provide for the enhancement and public enjoyment thereof in accordance with all applicable Federal regulations and NPS policies and in a manner consistent with State of Florida regulations; and

WHEREAS, the federal and state statutes establishing the Preserve and the Addition distinguish these public lands from typical national parks and thereby recognize the importance of local traditional values, and integrate those values in a unique and cooperative partnership between the Federal government and the State of Florida; and

WHEREAS, the State of Florida has been a major financial contributor and partner in creating the Preserve by spending $40 million on land acquisition and by donating 140,000 acres to the creation of the Preserve; and

WHEREAS, the State of Florida has designated the Big Cypress Area as an "area of critical state concern" by Section 380.055, Florida Statutes in order to protect the Preserve and the Addition as an environmental natural resource of regional and statewide significance for the state; and

WHEREAS, FWC is the state agency empowered by Article IV, Section 9, Florida Constitution to execute the executive and regulatory powers of the state over wild animal life, freshwater aquatic life and marine life and is also empowered by sections 375.311-314, Florida Statutes to regulate motor vehicle access and traffic control on Florida's public lands to prevent damage to environmentally sensitive lands; and

WHEREAS, FWC has developed partnership relationships with the federal government for the regulation of fishing, hunting and other outdoor recreational activities in national forests, US Department of Defense lands, US Army Corps of Engineers lands, and for the enforcement of federal marine fishery regulations in state and federal waters and has capably and effectively carried out its partnership responsibilities with other federal agencies; and

WHEREAS, FWC is fulfilling its mission to conserve the fish and wildlife resources of the Preserve by effectively regulating and managing hunting, fishing, and imperiled fish and wildlife in cooperation and as authorized by the NPS, through Rule 68A-15.064(5), Florida Administrative Code and other regulations, and through FWC law enforcement; and

WHEREAS, NPS and FWC [and its predecessor agency the Florida Game and Fresh Water Fish Commission ("GFC")] executed a Memorandum of Understanding in 1974 to promote collaboration, consultation, and cooperation in the regulation and management of the fish and wildlife resources on the Preserve; and

WHEREAS, said Memorandum of Understanding expired in 1990; and

WHEREAS, based upon the aforesaid expressed intent of the above-described state and federal authorities both parties desire to continue to collaborate, consult, and cooperate on Preserve management issues related to recreational access points and roads, rest and recreation areas, wildlife protection, hunting, fishing, frogging and other traditional opportunities to ensure the good and stability of the greater Everglades ecosystem; and

WHEREAS, this Agreement is desirable in order to fulfill the mandate and intent of the Acts of Congress and Florida Statutes for the management of the Preserve and the Addition.

THEREFORE, NPS and FWC agree as follows:

1. NPS and FWC will implement this Agreement through joint and cooperative endeavors which will focus the resources, expertise, skills, and abilities of the FWC and the NPS toward achieving the proper management of the lands and waters involved, the proper management of fish and wildlife resources, and the maximum public benefit from these endeavors.

2. NPS and FWC will offer reasonable public access as provided for in Public Law 93-440 and Public Law 100-301, allowing the public to engage in authorized traditional uses in the Preserve and the Addition such as hunting, fishing, camping and other wildlife-oriented recreational activities, which can be compatible with fish and wildlife conservation and are integral to fulfilling the mandate and intent of said public laws, without compromising the integrity of Preserve natural and cultural resources.

3. NPS and FWC shall collaborate, consult, and cooperate with one another to ensure that their actions do not adversely affect the ability of the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Indians of Florida to continue their usual and customary use and occupancy of Federal or federally acquired lands and waters within the Preserve and Addition.

4. FWC and NPS shall collaborate, consult and cooperate with one another when developing management plans, environmental assessments or environmental impact statements or other management instruments that affect fish and wildlife resources of the Preserve and the Addition and the public's ability or access to enjoy such resources.

5. FWC and NPS shall collaborate, consult and cooperate with one another regarding management of imperiled species of fish and wildlife on the Preserve and/or the Addition.

6. FWC and NPS shall collaborate, consult and cooperate with one another on courses of action to control or eradicate exotic or nonnative fish and wildlife or plants in the Preserve and the Addition. Nothing herein shall restrict or constrain the ability of NPS to implement management measures necessary to control or eradicate exotic fish, wildlife or plants.

7. When practicable, the NPS and FWC shall collaborate, consult, and cooperate on ecological research and resource monitoring to address questions of mutual interest to NPS and FWC. Authorship rights to publications resulting from such collaboration, consultation, and cooperation shall follow the guidelines in Dickson, J. G., R. C. Conner,

and K. T. Adair. 1978. Guidelines for Authorship of Scientific Articles. Wildlife Society Bulletin 6:260-261

8. NPS and FWC shall have the opportunity to review and comment upon each other's research and monitoring proposals when related to fish and wildlife in the Preserve and the Addition prior to commencement of the research and monitoring.

9. FWC and NPS shall freely exchange with each other, upon request and in consideration of the Freedom of information Act and Florida's public records law, their biological data about flora and fauna of the Preserve and the Addition and shall acknowledge use of the other's data in any publication of such data.

10. The NPS shall facilitate reasonable access to the Preserve and the Addition by the FWC for ecological research and natural resource monitoring of mutual interest to NPS and FWC.

11. NPS and FWC shall permit the harvest of fish and wildlife by the public in such areas of the Preserve and the Addition as provided for in the aforementioned Acts of Congress.

12. Areas within the Preserve and the Addition where public hunting, fishing, and other activities associated with taking or possession of fish and wildlife are allowed shall be open for said activities as provided by and in accordance with all applicable federal and state statutes, rules or regulations.

13. This Agreement recognizes the authority of the Preserve Superintendent to promulgate regulations and implement management limits and controls as they relate to public access, including but not limited to actions in response to changing resource conditions during emergencies as described in paragraph 19 below, but in any case where such actions relate to fish and wildlife management or the taking of fish and wildlife or associated activities, these actions shall be promulgated in collaboration, consultation, and cooperation with FWC.

14. All state licenses and permits required under State law shall be required for public hunting, fishing and activities associated with the taking or possession of game fish and wildlife species in the Preserve and the Addition.

15. FWC shall consult with and secure the concurrence of NPS before establishing any regulation of fishing, hunting, and other activities associated with the taking or possession of game fish and wildlife on the Preserve and the Addition.

16. FWC shall provide law enforcement support for sufficient enforcement of FWC regulations effective in the Preserve and the Addition. Furthermore the FWC and NPS will develop and adopt a specific Memorandum of Understanding that sets forth the procedures for mutual aid and law enforcement in the Preserve and the Addition.

17. FWC and NPS shall act in good faith and as true partners to resolve disagreements that may arise in the implementation of this Agreement. In the event of a disagreement, the parties agree to contact each other in a timely manner and make a reasonable effort resolve the conflict at the lowest level. Should elevation of the dispute become necessary, the Superintendent and Executive Director will serve as final decision makers on behalf of their respective agencies in resolving points of disagreement within a mutually agreed upon time frame and as expeditiously as possible.

18. NPS and FWC will collaborate, consult, and cooperate on the development of news releases and/or public comments to the media concerning fish and wildlife, access, recreation, law enforcement, and emergencies that may affect the Preserve and Addition. Additionally NPS and FWC will collaborate, consult, and cooperate on outreach that may pertain to other related areas of mutual interest.

19. When necessary to address emergencies, NPS may issue regulations or orders to restrict or prohibit public use and access in the Preserve and the Addition or portions thereof. With the concurrence of NPS, FWC may issue regulations or orders to restrict or prohibit hunting or fishing or other activities associated with the taking of fish and wildlife in the Preserve and the Addition or portions thereof. When practicable,

regulations and orders of the nature referenced in this provision should be jointly or cooperatively issued.

20. FWC and NPS shall enter into a separate agreement to render mutual assistance as practicable in times of emergency or natural disaster affecting the Preserve or its employees.

21. FWC and NPS may enter into separate working arrangements as occasion demands for the use of lands, buildings, equipment and other facilities owned and operated by either party.

22. FWC and NPS shall assist each other in supporting and defending mutually agreed rules, regulations and policies relating to the Preserve and the Addition.

23. The Superintendent and the Executive Director or their designees will meet at least annually to insure that the provisions of the cooperative partnership established under this Agreement are being fully implemented and to identify any measures necessary to improve this cooperative partnership.

24. Modifications to this Agreement may be made through mutual consent of the NPS and FWC as approved by the Superintendent and the Executive Director

25. Termination of this agreement shall be by mutual consent of the NPS and FWC as executed by the Superintendent and the Executive Director.

WHEREFORE, the Parties hereto, through their designated Representatives, have executed this Agreement on the last date listed and signed below.

Pedro Ramos
Superintendent
Big Cypress National Preserve

Nick Wiley
Executive Director
Florida Fish & Wildlife Conservation Commission

Appendix C

Big Cypress Wildlife Management Area
Regulations Summary and Area Map
(July 1, 2013 - June 30, 2014)

2013-2014 Hunting Season

REVISED: Special regulations for Stairsteps Unit. Monroe Checkstation has re-opened. Hunt Dates amended for Archery and Muzzleloading Gun Seasons

Big Cypress

Wildlife Management Area

Regulations Summary and Area Map
July 1, 2013 - June 30, 2014

A cooperative public wildlife and recreational area

National Park Service

Florida Fish and Wildlife Conservation Commission

MyFWC.com

This brochure is designed to provide the public with information and a summary of regulations pertaining to hunting and other recreational use on the Big Cypress Wildlife Management Area. **Regulations that are new or differ substantially from last year are shown in bold print.** Area users should familiarize themselves with all regulations. For exact wording of the wildlife laws and regulations, see the Florida Fish and Wildlife Conservation Commission's wildlife code, on file with the Secretary of State and state libraries. This brochure, the Florida Hunting Regulations handbook and quota permit worksheets should provide the information necessary for you to plan your hunting activities. These publications are available from any Commission office, county tax collector and at MyFWC.com.

Persons using wildlife management areas are required to have appropriate licenses, permits and stamps. The following persons are exempt from all license and permit requirements (except for quota permits when listed as "no exemptions," recreational use permits, antlerless deer permits and the Migratory Bird Hunting and Conservation Stamp [federal duck stamp]): Florida residents who are 65 years of age or older; residents who possess a Florida Resident Disabled Person Hunting and Fishing Certificate; residents in the U.S. Armed Forces, not stationed in Florida, while home on leave for 30 days or less, upon submission of orders; and children under 16 years of age. Children under 16 years of age are exempt from the federal duck stamp. Anyone born on or after June 1, 1975 and 16 years of age or older must have passed a Commission-approved hunter-safety course prior to being issued a hunting license, except the Hunter Safety Mentoring exemption allows anyone to purchase a hunting license and hunt under the supervision of a licensed hunter, 21 years of age or older.

Licenses and permits may be purchased from county tax collectors, license agents, at MyFWC.com/license or by telephone at 888-486-8356. A no-cost Migratory Bird Permit is available when purchasing a hunting license. Any waterfowl hunter 16 years of age or older must possess a federal duck stamp; available where hunting licenses are sold, at most post offices or at www.duckstamp.com.

Quota Permit Information:
Muzzleloading Gun (first 9 days) - 200 (Bear Island Unit), no-cost, quota permits.
General Gun (first 9 days) - 200 (Bear Island Unit), 500 (Turner River Unit), no-cost, quota permits.

Permit applications: Hunters must submit electronic applications for quota and special-opportunity permits through the Commission's **Recreational Licensing Issuance Services (RLIS)**. Worksheets listing hunts, application periods, deadlines and instructions are available at county tax collector's offices, FWC offices or MyFWC.com. Quota application periods occur throughout the year beginning April 1; please refer to the hunting handbook or MyFWC.com for specific dates. Worksheets will be available about 2 weeks prior to each application period.

Guest hunters: For each non-transferable archery, muzzleloading gun, general gun, wild hog, spring turkey and mobility-impaired quota permit issued through the Commission's **RLIS**, a quota permit holder (host) may take a guest hunting by obtaining a guest permit. A guest hunter must possess a completed guest permit while hunting except the following persons may be a guest hunter without a guest permit: a youth under 16 years of age, a youth supervisor, a mentor license holder or a mentor license supervisor. A host may only bring 1 guest hunter at a time **and may only use 1 guest permit per day**. The following persons are not considered to be guest hunters: other quota permit holders, non-hunters and exempt hunters (on areas and during seasons that allow exemptions). The host must share the bag limit with the guest hunter and the host is responsible for violations that exceed the bag limit. The guest hunter and host must enter and exit the area together and must share a street-legal vehicle while hunting on the area; ATVs may be ridden independently. The guest hunter may hunt only while the host is on the area. Refer to the quota hunt worksheets for additional information.

Youth and mentor license holders: A youth hunter (less than 16 years of age) must be supervised by a person at least 18 years of age. A mentor license holder must be supervised by a licensed hunter at least 21 years of age. Unless exempt, only those supervisors with proper licenses and permits may hunt. If the supervisor is hunting during any hunt for which quota permits are issued, at least 1 person in the party must be in possession of a quota permit. During a hunt that allows exemptions, a non-exempt supervisor of a youth must have a quota permit to hunt. A non-hunting supervisor is allowed to accompany a youth or mentor license holder during any hunt.

Transfer of permits: Quota and guest permits are not transferable. A positive form of identification is required when using a non-transferable permit, except for a youth under 16 years of age. The sale or purchase of any quota permit or guest permit is prohibited.

National Park Service Off-road Vehicle (ORV) Permit:
Vehicle operators must be state licensed (regular or learner's permit) and obtain an ORV operator's permit from the NPS for all vehicles, including airboats, used off-road on the Big Cypress Wildlife Management Area. All ORVs and their operators must be permitted and the vehicles inspected prior to operation in the preserve. The ORV permit is issued for the vehicle, but NPS maintains a record of applicant and ownership information for each permitted ORV. Vehicle operators are responsible for knowing NPS regulations that apply to ORV use in the preserve. Please contact the Big Cypress National Preserve ORV Office, 33100 Tamiami Trail East, Ochopee, FL 34141, 239-695-1205, regarding vehicle use regulations or at nps.gov/bicy/planyourvisit/orv-use.htm. The NPS ORV permit is available at the Oasis Visitor Center.

General Area Regulations:
All general laws and regulations relating to wildlife and fish shall apply unless specifically exempted for this area. Hunting or the taking of wildlife or fish on this area shall be allowed only during the open seasons and in accordance with the following regulations:

1. Any person hunting deer or accompanying another person hunting deer shall wear at least 500 square inches of daylight fluorescent-orange material as an outer garment, above the waistline. These provisions are not required when hunting with a bow and arrow during archery season.
2. Taking of spotted fawn, swimming deer or roosted turkey is prohibited. Species legal to hunt are listed under each season.
3. It is illegal to hunt over bait or place any bait or other food for wildlife on this area.
4. Driving a metal object into any tree, or hunting from a tree into which a metal object has been driven, is prohibited.
5. No person shall cut, damage or remove any natural, man-made or cultural resource without written authorization of the landowner or primary land manager.
6. Taking or attempting to take any game with the aid of live decoys, recorded game calls or sounds, set guns, artificial light, net, trap, snare, drug or poison is prohibited. Recorded calls and sounds can be used to hunt furbearers, wild hog and crows.
7. The wanton and willful waste of wildlife is prohibited.
8. Hunting, fishing or trapping is prohibited on any portion of the area posted as closed to those activities.
9. People, dogs, vehicles and other recreational equipment are prohibited in areas posted as "Closed to Public Access" by FWC administrative action.
10. Taking or herding wildlife from any motorized vehicle, aircraft or boat which is under power is prohibited, until power and movement from that power, has ceased.

11. Most game may be hunted from ½ hour before sunrise until ½ hour after sunset (see exceptions under each season).
12. The release of any animal is prohibited, without written authorization of the landowner or primary land manager.
13. The head and evidence of sex may not be removed from the carcass of any deer or turkey on the area.
14. The planting or introduction of any non-native plant is prohibited, without written authorization of the landowner or primary land manager.
15. Wild hog may not be transported alive.
16. Littering is prohibited.
17. It is unlawful to set fire to any forest, grass or woodlands.
18. A Fish and Wildlife Conservation Commission Law Enforcement Officer may search any camp, vehicle or boat, in accordance with law.
19. Falconers may hunt during the statewide falconry season anytime a management area is open for public access. Falconers are not exempt from quota permits during hunts requiring them.
20. Construction of buildings or other structures is prohibited, unless permitted by the National Park Service.
21. Cutting or damaging fences used to contain animals (including cattle fences) is a felony of the third degree.
22. The collection of plants, rocks, minerals, animal life or other natural objects is allowed only in accordance with written permits obtained in advance from the National Park Service.

Public Access and Vehicles:

1. Open to public recreational access year round.
2. All vehicles and airboats used off-road on the Big Cypress Wildlife Management Area shall have a National Park Service ORV permit. See National Park Service Off-road Vehicle (ORV) Permit section, page 1.
3. To access the Bear Island Unit, all persons shall enter and exit the area at the Bear Island check station on the north end of Turner River Road or at the I-75 walk-in only access check station, located north of I-75 in the southeast portion of the Bear Island Unit.
4. Vehicle use on Eleven-mile Road or the Florida Trail is prohibited; however, vehicles may cross Eleven-mile Road at marked designated crossing points. Maps are available at the Visitor Center.
5. On Jetport Road, only vehicles with pneumatic tires may be operated and parked vehicles are prohibited.
6. Parked vehicles may not obstruct a road, gate or firelane.
7. No motor vehicle shall be operated on any part of any wildlife management area that has been designated as closed to vehicular traffic.
8. All airboats must be equipped with an orange flag at least 10 inches wide and 12 inches long and displayed at a minimum height of 10 feet above the bottom of the vessel.
9. Public access inside any fenced portion of the Jetport property is prohibited.

Hunters and Check Stations:

1. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**
2. **In Zone 3 of the Stairsteps Unit harvested deer must have at least one antler having 2 or more points (each point 1-inch or more in length) and at least one antler 5 inches or more in length. Bag limit for deer in Zone 3 is 1 annually.**
3. Hunters must check in at a designated check station upon entering the area, retain in their possession a check station pass while hunting and check out at the same check station when exiting the area and shall check all game harvested.
4. Hunters using the Bear Island Unit shall enter and exit only at the designated entrance at the north end of Turner River Road or designated entrances along I-75. The I-75 entrances are walk-in only and equipped with self-service check stations.
5. Deer, wild hog and turkey may be divided or consumed in the field, but each portion shall be identified with the license number of the person who took the game and be readily traceable to the portion of the animal bearing sex identification.
6. It is important that game stay intact as much as possible and be brought to the check station as soon as possible. Important biological data are obtained from the following animals and parts: deer (head, heart, kidney, and liver), hog (head) and turkey (wings and tail). If game is processed in the field, the above items should be brought to the check station along with the meat.
7. Deer jawbones shall be saved and brought to the check station.
8. Hunting equipment may not be taken onto the WMA until after 8 a.m. the day before the opening of a season and shall be removed by 6 p.m. 1 day after the end of the season, but see #s 4 and 16 under the National Park Service Rules and Information section.
9. Licensed hunters are allowed to take Conditional Reptiles incidental to lawful hunting activities during established hunting seasons. Conditional reptiles shall not be transported alive from the area. Persons that take any Conditional Reptiles shall report the take within 36 hours, and shall provide all data requested. Report all take of Conditional Reptiles at 888-IVE-GOT1 (888-483-4681) or at IveGot1.org.

Guns:

1. Hunting on or from the rights-of-way of Burns Road; County Roads 839, 841, 837; State Roads 84 (I-75) or 94; or U.S. 41 is prohibited.
2. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used for hunting. Muzzleloading guns may only be used for hunting in the Deep Lake Unit during the small game season.
3. Hunting at night with a gun is prohibited.
4. Muzzleloading guns used for taking deer must be .40 caliber or larger, if firing a single bullet, or be 20 gauge or larger if firing 2 or more balls.
5. Hunting deer with rimfire or non-expanding, full metal jacket (military ball) ammunition is prohibited.
6. Children under the age of 16 hunting with a firearm must be in the presence of a supervising adult.
7. No person shall discharge a firearm or have a loaded firearm in hand while under the influence of alcohol or drugs.
8. For hunting non-migratory game, only shotguns, rifles, pistols, bows, crossbows or falconry may be used. Hunting during the spring turkey season with firearms other than shotguns or using a shot size larger than #2 is prohibited.
9. For hunting migratory game, only shotguns, bows or falconry may be used. Shotguns shall not be larger than 10 gauge and shall be incapable of holding more than 3 shells in the magazine and chamber combined.
10. Hunting with full automatic or silencer-equipped firearms, centerfire semi-automatic rifles having a magazine capable of holding more than 5 rounds, explosive or drug-injecting devices and set guns is prohibited.

Dogs:

1. Hunting deer or wild hog with dogs is prohibited.
2. The possession of dogs is prohibited, except bird dogs or retrievers are allowed for hunting purposes only.
3. Dogs are prohibited in the Loop Unit.
4. No person shall allow any dog to pursue or molest any wildlife during any period in which the taking of wildlife by the use of dogs is prohibited.
5. Leashed dogs may not be used for trailing wounded game.

Camping:

1. Camping is allowed in accordance with the regulations of the National Park Service. See the National Park Service Rules and Information section for additional camping rules.
2. Primitive camping is not limited to designated campsites except in Bear Island Unit and in Zone 4 when the campsite is accessed by airboat.
3. Camping on Bear Island Unit is allowed at designated campsites only; only tents, trailers and self-propelled camping vehicles may be used in the Bear Island Campground. Only tents may be used in the Gator Pit and Pink Jeep Trail designated campsites.
4. Draining or dumping refuse or waste from any trailer or other vehicle is prohibited.
5. Fires are allowed only on designated camping areas or in backcountry campsites and must be completely extinguished prior to the user leaving the campsite.

Bag and Possession Limits: A guest hunter must share the host's bag limit. No person shall exceed statewide bag limits.

1. **Deer - Daily limit 1, annual limit 2 (all seasons combined), except in Zone 3 of the Stairsteps Unit where the bag limit for deer is 1 annually. Hunting deer in Zone 4 is prohibited.**
2. Wild hog - Daily limit 1, annual limit 2 (all seasons combined).
3. Turkey - Daily limit 1, season limit 2, possession limit 2.
4. Gray squirrel, quail and rabbit - Daily limit 12, possession limit 24 for each.
5. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria - No bag limits.
6. Bobcat and otter - Prohibited.
7. Migratory birds - See Migratory Bird Hunting Regulations pamphlet.

Archery Season:

September **7** through October **6** (all Units).
October 31 through November 5 (all Units).
November **16** through January **1** (Deep Lake Unit only).

Permit, Stamp and License Requirements - Check station pass, hunting license, management area permit, archery permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds) and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length)**, wild hog with shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to Archery Season-

1. Hunting with guns or crossbows (except by disabled crossbow) is prohibited, except that centerfire shotguns are allowed for taking migratory birds when 1 or more species are legal to hunt in all units except Deep Lake Unit (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).
2. Duck hunting is prohibited in the Bear Island and Deep Lake Units during the special September season.
3. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

Muzzleloading Gun Season:
October **12-27** (except Deep Lake Unit).
November 6-10 (except Deep Lake Unit).
Permit, Stamp and License Requirements - Quota permit (if hunting Bear Island Unit Oct. **12-20**), check station pass, hunting license, management area permit, muzzleloading gun permit, deer permit (if hunting deer), and migratory bird permit (if hunting migratory birds).
Legal to Hunt - **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length)**, wild hog with shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Muzzleloading Gun Season-
1. Hunting with archery equipment or guns, other than muzzleloading guns, is prohibited, except that centerfire shotguns are allowed for taking migratory birds when 1 or more species are legal to hunt in all units except Deep Lake Unit (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).
2. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

General Gun Season:
November **16** through January **1** (except Deep Lake Unit).
Permit, Stamp and License Requirements - Quota permit (if hunting Nov. **16-24** in the Bear Island or Turner River Units), check station pass, hunting license, management area permit, deer permit (if hunting deer) migratory bird permit (if hunting migratory birds) and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length)**, wild hog with a shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to General Gun Season - **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

Small Game Season:
January **2** through February **1**.
Permit, Stamp and License Requirements – Check station pass, hunting license, management area permit, migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - Gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Small Game Season-
1. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used.
2. Hunting with centerfire rifles is prohibited.

Trapping: Prohibited.

Spring Turkey Season:
March **1** through April **6**.
Permit, Stamp and License Requirements – Check station pass, hunting license, management area permit and wild turkey permit.
Legal to Hunt - Bearded turkey or gobbler.
Regulations Unique to Spring Turkey Season:
1. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used.
2. Legal shooting hours are ½ hour before sunrise until 1 p.m.
3. Hunting other animals is prohibited.
4. Hunting with firearms other than shotguns or using a shot size larger than #2 is prohibited.

Migratory Bird Seasons:
Ducks may be hunted during the special September season in all units except Bear Island and Deep Lake units. Rail, common moorhen, mourning dove, white-winged dove, snipe, ducks, geese, coot, woodcock and crow may be hunted during seasons established by the Commission for these species that coincide with the archery, muzzleloading gun, general gun or small game seasons.
Permit, Stamp and License Requirements - Quota permit (if hunting during any quota period), check station pass, hunting license, management area permit, migratory bird permit, and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - See Migratory Bird Hunting Regulations pamphlet.
Regulations Unique to Migratory Bird Seasons – All Migratory Bird Regulations shall apply.
1. Hunting with bird dogs or waterfowl retrievers is allowed except in the Loop Unit.
2. Hunting ducks, geese and coot with lead shot is prohibited.
3. Centerfire shotguns are allowed for hunting during established area seasons when 1 or more migratory birds are legal to hunt, except in the Deep Lake Unit.

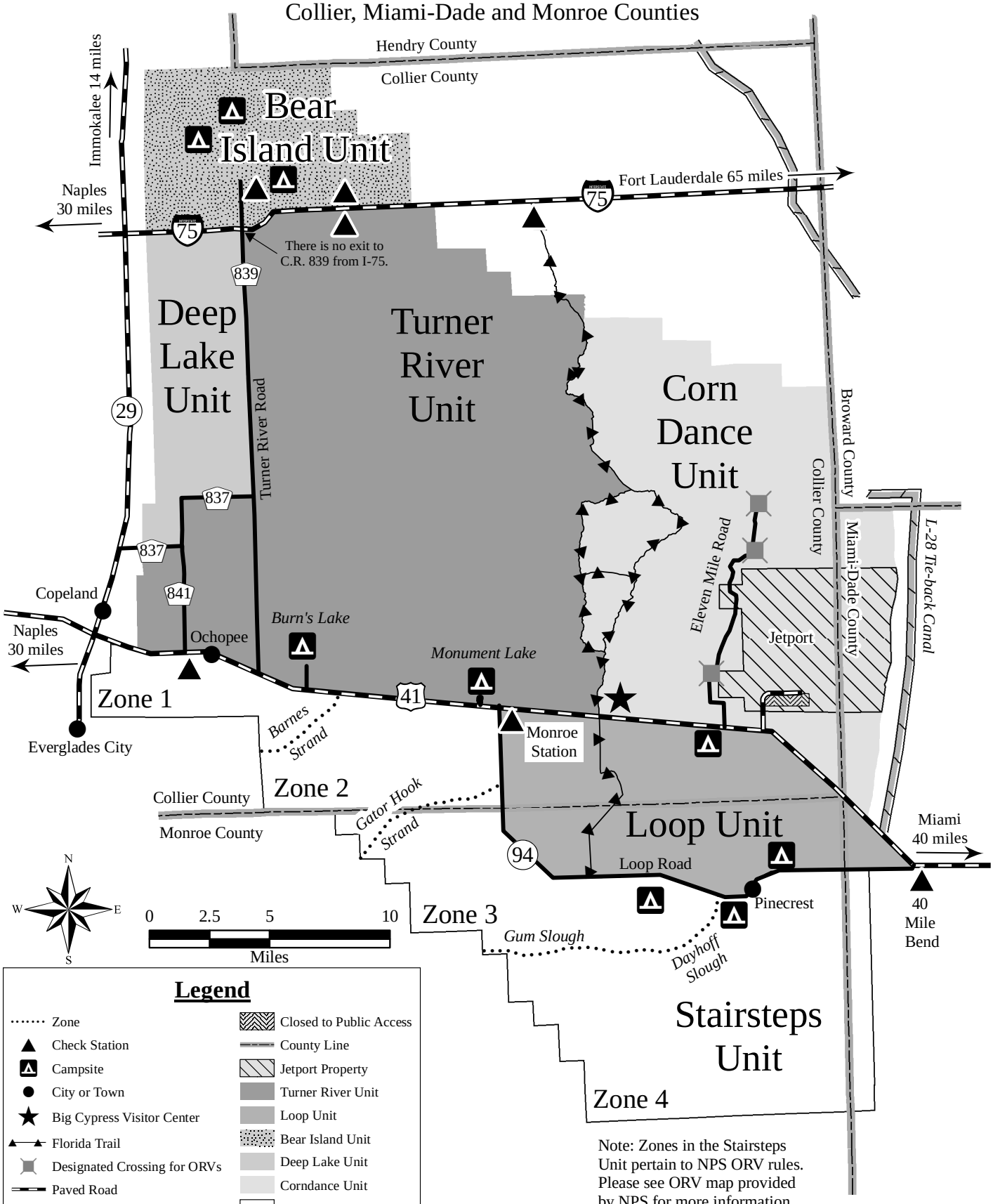
Fishing and Frogging:
Allowed year round.
Permit, Stamp and License Requirements - Fishing license (not required when frogging).
Legal to Take - See Florida Freshwater Fishing Regulations Summary.
Regulations Unique to Fishing and Frogging - All General Freshwater Fishing Regulations shall apply. Frogs may be taken by gig only. See #s 13, 14 and 15 in the National Park Service Rules and Information section.

General Information:
1. Information for persons with disabilities can be found at MyFWC.com/ADA
2. If you have any questions about this material, please call the Fish and Wildlife Conservation Commission South Region Office at 561-625-5122 (TDD 800-955-8771).
3. FWC is not responsible for protection of personal property and will not be liable for theft of or damage to personal property.
4. Please report the location of any sick or extremely skinny deer to the Chronic Wasting Disease hotline, toll free at 866-293-9282.
5. Small tracts of private property are located within the boundary of the wildlife management area. These lands may be posted against trespass and should not be considered to be part of the wildlife management area.

National Park Service Rules and Information:
This area is a national preserve and Big Cypress National Preserve regulations shall apply. For further information, contact the Big Cypress National Preserve, 33100 Tamiami Trail East, Ochopee, Florida 34141, 239-695-1205 or www.nps.gov/bicy/.
1. Time limits apply to camping. Please contact Big Cypress NP for current camping regulations and limitations on the maximum number of days an individual may camp.
2. Backcountry camping in the Bear Island Unit is allowed only at designated campsites: Gator Pit and Pink Jeep Trail sites.
3. Backcountry camping in Zone 4 is allowed as follows: Airboat users must camp in designated campsites only. Those gaining access by foot or non-motorized vessels may camp anywhere as long as the campsite is at least ½ mile from Loop Road and ¼ mile from any designated campsite or airboat trail.
4. Except for Zone 4, during archery, muzzleloading gun, general gun and spring turkey hunting seasons, an individual may camp or leave camping gear unattended for the length of the season in backcountry areas and the designated campsites in Bear Island, Gator Pit and Pink Jeep Trail, provided such equipment / camps are marked with the owner's name, address and telephone number. Sites / equipment may be occupied after 8 a.m. 1 day before the opening of the season and must be removed by 6 p.m. 1 day after the close of that season.
5. Dead wood lying on the ground may be collected as fuel for campfires within the preserve. This wood cannot be removed from the Preserve.
6. Primitive campsites must be located at least ½ mile from and out of sight of designated state or county roads.
7. All backcountry users are required to a have a backcountry use permit (free).
8. Consumption of alcohol or possession of an open container of alcohol in or on a motor vehicle, including off-road vehicles and airboats, is prohibited.
9. All private property owners in the preserve are required to obtain a burn permit in advance from the Florida Division of Forestry by calling 239-690-3502 between 9 a.m. and 4:30 p.m. Call Big Cypress Dispatch at 800-788-0511 on the day of the burn to avoid false reports of fire caused by others reporting your smoke.
10. The preserve is closed to the viewing of wildlife with an artificial light, except that artificial lights may be used during frogging activities.
11. It is prohibited to destroy, injure, deface, remove, dig or disturb from their natural state living or dead wildlife, fish, plants, non-fossilized and fossilized paleontological specimens, cultural or archaeological resources or the parts of each thereof.
12. The taking, feeding or intentional disturbance of wildlife (including snakes and other reptiles) is prohibited except as authorized by specific hunting regulations.
13. Frogging regulations: 1) Commercial frogging is prohibited; 2) frogs may be taken by gig only; 3) the daily bag limit is 1 five-gallon bucket per vessel or individual; and 4) the possession limit is 18 lbs of dressed frog legs. Recreational frogging for personal use is allowed.
14. Fishing in freshwater must be by hook and line.
15. Fishing is prohibited in the canal on the north side of U.S. Highway 41 in front of the Oasis Visitor Center for a distance of 200 yards east and west from a midpoint located directly opposite of the front door of the building and the Turner River Canal from the bridge on U.S. Highway 41 to 1/10 of a mile North.
16. During archery, muzzleloading, general gun and spring turkey seasons an individual may leave treestands or similar devices unattended for the length of the specific season provided such equipment is marked with the owner's name, address and telephone number. Individuals may bring this equipment into the preserve after 8 a.m. 1 day before the opening of the specific season and must be removed by 6 p.m. 1 day after the close of that season.
17. Off-road vehicle use is prohibited between 10 p.m. and 5 a.m.

Cooperation Requested:
If you see law violators or suspicious activities, contact your nearest Commission regional office or call 888-404-FWCC. You may qualify for a cash reward from the Wildlife Alert Reward Association.

BIG CYPRESS
WILDLIFE MANAGEMENT AREA
565,848 acres
Collier, Miami-Dade and Monroe Counties



Note: Zones in the Stairsteps Unit pertain to NPS ORV rules. Please see ORV map provided by NPS for more information.

Appendix D

Deer Status Report,
Big Cypress National Preserve –
Addition Lands (April 2012)

Deer Status Report
Big Cypress National Preserve – Addition Lands

April 2012

Introduction

Big Cypress National Preserve (BCNP), comprising approximately 582,000 acres in southwest Florida, was initially established on October 11, 1974, by P.L. 93-440. BCNP was expanded by an additional 146,000 acres in 1988 by P.L. 100-301, which is known as the "Addition Act." Under P.L. 93-440, the purpose for designating these lands as a national preserve was "…to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed in the State of Florida and to provide for the enhancement and public enjoyment thereof.…" Section 5 of P.L. 93-440 requires that the Secretary of Interior shall permit hunting, fishing, and trapping in accordance with federal and state laws and further requires that any restrictions relating to hunting, fishing, or trapping can be put into effect only after consultation with the appropriate State agency having jurisdiction over hunting, fishing, and trapping activities. Section 10 of P.L. 100-301 states that "The Secretary and other involved Federal agencies shall cooperate with the State of Florida to establish recreational access points and roads, rest and recreation areas, wildlife protection, hunting, fishing, frogging, and other traditional opportunities in conjunction with the creation of the Addition.…"

The Florida Fish and Wildlife Conservation Commission (FWC) (and its predecessor agency the Florida Game and Fresh Water Fish Commission) has enjoyed a nearly four-decade history of partnering with National Park Service (NPS) at BCNP, having dedicated staff to help co-manage the original BCNP as the Big Cypress Wildlife Management Area (WMA). Since the BCNP Addition was established in 1988, FWC has supported and encouraged including these public lands into the Big Cypress WMA to provide a full suite of public access and recreation including hunting, fishing, trapping, and other forms of recreational access consistent with the original purposes for establishing BCNP.

The Addition Lands consist of about 128,000 acres northeast of the original preserve boundary and approximately 18,000 acres along the western boundary. The northeast portion of the Addition Lands is divided by Interstate 75 (I-75). The area north of I-75 is referred to as the Addition Lands North and the area south of I-75 is referred to as the Addition Lands South.

The Addition Lands North (70,905 acres) is characterized by an overstory of pond cypress (*Taxodium ascendens*) and an understory that includes wax myrtle (*Myrica cerifera*), pond apple (*Annona glabra*), swamp fern (*Blechnum serrulatum),* and air plants (genus *Tillandsia*)(43.4%) (Duever et al. 1979, University of Georgia 1999). The mesic pine forest, which comprise almost 20% of the area, is dominated by South Florida slash pine (*Pinus elliottii* var. *densa)* accompanied by a shorter mid-canopy and understory of cabbage palm (*Sabal palmetto*) and saw palmetto (*Seronoa repens*) growing in loamy soils overlaying bedrock (Duever et al. 1979, University of Georgia 1999).

The Addition Lands South (57,329 acres) is dominated almost exclusively by cypress forest (41.3%) and scrub cypress (42.5%). Low density dwarf pond cypress (*Taxodium ascendens*) (usually less than 10 m tall) occurs in seasonal marshes along the interface between upland pine communities and deeper wetland areas. The understory of these areas consist of a dense mixture of grasses and sedges of the genera *Rynchospora* and *Cyperus* in many places (Duever et al. 1979).

Deer Population Surveys

Ground Surveys

In 2006, the FWC began efforts to estimate the white-tailed deer population on the Addition Lands. Initially ground based surveys were used. Ground surveys were conducted from a swamp buggy along established trails at sunrise and half an hour after sunset. Spotlights were used to observe deer during the night time surveys. Three routes were established in the Addition Lands North (Bakers Grade 13.7 km, East Route 18.2 km and Short West Route 13.9 km), and one route was established in the Addition Lands South (South Route 7.5 km). Visibility indices were developed for each route, and routes were surveyed twice for each starting time (Mitchell 1986). Measurements of visibility were taken every 176 meters along each survey route using a laser range finder. Measurements were taken on each side of the vehicle with a maximum visibility distance set at 83 meters. Measurements were averaged for each route to get a visibility index.

The average width of visibility (both sides combined) for the survey routes was very limited and ranged from 19.93 meters to 78.62 meters (Garrison et al. 2012). Vegetation, particularly exotic shrubs, along the trail sides greatly reduced visibility. Limited visibility and short transects resulted in small sampling areas (0.28 to 1.07). Average deer density estimates were similar between spotlight and morning surveys in East and South routes, however, in West Short and Bakers Grade routes estimates derived from spotlight count data were lower than their commensurate morning surveys. The greatest deer densities occurred along the Bakers Grade route with 7.43 deer/ for the morning surveys (Table 1) and 6.04 deer/ for the spotlight surveys (Table 2). The lowest deer densities during the morning surveys occurred on the South route (3.11 deer/). The lowest densities during the spotlight surveys occurred on the West Short route (1.80 deer/).

We are reluctant to extrapolate results from the land cruise surveys to broader areas of the Addition Lands for several reasons. This method only sampled 0.7% and 0.2 %, of the Addition Lands North and South, respectively, because of the small area in which deer were visible along the routes and the limited lengths of the routes. Although additional trails were available for sampling, the sheer size of the area and the visibility problems rendered this method unfeasible. Approximately 439 km of transects would need to be surveyed for adequate sampling (Mitchell, 1986). In addition, some portions of the area were not accessible, even to swamp buggies and vegetative communities were not sampled proportionally to their occurrence. Roads and trails can influence deer behavior and may confound results of roadside surveys. We found it challenging to estimate the visibility distances for the land cruise surveys, especially at night, making it difficult to describe the area sampled, rendering accurate population or density estimates impossible. Although distance sampling applied to land cruise surveys can correct for visibility issues, the low number of observations obtained during the land cruise surveys made applying that method impractical as well. Because of these issues, we decided to change to aerial surveys. We thought this would provide us with the ability to sample areas beyond vehicle reach, sample habitats relative to their proportion and increase visibility of animals.

Aerial Surveys

In 2007 aerial surveying using the line transect method was initiated. With the line transect method, observers survey one or more transects and record the number of individual animals or groups of animals (along with group size) and the location of the animals with respect to the

transect, recorded as the perpendicular distance of the animal or group of animals from the transect. The distance data can then be used to model a detection function, which represents the probability of detecting an animal as a function of its distance from the line. The logic of this approach is that not every animal along a transect is observed, and the probability of seeing an animal decreases as the distance from the transect increases (Williams et al. 2002). By estimating the detection probability, the proportion of animals missed can be estimated and the population density estimated accordingly. The method provides confidence intervals and other measures that allow the manager to evaluate the reliability of the estimates.

There are three assumptions that are essential for reliable density estimation from line transect sampling (in order of importance): (1) animals directly on the line are always detected, (2) animals are detected at their initial location, prior to any movement in response to the observer, and (3) distances are measured accurately. Violation of the first assumption will result in low biased density estimates if animals near or on the line are missed. Violation of the second assumption can also lead to a low biased estimator if animals move away from the transect prior to detection in response to disturbance by the observer. Violation of the third assumption is problematic only when significant errors are made in the distance measurements or if errors produce a consistent bias in distance estimates, particularly for animals close to the transect.

We conducted aerial surveys annually from late April through mid-June, 2007-2011. In 2007 and 2008, the surveys were flown with a fixed-wing airplane. In 2007, transects (4 in Addition Lands North and 6 in Addition Lands South) were based on systematic reconnaissance flight transects established to survey wading bird populations and were spaced 2 km apart. In 2008, in an effort to increase the sample size, transects were placed 1 km apart, and, therefore, the number of transects was doubled. Transects were placed parallel in a systematic grid extending between the western and eastern boundaries of each area. However, low numbers of deer were observed on and close to the transects, which resulted in poor fit of the models and, therefore, unreliable density estimates. From 2009 on, surveys were conducted from a helicopter, rather than a fixed-wing plane, to resolve this problem. The benefit of using a helicopter for aerial surveys has been well established, mainly due to greater visibility of animals, particularly close to the transect. The Bear Island Unit was added to the surveys in 2009. Bear Island has historical deer harvest data, which could facilitate estimating sustainable harvest in the Addition Lands.

Each study area was surveyed 3 times (one area per flight), except in 2008 when each area was surveyed 6 times. Flights began at sunrise (~0650) and typically ended by 1030. Two observers surveyed and recorded deer; one observer surveyed deer from a front seat of the aircraft and the other observer surveyed deer from a rear seat of the aircraft (behind the pilot) and on the opposite side of the aircraft from the front seat observer. Locations of deer and the perpendicular distances of the animals from the transect were recorded in distance intervals or bins (0-50 m, 50-100 m, 100-150 m, 150-200 m, and 200-250 m and 250 m+). In 2007 and 2008, the bin marks were made on the airplane windows using a mathematical formula calculated from observer eye height while seated in a grounded fixed wing plane. In 2009, the surveys were flown with a Bell Jet Ranger helicopter. With the helicopter hovering at survey-flight altitude, the bin markings were determined by each observer placing line-of-sight markers on a transparency attached to the helicopter window corresponding to distance intervals marked on the ground along a runway. Beginning in 2010 the surveys were flown with an Aloutte

helicopter, and, in an effort to further increase visibility, the doors of the helicopter were removed for the survey flights. This necessitated modifying the method used to mark the bins. Bin widths were determined using the same method as in 2009 , except the bins were marked on the door frame instead of the windows. Additionally the first bin was split into 2, resulting in 7 bins (0-25 m, 25-50 m, 50-100 m, 100-150 m, 150-200 m, 200-250 m and 250+m), in an attempt to better model the observations near the transect .

As an index of deer observations, we used the distance surveyed as the effort and calculated deer/km surveyed. Density and abundance estimates and corresponding confidence intervals were computed with the software DISTANCE 6.0 Release 2 (Thomas et al. 2010). To address the non-independence of repeated surveys within one transect, all the data from a given transect were pooled prior to analysis (Buckland et al. 2001).

The number of deer observed per kilometer of transect was highest in Bear Island and lowest in Addition Lands South (Table 3). The number of deer observed per kilometer surveyed did not change considerably between years in Addition Lands North or Bear Island (Table 3). In Addition Lands South, the number of deer observed fluctuated from 0.05 deer/km to 0.17 deer/km, with the second highest number of deer (0.12 deer/km) observed in 2011 (Table 3).

Although the numbers of deer observed per kilometer of transect in Addition Lands North and Bear Island did not change greatly over the years, the effective strip width (ESW) varied notably from year to year in all areas. This led to considerable changes in the effective survey area and, therefore, the density estimates within the areas (Table 4). Population density estimates in Addition Lands North ranged from a low of 0.36 deer/ (686 acres per deer) to a high of 1.56 deer/ (158 acres per deer, Table 4). In Addition Lands South density estimates varied from 0.21 deer/ (1177 acres per deer) to 0.71 deer/ (348 acres per deer, Table 4). In Bear Island estimates varied from 1.12 deer/ (221 acres per deer) to 5.18 deer/ (48 acres per deer, Table 4).

In 2007, goodness-of-fit tests for the Addition Lands surveys indicated good fit of the detection functions (Table 4, Garrison et al. 2012). However, the number of observations (clusters of deer) was lower than the sample size of 60-80 recommended by Buckland et al. (2001) for a reliable estimate. In 2008, the chi-square goodness-of-fit test indicated very poor fit of the detection functions in the Addition Lands due to the low number of observations near the line (Table 4). In 2009, the sample sizes were more than sufficient, histograms of detection function satisfied the shape criterion and chi-square goodness-of-fit demonstrated good fit for the models for all three areas (Table 4, Garrison et al. 2012). However, in 2010 and particularly in 2011, the histograms for all areas lacked the “shoulder” near the line, violating the shape criterion and, therefore, resulting in unreliable density estimates (Buckland et al. 2001, Garrison et al. 2012).

Changing from fixed-wing aircraft to helicopters in 2009 to conduct the line transect surveys improved visibility and allowed the pilot to keep the altitude and flight speed more consistent compared to fixed-wing planes, reducing the chances of variation among transects and areas. Although the number of replications was reduced from 6 to 3 per transect to accommodate the higher cost of using helicopters, the numbers of observations were not significantly reduced and were close to or above the sample size of 60-80 recommended by Buckland et al. (2001), presumably due to better visibility. The helicopter window was larger and was positioned lower

than the fixed-wing plane window, allowing for significantly better visibility for the front observer, particularly close to the "0" line. In addition, compared to the fixed-wing, the helicopter was less cramped and more comfortable to sit in and view deer, reducing observer fatigue.

One of the key assumptions of distance sampling is that animals are not missed on the "0" line (transect line). Although use of the helicopter improved the visibility at "0," there were areas in the Addition Lands and in Bear Island where the transect was not visible, regardless of aircraft used, due to tree canopy. Violating this assumption causes the estimate to be biased low (Buckland et al. 2001).

The change in the distribution of observations, from the majority of deer being observed near the transect (e.g., 2009 data) to more dispersed distribution (e.g., 2010, 2011), led to change in the estimated strip width, or the width of the survey area. Therefore, even when the number of deer observed did not change considerably among years, in years when the surveyed area was larger due to wider strip widths, the density estimates dropped significantly. The reason for the change in the distribution of observations and, therefore, the drastic change in the ESW is unclear. Possible explanations include that the distribution truly did change (deer were located further from the line); density had changed and, therefore, observers had more time to search the farther bin; or the observations were placed in incorrect distance intervals.

The change in deer distribution is not likely due to environmental factors, since the transect lines do not follow any habitat feature that would cause such a shift in the distribution (e.g., transects do not follow roads or other features where distribution may not be random). In Bear Island, the April 2009 wildfire, which burned over 49 (12,000 acres) may have increased visibility and, therefore, the number of observations that year, but that would not explain the coincident changes in the Addition Lands' estimates. The change in deer distribution in respect to the transects may have occurred if the change in helicopter type resulted in change in deer behavior, i.e., if the helicopter used in 2010 and 2011 caused the deer to flush and move farther from the transects before detection. If this occurred, the density estimates would have been biased low. Additional clues, such as remaining deer (if grouped) and water or vegetation movement, however, were used to minimize the potential for this occurring. There was no change in the search method which could have resulted in the change in distributions (i.e., observers mainly focus on the line). A true change in density could potentially have caused the shift, if the observers had more time, due to low observations near the line, to search further. This would have led to a proportionally higher number of observations being placed in the farther bins. It is unlikely, however, that the population changed as drastically over the survey time as the population estimates suggest (Table 4.)

Placement of observations into incorrect bins, particularly in 2010 and 2011, when the most drastic shift in the ESW and the subsequent decline density occurred is another possibility. The type of helicopter used changed from 2009 to the subsequent years. The helicopter used in 2009 surveys was flown with doors on, and the distance bins were marked on transparencies on the windows. The 2010 and 2011 surveys were flown with doors off, and distance bins were marked on the door frame. This may have led to less accurate placement of bin distances on the door frame versus the windows and errors in placement of deer in the appropriate bins. Observers

were able to look through the windows with bin marker lines when the doors of the helicopter were on. This enabled the observer to look at the deer and the lines simultaneously, allowing for better bin identification. The door frame and bin markers were located outside of the observers field of view when the doors were off, which made it more challenging to line the deer up with the correct bin. In addition, the accuracy of the distance bin measurements requires a relatively constant altitude during flight. Pilot and aircraft changes may have resulted in variation in flight elevations, potentially affecting the accuracy of the distance bin measurements.

The decline in deer densities estimated from helicopter surveys after 2009 was not evident in the Bear Island harvest data from 2008-2010 nor in the aerial survey indices (Table 3). Effort per harvested deer remained consistent with 47 hunter days /deer in 2008, 46 hunter days/deer in 2009 and 47 hunter days/deer in 2010. However, in 2011 effort per harvested deer increased to 57 hunter days/deer requiring an additional 10 days to harvest a deer. It is important to point out, however, that many factors, not just the density of deer, influence the effort/harvest ratio. Some of these factors include water levels, habitat conditions and weather. The number of deer observed per kilometer has fluctuated some in each area; however, there is not a clear decline in any of the areas in this index. The overall trend of the deer abundance and densities in the Addition Lands and Bear Island therefore is not clear.

Despite the variable results of the recent surveys, aerial surveys remain the most promising way to survey an area of the size and complexity of the BCNP. We recommend continuing the aerial surveys to get an index to the deer population and refining the methodology to improve the results of the distance sampling techniques. Our goal is to address all the possible violations of the line transect assumptions prior to the 2012 surveys, in particular the assumption that the distances are measured correctly. To accomplish this, we will evaluate our current distance intervals by conducting an experimental survey where we will place objects at known distances from a transect line and determine the accuracy of the observer bin placement. In addition, we will investigate additional methods to improve the accuracy of the distance measurements and to account for the potential variation in altitude (Laake et al. 2008a, Laake et al. 2008b).

Public Use and Harvest

The FWC and NPS have been partners in fulfilling the legislative mandate that created the BCNP, namely, the preservation of traditional uses along with continual conservation of important natural resources within the BCNP boundaries. Resource management decisions, particularly those related to public hunting and recreational access, have evolved over the 30+ years since the BCNP was created, and some of those changes have been directed toward improving conditions for the endangered Florida panther and its primary prey (deer and hogs). Some of these changes included: prohibitions on the use of off-road vehicles (ORVs) in Deep Lake and Loop Road units of BCNP; combined hunting season lengths reduced from 270 to 170 days, including a reduction in general gun hunting from 58 to 49 days; buck-only harvest with at least a 5-inch antler; elimination of dogs for deer and hog hunting; and mandatory hunter check-in/check-out system coupled with quota permits (Schortemeyer et al. 1991). Designated trails were created in the Bear Island unit of BCNP in 1989 to further lessen any potential impacts of ORV's in this relatively accessible and popular area. All management units that allow ORV use restrict this type of use to designated trails.

Hunter pressure and deer harvest have been monitored in Big Cypress WMA since at least 1980 (Figure 1). Hunter pressure peaked at 24,360 days of pressure in 1984-85 and reached a low of 9,735 during 1994-95, when most of the area was closed during the general gun season due to high water (Bartareau et al, 2011). There was a general decline in hunter participation over this time period which is similar to statewide and national trends. The historical average (1980-2011) was 15,764 days of pressure while the latest 5-year average (2006-2010) was 14,309. The area was wholly or partially closed to hunting due to weather related events (i.e., hurricanes, high water events) during seasons1994-95, 1995-95, 1998-99, 1999-00, 2004-05, and 2005-06. Deer harvest has had a slight upward trend since 1980. The historical average (1980-2011) is 202 deer harvested per year with a high of 346 harvested in 1998 and a low of 103 in 1980.

White-tailed deer are a polygynous species, meaning that a single male can breed with multiple females. By allowing the take of only males, hunting has a negligible effect on the overall deer population. Of the 139 public hunting areas in the state of Florida that allow the take of deer, the BCNP is among the 75 (54%) that have a more restrictive harvest than the limit allowed on private land. On private lands, hunters are allowed a bag limit of two deer per day of the deer season. Many public hunting areas with more restrictive harvest allow the take of one or two deer per quota permit and have quota permits for each hunt; however, on BCNP, only one buck may be taken per day and only two annually. The use of dogs for taking deer or hogs is prohibited. Hunting deer and hogs without the use of dogs is less efficient and serves to decrease the number of animals harvested. Establishing a check station requirement for hunters allows us to collect vital biological information on harvest data so that we can detect population trends and determine if our management goals are being met.

The FWC's has over 60 years of managing hunting on similar properties as the BCNP. Season lengths, bag limits, methods of take and hunter quotas are much more restrictive on BCNP than on surrounding private lands and should allow sustainable harvest of popular game species into the future, while providing for conservation of the Florida panther.

Current Harvest Strategies

Deer harvest in BCNP has been restricted to harvest of bucks with at least one 5-inch antler since at least 1985, when an external, professional review panel was established by BCNP to make recommendations for deer management (Warren et al. 1986). The panel expressed that it was highly unlikely that bucks-only hunting could detrimentally affect the deer herd, as hunting under such a regulation rarely removes more than 10 percent of the population (Warren et al. 1986). Harvest rates have been relatively stable on BCNP since the 1990-91 season, fluctuating between 54 and 85 man-days per deer taken (except 1999-00 when 3 units were closed for muzzleloading gun and general gun seasons due to an extreme high water event) (Smith et al. 2009), suggesting a relatively stable population under the bucks-only regulation.

Available data also support the premise that less than 10 percent of the population has been harvested. Although historical deer population estimates are variable and potentially unreliable, they suggest recreational harvest levels in Bear Island have ranged between 5 and 7 percent of the estimated deer population in that unit (Adams and Bozzo 2002). Also, estimated harvests in the Corn Dance and Bear Island units in 2009-10 were 9 and 7 percent of their 2009 population estimates, respectively. These harvest rates occurred without regulating hunter numbers to

protect the deer herd. For example, hunter quotas on the Corn Dance Unit were eliminated in the 2008-09 season because they were not being filled. Likewise, although hunting pressure in Bear Island has been restricted to 200 hunters per day during the first 9 days of the hunting season, hunter participation only approaches 40 percent (80 hunters) at its peak.

From 1989 to 2009 (prior to changes in the quota system), the average participation by hunters on Bear Island was <40 percent of the 200 permits issued during archery, muzzleloading gun, and general gun seasons (Bozzo, unpublished data). Even at peak levels of hunter participation on Bear Island, deer-hunter density was only one hunter per 483 acres (80 hunters/38,640 acres), well below densities on similar public hunting lands.

Like other hunted units within BCNP, deer hunting on the Addition Lands would be conducted under a "bucks-only" rule with harvest restricted to deer with at least one 5-inch antler. Based upon the success of this hunting format on other hunted portions of BCNP in providing sustainable deer hunting opportunities while also providing for a stable deer population, it is not anticipated that hunter numbers (quotas) would need to be restricted on the Addition Lands once vehicular access is allowed.

Florida Panther Use of BCNP

FWC biologists began intensive research on the Florida panther in 1981, and this work continues today. The first panthers equipped with radio collars were captured in BCNP and the Fakahatchee Strand Preserve State Park. BCNP was recognized as the center of the Florida panther's known range (Florida Panther Recovery Plan, 1981, USFWS, Atlanta, GA) and the BCNP, including the Addition Lands, still comprises the single largest block of panther habitat in public ownership. Panther numbers were estimated to be as low as 20-30 animals in the 1980s, and most of these panthers were found in the Big Cypress area. Panther numbers today are estimated to be around 100-160 cats (Figure 2) (McBride 2010) and they are distributed throughout a variety of State and Federal properties as well as on private lands.

Kautz et al. (2006) mapped the extent of occupied panther range where reproduction occurred and referred to this area as the Primary Zone. The Primary Zone is roughly 2.2 million acres in size; over 70% of this zone is in public ownership or is otherwise protected as conservation lands. Public hunting is allowed on approximately 880,000 acres of the Primary Zone. Although the rules are not identical among the various wildlife management areas, all allow deer and hog hunting and most allow some ORV use.

Panther numbers have increased dramatically since the mid-1990s. This increase is likely the result of a combination of factors: genetic restoration, better habitat management, increasing prey base, and the acquisition and protection of thousands of acres of quality panther habitat. Within BCNP south of I-75 and north of US 41, Jansen (2000) reported sign of 2 panthers circa 1995. Documented panther numbers within this same area rose to 17-25 between 2003-10 (McBride 2003, 2004, 2005, 2006, 2007, 2010). In all of the Big Cypress (including the Big Cypress Seminole Indian Reservation with which BCNP shares an approximately 20 mile border), documented panther numbers have ranged from 33 panthers in 2004 to 60 panthers in 2007 and was reported at 55 in 2010 (McBride 2004, 2007, 2010). BCNP supports more panthers today than have been documented since panthers were listed as an endangered species in 1967. The

current management of BCNP appears to have created conditions that have fostered increased use by panthers, and these numbers do not suggest that there are significant conflicts with human use of the BCNP.

The aforementioned panther population size increase followed the time period during which Janis and Clark (2002) studied panther responses to hunting activities on the Bear Island Unit of BCNP (1989-1998). These authors reported no detectable differences in panther activity rates, movement rates, or female predation success rates during deer hunting seasons. This study did report that panthers were located 180 meters further from designated ORV trails during hunting seasons than before hunting seasons (683 meters and 503 meters away from a trail, respectively), and there was a 6% decrease in time spent on the Bear Island Unit during hunting seasons. The authors, however, indicated the movement away from ORV trails was of minor biological importance and may have been related to deer moving away from trails and panthers responding to these prey movements. The authors also acknowledged that the magnitude of the difference in time spent on the Bear Island Unit during and outside of hunting seasons was not great. The concern was that human disturbance may have played a causative role in these movements. Fletcher and McCarthy (2011) re-analyzed the data used in Janis and Clark (2002) and analyzed additional data through 2009. Using additional and more refined data, and more advanced analytical methods they found little evidence to support the notion that hunting affects panther movements and distributions. Although Fletcher and McCarthy (2011) found that panthers were located farther from trails during hunting seasons that trend continued into the post-hunting period. Their analysis showed that hydrological effects had more influence on panther distribution than ORV use. They also found an increase in frequency of use of panthers in Bear Island during hunting seasons contrary to the findings of Janis and Clark (2002). They suggested that panthers and hunter ORV use can co-occur at least at the hunter ORV levels observed from 1989-2009 in the Bear Island unit.

The FWC has advocated that the NPS manage ORV use of the Addition Lands at a level equivalent to that applied to the Bear Island Unit of BCNP. The system of designated trails in the Bear Island Unit allowing for diverse methods of public access (including ORVs) provides a successful model for providing public access in the Addition Lands where public use is well balanced with conservation imperatives including protection of panthers.

Documented deer harvest in BCNP has been stable or slightly increasing over the past 30 years (Figure 1). Panther numbers have increased throughout their range during the past 30 years and, in particular, within BCNP, strongly suggesting that traditional uses of BCNP, including hunting and managed ORV use on designated trails, are compatible with panther conservation.

Conclusion

The FWC and NPS are committed to managing habitat and wildlife populations in the BCNP in such a manner that allows public enjoyment of the resource, while providing the necessary requirements for threatened and endangered species. The healthy and expanding population of Florida panthers is one example of how these goals can co-exist.

Table 1. Number of deer seen and deer density estimates for morning surveys in the Big Cypress National Preserve Addition Lands, 2006.

Date	Route	Area	Transect length (Km)	# of Deer	Deer/	Average Acres/Deer
31-May-06	West Short	Addition Lands North	13.9	0		
30-May-06	West Short	Addition Lands North	13.9	2	3.60	68.72
5-Jun-06	Bakers Grade	Addition Lands North	13.7	11		
9-Jun-06	Bakers Grade	Addition Lands North	13.7	5	7.43	33.22
21-Apr-06	East	Addition Lands North	18.2	2		
19-Apr-06	East	Addition Lands North	18.2	4	4.15	59.48
26-Apr-06	South	Addition Lands South	7.5	1		
27-Apr-06	South	Addition Lands South	7.5	2	3.11	79.52

Table 2. Number of deer seen and deer density estimates for spotlight surveys in Big Cypress National Preserve Addition Lands, 2006.

Date	Route	Area	Transect length (Km)	# of Deer	Deer/	Average Acres/Deer
9-May-06	West Short	Addition Lands North	13.9	0		
8-May-06	West Short	Addition Lands North	13.9	1	1.80	137.44
10-May-06	Bakers Grade	Addition Lands North	13.7	7		
11-May-06	Bakers Grade	Addition Lands North	13.7	6	6.04	40.88
4-May-06	East	Addition Lands North	18.2	5		
3-May-06	East	Addition Lands North	18.2	1	4.15	59.48
2-May-06	South	Addition Lands South	7.5	0		
1-May-06	South	Addition Lands South	7.5	3	3.11	79.52

Table 3. White-tailed deer aerial survey index, deer per kilometer surveyed, Big Cypress National Preserve, 2007-2011.

Area	Year	Total km surveyed	No. of	No. of deer	Deer/km surveyed	Comment
Add Lands North	2007	355	46	80	0.22	Fixed-wing survey
	2008	1414	150	226	0.16	Fixed-wing survey
	2009	707	106	157	0.22	Helicopter
	2010	707	82	129	0.18	Helicopter
	2011	707	88	154	0.22	Helicopter
Add Lands South	2007	363	34	63	0.17	Fixed-wing survey
	2008	1459	62	92	0.06	Fixed-wing survey
	2009	674	49	57	0.08	Helicopter
	2010	674	27	32	0.05	Helicopter
	2011	674	54	84	0.12	Helicopter
Bear Island	2009	449	179	327	0.73	Helicopter
	2010	449	143	255	0.57	Helicopter
	2011	449	161	303	0.67	Helicopter

[a] = Groups of deer

Table 4. White-tailed deer population density estimates and associated statistics based on aerial line-transect surveys, Big Cypress National Preserve, 2007-2011.

Study Area	Year			Density (deer/)	95% CI			95% CI		Density (acres per deer)	CV%[d]	$\chi 2$	*df*	*P*
					Lower	Upper		Lower	Upper					
Add Lands North	2007	356	161	0.70	0.55	0.92	197	155	258	350.3	13.3	0.64	3.00	0.89
	2008	1414	175	0.46	0.34	0.52	130	95	144	532.5	11.9	34.68	4.00	0.00
	2009	707	72	1.56	1.10	2.17	437	307	608	158.2	14.	0.52	3.00	0.91
	2010	707	103	0.85	0.42	2.10	239	117	588	290.7	46.7	12.20	4.00	0.01
	2011	707	300	0.36	0.33	0.61	102	92	171	686.4	17	11.40	6.00	0.77
Add Lands South	2007	363	167	0.54	0.28	0.82	124	64	188	459.5	29.3	1.30	3.00	0.73
	2008	1458	146	0.23	0.18	0.28	52	42	65	1090.0	11.5	16.70	3.00	0.00
	2009	674	61	0.71	0.44	1.01	164	101	235	348.0	20.5	5.78	4.00	0.22
	2010	674	100	0.25	0.09	0.38	58	21	89	988.4	29.3	18.00	4.00	0.00
	2011	674	300	0.21	0.18	0.46	48	42	108	1176.7	30.7	14.10	6.00	0.29
Bear Island	2009	449	71	5.18	4.01	6.17	810	627	965	47.7	10.7	2.92	2.00	0.23
	2010	449	162	1.57	0.97	2.32	246	152	363	157.4	25.8	3.70	2.00	0.16
	2011	449	300	1.12	1.04	1.60	176	163	251	220.6	12.1	3.16	6.00	0.78

= Total distance surveyed in kilometers
= Effective strip width (ESW) in meters. Area surveyed = Length of the transect * 2ESW
= Estimate of number of deer in the area
= Coefficient of variation for estimates of acres per deer

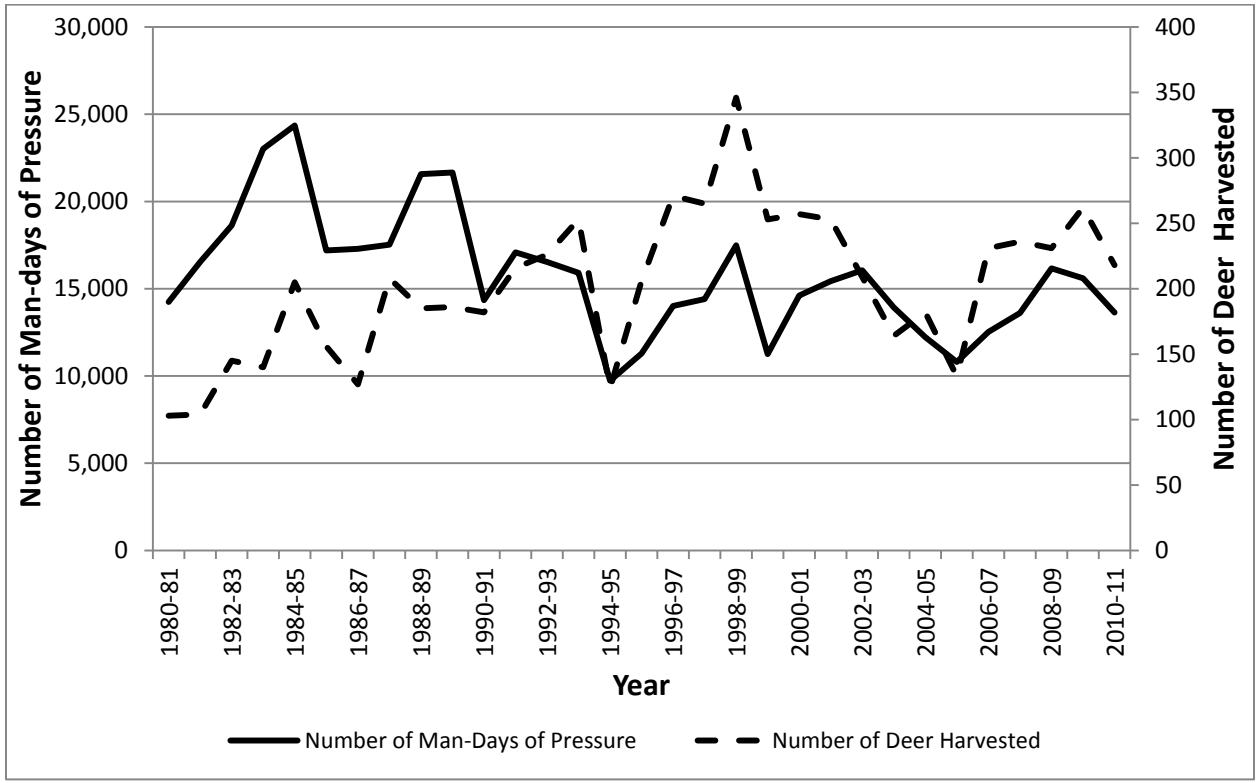


Figure 1. Hunter pressure and deer harvest from Big Cypress Wildlife Management Area, 1980-2010.

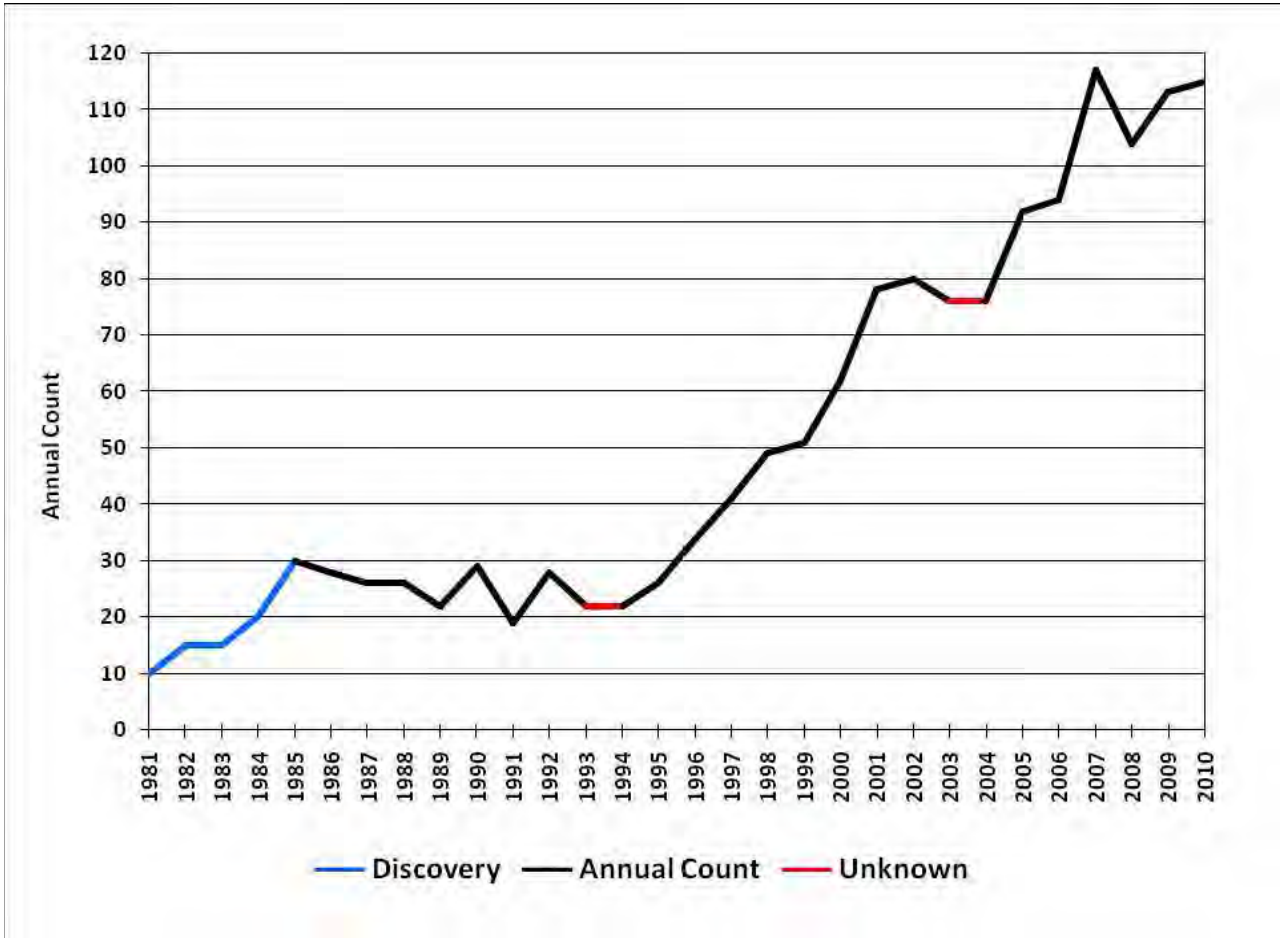


Figure 2. Florida panther annual count 1981-2010.

(Excerpted from McBride, R., C. McBride, and R. Sensor. 2010. Synoptic surveys of Florida Panthers, 2010. Unpublished report. Ranchers Supply, Inc., Alpine, TX. 144pp.)

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Appendix E

National Park Service
White-Tailed Deer and Panther
Monitoring Program Analysis
and U.S. Fish and Wildlife Service
Concurrence Letter
(November 1, 2013)

United States Department of the Interior

NATIONAL PARK SERVICE
Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

In reply refer to:
L7617

September 19, 2013

Mr. Larry Williams
Field Supervisor
U.S. Fish and Wildlife Service
South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, Florida 32960-3559

Dear Mr. Williams:

Thank you for your email message of July 10th seeking assurance that changes to our wildlife monitoring strategy will continue to satisfy requirements of the biological opinions previously issued for the Preserve's Recreational Off-Road Vehicle Management Plan, the Addition Lands General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan, and that our monitoring plan will support our effects determination for the pending Hunting Management Plan. As part of our analysis for our hunting plan, and to accommodate the need to best utilize available funding, we evaluated Florida panther monitoring scenarios based on a single aerial survey per week compared to three aerial surveys per week (attached). We believe the resulting analysis demonstrates that we will continue to satisfy the requirements in the biological opinions and provide sufficient information to meet the objectives of the hunting plan.

We conducted a comparison of our ability to detect individual radio-collared Florida panthers, estimate population change, find and access dens, and detect mortality based on a single aerial survey per week versus the three times weekly used as the environmental baseline in the biological opinions. In summary, the analysis demonstrates that estimating decline in our panther population can be statistically accomplished; that we would have been able to find den sites on the ground and access kittens for 94.4% of dens that were accessed under the original survey frequency; and that mortalities under a one-time per week scenario would yield detection approximately 5.40 ± 1.25 days post mortem. While we cannot assess whether the difference in mortality detection time would have inhibited our ability to determine cause of death, additional information would likely have led us to arrive at the same conclusions for some cases. Acknowledging the potential differences in statistical probability and actual activities, we propose to review our findings after a full breeding season to demonstrate using the once-per-week flights in finding and accessing dens, and handling kittens, to compare our success with our predictions.

We believe the attached analysis demonstrates that the change in monitoring frequency will not affect our ability to measure take relevant to existing biological opinions and to the Hunt Plan. While we agree that biological information gained by more frequent monitoring may allow us to detect subtle changes in movement and other behavior, it may be necessary to separate the objectives of the Florida panther recovery goals from the ESA Section 7 consultation for the Hunt Plan. That being said, our attached analysis illustrates that monitoring radio-collared panthers once per week is more than sufficient to satisfy our ability to make sound recreational management decisions.

As outlined in the environmental assessment for our Hunting Management Plan, hunter check station data will be the primary method used for monitoring the white-tailed deer population. The data will be used to estimate buck population age structure for the Preserve as a whole as well as for each hunt unit; to compare age classes within and between hunt units; trends in herd age structure; physical size; as well as harvest and hunter pressure. Secondarily, as a complement to this analysis, our buck/doe, doe/fawn deer survey program will continue at approximately 23% of former years' capacity. The objectives of the deer monitoring program will remain the same, but will concentrate on fewer areas annually as compared to the past. As the Hunting Plan states, the data collected from the check stations will continue to provide trend data relative to deer as a prey base for Florida panthers.

An adaptive management framework revision has been provided to your office for review to address how we will continue to make decisions about hunting management to balance panther needs with recreational harvest, and population trends for deer and hogs. The specific discussion in the Plan appears on pages 46-50. We have attached the statistical analysis you requested comparing detection probabilities for radio-collared panthers arising from a single aerial survey per week vs. multiple aerial surveys per week.

Our analysis of existing panther survey data focuses on our ability to estimate and monitor the primary demographic parameters of the panthers inhabiting the Preserve. These parameters are birth, death, and emigration, which ultimately form the basis for detecting and understanding selection pressures potentially operating in the system. Neither our current nor proposed monitoring strategy aim to answer specific research questions such as panther response to ORV use, predation success rate, or home range composition and change. Such questions should be answered under data collection protocols aimed specifically at those objectives and with rigorous design that would yield appropriate statistical power for proper analysis.

However, our current and proposed monitoring strategies can yield data that help inform us about some of these questions. Specifically, by monitoring den success, number of kittens, and adult and kitten survival, we can detect a potential decline in predation success because the decreasing body condition that arises from predation failure cascades to smaller litter size, decreased kitten survival, and ultimately decreased adult survival. Minimum home range size for collared panthers will still be collected under the once-per-week scenario and emigration from the population can still be estimated based on emigration of collared animals. Increases in such rates may indicate displacement by human activities, changing prey availability, or a number of other issues that would be acted upon using the adaptive management strategy.

To further guide the adaptive management process, the Preserve will convene an annual meeting of representatives from the National Park Service, U.S. Fish and Wildlife Service, and the Florida Fish and Wildlife Conservation Commission to review the results, and to continue to evaluate new technologies and monitoring techniques as part of the deer and panther monitoring programs in the Preserve.

We appreciate this opportunity to provide this information and look forward to expanding this dialog and look forward to more discussion on these issues.

Sincerely,

Pedro Ramos
Superintendent

Attachment

BICY Florida panther monitoring scenario analysis

Prepared by Jason Ransom, PhD
NPS Natural Resource Stewardship and Science, Biological Resource Management Division

Objectives:

1. Determine the weekly detection probability for individual radio-collared panthers arising from a single aerial survey per week vs. multiple aerial surveys per week.
2. Estimate our ability to detect population decline using aerial surveys of radio-collared panthers.
3. Determine our ability to detect den sites using a single aerial survey per week vs. multiple surveys per week and calculate the difference in time that could have arisen between den determination and access to kittens.
4. Assess our ability to detect mortalities using a single aerial survey per week vs. multiple surveys per week and calculate the difference in time that could have arisen before a carcass could be located and accessed.

Methods and Assumptions:

We analyzed the last 3 years of NPS aerial survey data for panthers in Big Cypress National Preserve (BICY) including all surveys (n= 429 flights) from January 29, 2010 to January 30, 2013. Throughout this period, three surveys of the area were completed per week for 73.2% of the 157 weeks, two complete surveys per week were completed 26.1% of the time, and there was one week where only one survey was completed.

There were 26 different individual radio-collared panthers detected during this sample period. We excluded 7 individuals from our analyses because they were only detected on one or two occasions across all three years. This was related to detection of Florida Wildlife Commission (FWC)-monitored collars that intermittently strayed into BICY, but also includes one collar deployed in BICY that failed after a single location. We also excluded a female that was intermittently in and out of BICY with a known den location outside of BICY (detected by FWC). The resulting sample for these analyses included 18 individual radio-collared panthers (12 females, 6 males) that were detected on multiple surveys inside BICY, across the sampling period.

We assumed for these analyses that if a radio-collar was not detected on some individual surveys, the collar was still available in the survey area and was missed (even though the animal could have temporarily left the survey area). This is the most conservative approach because it negatively biases our estimates of detection probability. If we assumed animals had left the area when they had not, detection probability could be artificially inflated and thus interpreted as higher monitoring success than actually occurred.

For the original survey strategy, we used the guideline that if a female was detected at the same location for 3 consecutive surveys, it would have triggered a ground search for a den site. For the sample scenario using data for only a single survey per week, we used the assumption that if a female was detected in the same location for 2 consecutive weeks, it would have triggered a ground search for a den site. On 4

occasions, females moved their kittens to a new den site after managers handled and marked kittens. Because these moves were likely triggered by human perturbation on the ground, we counted aerial detections of these alternate den sites as repeat locations of a den even if it was a second or third novel den location. From a statistical perspective, if humans had not perturbed the den site the female would likely have remained at the first site and been detected in that location on subsequent surveys until the den was found.

To estimate the differences between the scenarios of a single survey per week vs. multiple surveys per week, we used only the first survey in each calendar week as the representative single survey. This was preferred over drawing a random survey from each week because the first survey of the week was the most naïve, having followed the most consecutive days without a survey (typically a weekend). This more closely represents conditions (lack of prior location knowledge) than would be the case if we randomly selected from all surveys each week, when some surveys would have occurred the previous day, or at most every other day.

Results

Detection of collars and population change:

From January 29, 2010 to January 30, 2013, we monitored an average of 9.80 ± 0.20 (SE) individuals each week and this increased by year (2010 = 6.73 ± 0.12, 2011 = 10.42 ± 0.21, 2012 = 11.95 ± 0.11). Our probability of detecting an individual during the first survey each week was 0.988 ± 0.003 (SE), and our probability of detecting an individual arising from all surveys each week was 0.986 ± 0.002. There was no statistical difference between these detection probabilities (normal approximation test for the equality of proportions: $\alpha = 95\%$, $z = 0.455$, $P = 0.650$), suggesting that if we had only flown once per week, our ability to detect all known collars would not have been impaired.

Estimating decline in a population from a sample of known-fate radio-collared animals can be statistically accomplished using the hypergeometric distribution. This distribution arises from sampling a discrete population without replacement (we are monitoring the same collared animals each survey and they can't die and then reappear in the population) and the state of interest fits as a binomial coefficient (dead or alive). Assuming the radio collars represent a random selection of animals in the population that could be radio-collared (there is no bias as to who is collared), then the probability of detecting a population decline in adults changes with each death. Statistically, the probability mass function for this problem is:

$$P\,(x = k) = \frac{\binom{K}{k}\binom{N-K}{n-k}}{\binom{N}{n}}$$

where,
$N = 25$ panthers
K = the number of true deaths in the population
n = the number of collars monitored
k = the number of deaths of collared animals

The resulting answer is a matrix of values that can be read as 'given *K* true deaths in the population, what is the probability of *k* deaths among monitored collars?' A more useful answer is achieved by applying Bayes Theorem and reversing the question to 'given *k* deaths among monitored collars, what is the probability of *K* true deaths in the overall population?' Given that Florida panther is an endangered species, we chose the most conservative question, which is 'given *k* deaths among monitored collars, what is the probability that *at least K* true deaths occurred in the overall population?'

We calculated this matrix based on the current 12 radio-collared animals in a population of approximately 25 panthers (within the BICY survey area):

Table 1. Given the number of known dead radio-collared individuals, what is the probability of *at least* a given true number of dead in the adult population when we are monitoring 12 radio collars?

	No. Dead in Sample												
True No. Dead	0	1	2	3	4	5	6	7	8	9	10	11	12
0	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	50.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2	24.0%	76.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3	11.0%	50.0%	89.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
4	4.8%	29.7%	70.3%	95.2%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
5	2.0%	16.1%	50.0%	83.9%	98.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
6	0.7%	8.0%	32.2%	67.8%	92.0%	99.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
7	0.3%	3.7%	18.9%	50.0%	81.1%	96.3%	99.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
8	0.1%	1.5%	10.1%	33.6%	66.4%	89.9%	98.5%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%
9	0.0%	0.6%	4.8%	20.5%	50.0%	79.5%	95.2%	99.4%	100.0%	100.0%	100.0%	100.0%	100.0%
10	0.0%	0.2%	2.1%	11.3%	34.4%	65.6%	88.7%	97.9%	99.8%	100.0%	100.0%	100.0%	100.0%
11	0.0%	0.0%	0.8%	5.5%	21.4%	50.0%	78.6%	94.5%	99.2%	100.0%	100.0%	100.0%	100.0%
12	0.0%	0.0%	0.2%	2.4%	11.9%	34.8%	65.2%	88.1%	97.6%	99.8%	100.0%	100.0%	100.0%
13	0.0%	0.0%	0.1%	0.8%	5.8%	21.7%	50.0%	78.3%	94.2%	99.2%	99.9%	100.0%	100.0%
14	0.0%	0.0%	0.0%	0.2%	2.4%	11.9%	34.8%	65.2%	88.1%	97.6%	99.8%	100.0%	100.0%
15	0.0%	0.0%	0.0%	0.0%	0.8%	5.5%	21.4%	50.0%	78.6%	94.5%	99.2%	100.0%	100.0%
16	0.0%	0.0%	0.0%	0.0%	0.2%	2.1%	11.3%	34.4%	65.6%	88.7%	97.9%	99.8%	100.0%
17	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	4.8%	20.5%	50.0%	79.5%	95.2%	99.4%	100.0%
18	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.5%	10.1%	33.6%	66.4%	89.9%	98.5%	99.9%
19	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	3.7%	18.9%	50.0%	81.1%	96.3%	99.7%
20	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	8.0%	32.2%	67.8%	92.0%	99.3%
21	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	16.1%	50.0%	83.9%	98.0%
22	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	29.7%	70.3%	95.2%
23	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.0%	50.0%	89.0%
24	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.0%	76.0%
25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%

Estimating population decline from an instantaneous aerial survey sample does not have a temporal component. The probability at any given time of sampling remains the same whether we monitor collars three times per week or once per week. The probability that we detect *K* by sampling *k* is always the same.

Given the demographic parameters that characterize panther populations and the biological mechanisms driving change in those parameters, we suggest that estimating population change is most prudent on an annual interval rather than every other day. As such, we believe that monitoring radio-collars once per week is more than sufficient to satisfy our mandate to monitor population trend. The biological information gained by sampling interval is important, however, and more intensive monitoring may allow us to detect subtle changes in location and persistence of location that indicate predation success, illness, and denning behavior. If such locations are known, then on-the-ground information regarding den success, litter size, and juvenile survival, and cause of death can contribute critical data toward recovery efforts.

Detection of dens and access to kittens:

From January 29, 2010 to January 30, 2013, we identified 21 den locations in BICY from 10 individual females. No kittens were found at three of the potential den sites, so analyses were conducted for n=18 confirmed dens where kittens were found. Using the full survey dataset, all of these den sites were detected by three consecutive surveys and the date of entry into the den for marking of kittens averaged 11.22 ± 1.27 days after the date of the third aerial location. Mean age of the kittens at the time of handling was 17.92 ± 0.43 days (range = 12–28 days old). All of these 18 dens were also detected for two consecutive weeks and therefore would have been located during the once-per-week scenario. In that scenario, dens would have been detected an average of 3.78 ± 0.51 days later (range = 0–7) than the realized dates that resulted from multiple surveys per week (one-tailed paired t-test: α = 95%, t = -7.856, P<0.001).

The mean length of time females were detected at dens (time elapsed from first survey to last survey where a female was aerially detected at a den location) was 50.17 ± 3.31 days (range = 19–74 days). At 17 of 18 dens, females would have still been present at the den with their kittens 15 days after the second once-per-week survey, suggesting that had surveys been conducted once per week and the average time to den access remained the same (~4 day observed lag in den detection + ~11 day lag from the last location until den access), we would have been able to find den sites on the ground and access kittens for 94.4% of dens that were accessed under the original survey frequency. Kittens would have been roughly 4 days older at the time of handling under the once-per-week scenario (average of 22 days old instead of 18 days old), and all accessed kittens would have been in the same age range as kittens actually handled during the years of data used. The one den that may not have been accessed under the once-per-week scenario was the shortest length of time a female was observed at a den site (19 days) and represents an outlier in the data (all other den sites were occupied at least 35 days: see Fig. 1). This den still might have been accessed, however, because in reality additional information allowed managers to access this den at the same time as the first location. Applying the real information to our sample timeline, access after the first once-per-week location would have been temporally sufficient to access the kittens.

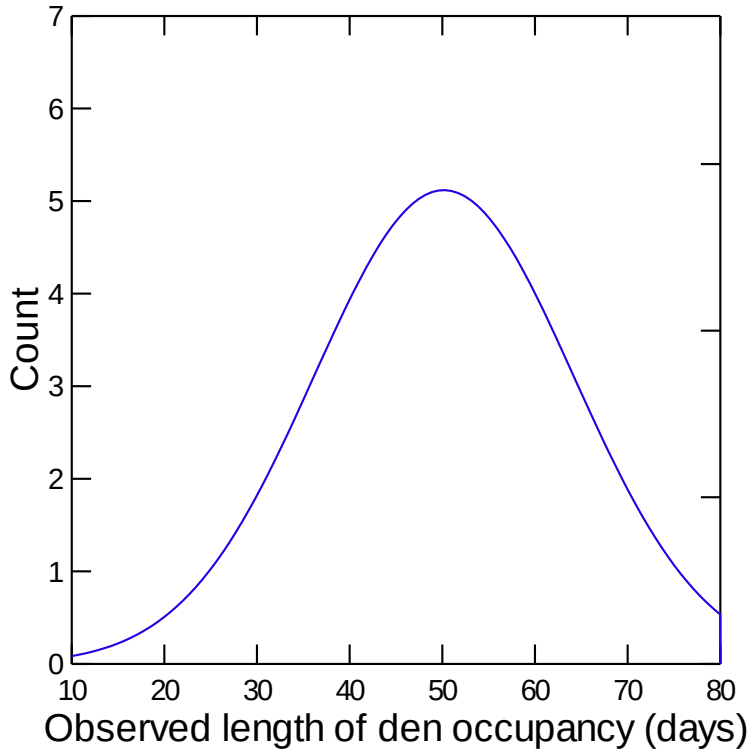

Fig 1. Density plot showing the length of time that female panthers were observed at a den location, using aerial survey data collected three times per week, January 29, 2010 to January 30, 2013.

Detection of mortalities:

Five of the 18 individuals (27.8%) we were monitoring from the air between January 29, 2010 and January 30, 2013 died. We detected three of these mortalities from aerial surveys and one of those presented an aberrant signal for 5 surveys (over 10 days) prior to visual detection of the carcass from the airplane. The remaining two mortality detections arose when a persistent location of each individual was detected on two or three consecutive flights and managers investigated the locations on the ground. One of these individuals was found severely ill and died the same day it was found. The other individual was found by a ground crew to be emitting a mortality signal after the aerial surveys detected a live signal. Movement of the collar by vultures was thought to be the source of the live signal.

The sample size for mortalities was too small to draw any statistical inferences from (n=5); however, we did compare the date of each survey when a mortality was determined (either mortality signal or last of the consecutive locations that triggered a ground search) to the date of the once-per-week scenario survey that would have detected the mortality or last of persistent locations based on previous one-per-week survey dates. Under the once-per-week scenario, mortalities would have been detected 3.80 ± 1.24 days later than was realized with multiple surveys per week. The approximate number of days that individuals were dead before being detected under the multiple surveys-per-week scenario was 1.60 ± 0.93. In the once-per-week scenario, those carcasses would have been detected 5.40 ± 1.25 days post mortem. We cannot assess whether the approximate 4-day delay in detection under the once-per-week scenario would have inhibited our ability to determine cause of death or not; however, additional information would likely have led us to arrive at the same conclusions for some cases. For example, the location of an adult

male at the same location as another male's carcass provided evidence that intraspecific aggression may have contributed to the mortality, and in another case a carcass was found on the road shoulder implicating likely collision with a vehicle. These attributes would have presented in either the multiple-survey-per-week scenario or the once-per-week scenario.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

November 1, 2013

Memorandum

To: Pedro Ramos, Superintendent, Big Cypress National Preserve

From: Larry Williams, Field Supervisor, South Florida Ecological Services Office

Subject: Big Cypress National Preserve Panther Monitoring Proposal

This memorandum responds to the National Park Service's (NPS) September 19, 2013, letter requesting technical assistance with respect to NPS' proposal to alter panther monitoring in Big Cypress National Preserve (BICY). It provides the U.S. Fish and Wildlife Service's (Service) comments, in accordance with section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*) (Act). In short, based on the information provided by the BICY, it is the opinion of the Service that reducing the number aircraft monitoring flights for panthers from three to one time per week will meet the requirements of the Biological Opinions (BOs), associated National Environmental Policy Act (NEPA) documents, and management plans for which the monitoring flights were initiated, although the timeframe to locate dens will likely increase. The BICY, Service, and Florida Fish and Wildlife Conservation Commission (FWC) will meet annually to review the results of the biological data collection to determine if the monitoring program is appropriate/effective and to discuss any potential changes to the Hunt Plan.

BACKGROUND

In early 2013, due to budget constraints, NPS curtailed over flights to monitor panthers within BICY. Bear Island and the Addition Lands are monitored by the FWC; the FWC monitoring schedule did not change at that time.

Shortly thereafter, the Service initiated discussions with NPS on monitoring requirements from past Biological Opinions and NPS-generated NEPA documents and management plans. As a result of discussions with NPS, the Service agreed to submit questions regarding the change in monitoring and how that change in monitoring would comply with the non-discretionary terms and conditions of the Off-Road Vehicle Management Plan (ORV Plan) Biological Opinion (Service 2000) as well as the above-mentioned commitments in NPS' NEPA documents.

On September 19, 2013, NPS transmitted a letter to the Service including an analysis comparing the effectiveness of once a week monitoring with three times per week monitoring. It should also be noted that NPS has proposed 50 monitoring events per year.

NPS applied the following objectives to provide the requested analysis.

1. *Determine the weekly detection probability for individual radio-collared panthers arising from a single aerial survey per week vs. multiple aerial surveys per week.*
2. *Estimate our ability to detect population decline using aerial surveys of radio-collared panthers.*
3. *Determine our ability to detect den sites using a single aerial survey per week vs. multiple surveys per week and calculate the difference in time that could have arisen between den determination and access to kittens.*
4. *Assess our ability to detect mortalities using a single aerial survey per week vs. multiple surveys per week and calculate the difference in time that could have arisen before a carcass could be located and accessed.*

While detailed information on the analysis may be found in the attachment to NPS' September 19, 2013, letter, we will provide some of the details and assumptions in this memorandum. To accomplish the analysis, NPS took the last 3 years of panther monitoring information including all surveys (n= 429 flights) from January 29, 2010 to January 30, 2013. The sample size included 18 individual radio-collared panthers. To detect whether females were potentially at a den site, NPS assumed that female panthers located in the same spot for 2 consecutive weeks were at a den and a den search would be triggered. NPS used the first survey date for the calendar week in the 3-year dataset to mimic the proposed change in monitoring methodology.

The results of NPS' analysis indicated no statistical difference in their ability to locate individual panthers when comparing one survey per week with three surveys per week. Likewise, NPS concluded that they would be able to detect mortalities and document positive or negative population trends with one monitoring event per week.

In the NPS comparison of their ability to locate dens with one survey per week versus three surveys per week, NPS' analysis indicated that they would have found 94.4 percent of known dens for the three-year time period used in the analysis. They used information from 21 identified den locations in BICY from 10 individual females. As kittens were not found at three of the potential den sites, they eliminated those three from the analysis. The remaining 18 confirmed dens where included in the remainder of the analysis. Using the full survey dataset, all 18 den sites were detected by three consecutive surveys and the date of entry into the den for marking of kittens averaged 11.22 ± 1.27 days after the date of the third aerial location. Mean age of the kittens at the time of handling was 17.92 ± 0.43 days (range = 12–28 days old). All of these 18 dens were also detected for two consecutive weeks and, NPS states, would have been located during the once-per-week scenario. With one survey event per week, dens would have been detected an average of 3.78 ± 0.51 days later than the actual dates that resulted from multiple surveys per week. Kittens would have been roughly 4 days older at the time of handling under the once-per-week scenario (average of 22 days old instead of 18 days old), and all

accessed kittens would have been in the same age range as kittens actually handled during the years of data used.

Based on the results of NPS' analysis, they are confident the change in monitoring from three events per week to one event per week will not alter their ability to detect changes in panther home ranges, denning activity, and population status in BICY. The Service agrees that the results of NPS' analysis indicate they should be able to comply with the non-discretionary terms and conditions of the ORV Plan BO.

As NPS prepares to sign a record of decision implementing the Final Hunting Management Plan/Environmental Assessment (NPS 2013), an adaptive management framework for decision-making related to hunting on BICY will be developed and instituted. Both the Final Hunting Management Plan and NPS September 19, 2013, letter commit to annual meetings between NPS, the FWC, and the Service to review the analysis of panther and deer data, monitoring protocols, and discuss if changes should be made to the hunting program in BICY.

We look forward to working with you to protect BICY for its conservation and historic value. If you have any questions, please contact Jane Tutton at 772-469-4235.

cc:
NPS/DSC, Denver, Colorado (Tracy Atkins)
NPS/RO, Atlanta, Georgia (Tim Pinion)

LITERATURE CITED

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Appendix F

Adaptive Management

ADAPTIVE MANAGEMENT

Adaptive management could be an effective approach to managing hunting in the Preserve because:

- Adaptive management allows stakeholders to confront unresolved issues that can influence management performance. An adaptive approach provides a framework for making good decisions in the face of uncertainties and a formal process for reducing uncertainties so that management performance can be improved over time.
- The adaptive management strategy requires a commitment to developing a collaborative decision framework that includes stakeholders with different perspectives. Developing a collaborative group focused on recreational harvest in the Preserve is dependent upon stakeholder groups committing to a decision process because they agree that it is participatory and fair.
- Agencies whose actions may affect federally listed endangered species (under the *Endangered Species Act*) should design monitoring programs with input from USFWS and/or National Oceanic and Atmospheric Administration-National Marine Fisheries Service. Learning by doing – the critical centerpiece of adaptive management – is particularly important in *Endangered Species Act* situations, where cause and effect can be particularly difficult to ascertain.
- The amount of uncertainty about the effects of water withdrawals, altered fire regime, the rate of game harvest, and exotic plants and animals on game populations is relatively high, and the amount of potential agency control options over these issues is also high.

ADAPTIVE MANAGEMENT OF DEER HARVEST

Both the NPS and the FWC recognize that there is an opportunity to develop a better understanding of how the annual deer population interacts with other environmental influences to determine deer population densities in subsequent years. The adaptive management process builds upon the cooperative relationship for monitoring and managing the Preserve deer hunt that has functioned consistently since at least 1982 (NPS 1983). Over time this relationship has grown from cooperative staffing of deer hunt check stations (Ann. Report 1983), to include cooperative management of all wildlife populations (Adams and Bozzo 2002) and the development of a process for monitoring deer populations from aircraft (Garrison et al. 2009). Three decades of monitoring has revealed a large amount of variability in deer harvest success rates (number of deer harvested per man day of effort) among compartments in a single year and within units across years. These observations have been used to adjust the harvest of deer in different management units.

The Preserve has consistently sustained a deer population since its establishment in 1974, with shifts in abundance of deer potentially affected by droughts, floods, tropical storm events, predation, and disease. The Preserve is an integral part of an expanding group of state and federal preserves which are supporting the recovering population of Florida panthers, as discussed in chapter 3 (“Existing Conditions”). Deer are the main food source for panthers, and are critical forage for reproductive female panthers (Land, 1994; USFWS, 2008). Environmental conditions in and around the Preserve continue to change. Human development continues and is accompanied by increased alteration of the regional watershed. Expansion of protected areas has also occurred. The Southwest Florida Feasibility Study recommends a large number of infrastructure alterations focused on addressing flood protection, water supply, and the ecological health of the Big Cypress

Watershed, and both the scale of human development and the scale of proposed infrastructure alterations are likely to be large enough to impact deer populations in/around the Preserve. This EA outlines the primary management strategy that will be used to support the deer population in the Preserve for the next 15 to 20 years. The elements of the adaptive management strategy in alternative 3 are intended to reduce conflicts among agencies and stakeholders, ensure compliance with the *Endangered Species Act*, and systematically enhance the level of certainty about how regulated deer harvests affect deer populations in the context of a dynamic regional condition.

Double Loop Leaning Process

The adaptive management framework is focused on the "double loop" learning process (described in Williams et al. 2009) (figure 1). The first loop occurs annually and is focused on the use of monitoring information to determine whether deer harvest should be increased or decreased in the different management compartments. This learning loop has been a feature of the traditional consultation between the NPS and the FWC. The second learning loop occurs on longer time increments (5 to 10 year basis, or when viewed as necessary by stakeholders) and is focused on clearly describing the existing challenges to managing the deer population (i.e. problem formulation), identification of objectives, and working with stakeholders to develop a participatory decision-making process. This adaptive management strategy identifies how existing cooperative efforts can be enhanced over time to fulfill the goals of increasing stakeholder participation, documenting the decision-making process, ensuring that *Endangered Species Act* requirements are met, and increasing the precision of the management of hunting in the Preserve.

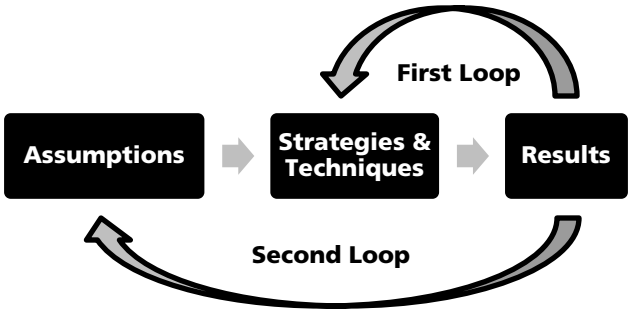

Figure 1 – Double Loop Learning Process

ADAPTIVE MANAGEMENT – DEFINITION, VOCABULARY, AND UTILITY

The operational definition of Adaptive Management is:

> *Adaptive management [is a decision process that] promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.* (Williams et al. 2009)

This definition is important because it sets the expectations for the adaptive management process for all parties who participate. There should be no expectation that management decisions will be perfect, that monitoring processes will be ideal, or that the effects of management decisions will be fully comprehensible. Instead adaptive management is based on the recognition that the best way to reduce risk is to learn, that learning in groups is essential, and that a documented process of sharing information is an effective strategy to facilitate learning while simultaneously reducing conflict. Participating in an adaptive management process is useful for agencies that operate under different regulatory authorities because it offers agencies the opportunity to document the perspective of their agency, stakeholders the opportunity to document their concerns, and management decisions to be made in the context of these deliberations. The requirement for clear communication and documentation of methods and decisions in an adaptive management enterprise is higher than traditional decision-making processes, but this requirement is thought to be essential for diffusing conflicts that might arise in the future.

> "The premise of an adaptive management approach is that the behavior of resource systems is uncertain but management is required anyway, and the reduction of uncertainty over time can lead to better management." (Williams et al. 2009)

Recognizing uncertainty is essential for adaptive management processes to function. In fact, the recognition of different types of uncertainty is the essential aspect of implementing an adaptive management strategy. The challenge is often getting groups with divergent perspectives/authorities to adopt a common perspective and vocabulary for discussing uncertainty. Four types of uncertainty affect hunting management policies in the Preserve: partial control, partial observability, environmental variation, and structural uncertainty (figure 2). Partial control limits the influence of management actions. Environmental variation affects resource system status and dynamics. Partial observability limits the recognition of system status. Structural uncertainty limits the ability to characterize system change. Regular discussions with key stakeholder groups appear to be the most effective strategy for developing this common perspective and vocabulary.

NPS and FWC scientists and managers who work in the Preserve have long recognized that they have only partial control of the Preserve resource system. While hunting management policies can be clearly designed and communicated, the enforceability of no-hunt policies or harvest limits is subject to budget constraints, chance, and the acceptance of these policies by private individuals who wish to harvest deer. If policies were universally accepted, there would be no need for enforcement. Adaptive management processes are predicated on the idea that private individuals are more likely to accept policies that they understand and that stakeholder discussions are an effective, legal method for systematically enhancing public understanding of management decisions over time. The common theme throughout adaptive management is that focusing on causal drivers is the most effective long-term strategy for improving outcomes of a complex system that is unlikely to be completely understood by all participants. Open communication and facilitated learning are the most direct way to address the challenge of public acceptance of policy changes.

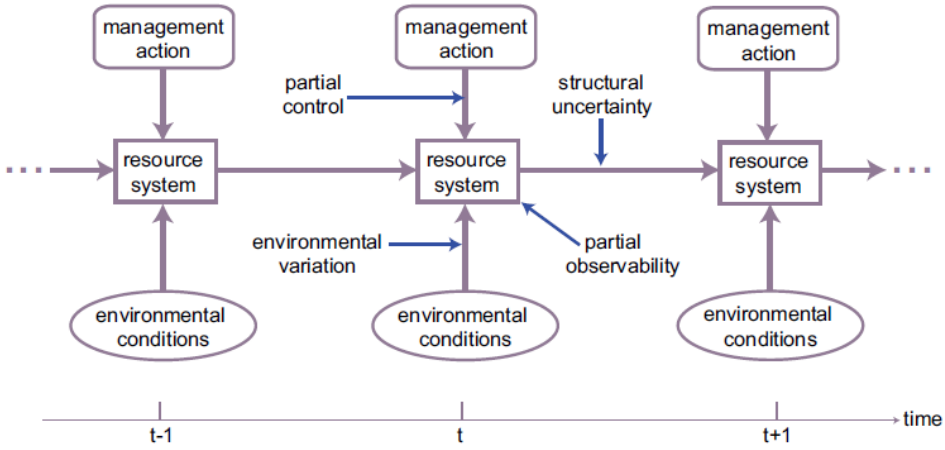

Figure 2 – Uncertainty Sources in Natural Resource Management

Source: Adapted from Williams et al. 2009, figure 5.2.

There is clear documentation of the effect of environmental variation on deer populations. Verme et al. (1969) identified both floods and droughts as affecting deer negatively. MacDonald-Beyers and Labisky (2005) identified tropical storm events in the Preserve as directly killing adult deer (50% of a radio-collared population), and driving flood events that reduced levels of reproduction 10-fold in the following breeding season. McCown et al. (1991) recognized that forage quality reduced deer health, identified the southwestern Preserve as poorer habitat than the northwestern Preserve, and recommended prescribed fire be used to increase the amount, availability, and mineral content of forage. Indicators of reduced habitat quality in the southwestern Preserve included higher parasite loads (indicated by Abomasal Parasite Counts), fewer twin fawns birthed, and a lower mean live weight of 2.5 year old deer than in the northwestern Preserve. The challenge for the adaptive management strategy seems to be helping both agencies and stakeholders recognize the value of environmental variation in supporting the resilience of natural systems, the need for a conservative approach to deer harvest management when the background levels of environmental variation are shifting, and situations when environmental variation is negative for deer but may be necessary for supporting other management goals. Ongoing stakeholder discussions and the second loop of learning (redefining problem statements, objectives, updating conceptual models) is the appropriate part of the adaptive management process for focusing stakeholder discussions on the variety of factors that can influence deer population health and documenting the different perspectives that stakeholders may have about which factors are more important for determining optimal harvest rates in different areas.

Partial observability will likely be an ongoing challenge to the adaptive management strategy. National Park Service and FWC scientists and managers are quite familiar with this aspect of monitoring deer populations in the Preserve. Continuing to nurture the process of developing better methods for estimating deer population densities (as described by Garrison et al. 2009) seems appropriate, and consistent support for investigations that are focused on issues occurring at different spatial and temporal scales is the recommended path forward for the adaptive management process. Since all forms of monitoring and research are inherently limited, the most efficient strategy is conducting complementary investigations. The highest level of confidence in management actions occurs when different approaches discover similar patterns or provide support for one or more hypothesized causal mechanisms. The discussion presented by McCown et al. (1991) is the most direct example of how scientists use different types of information to form management

recommendations. Often the solutions available for uncertainties caused by partial observability are closely related to the solutions that are implemented for structural uncertainties (i.e. lack of understanding of precisely how the ecological system works to determine deer population levels).

CONCEPTUAL ECOLOGICAL MODEL

The first step in addressing the uncertainties that could affect management decisions is summarizing what is known about a system as a conceptual ecological model. Duever (2005) developed a conceptual ecological model for Big Cypress, and the symbology developed by Duever has been used to create a conceptual ecological model focused on the deer harvest in the Preserve (figure 3). Ideally, a conceptual ecological model contains all of the possible drivers, stressors, ecological effects and attributes that are considered in a management decision. Attributes are aspects of the deer harvest that are monitored and are likely to change as a consequence of a management decision. Ecological effects are specific non-human events that affect attributes. Stressors are aspects of the system that may alter its properties through their influence on ecological effects, and drivers are large-scale processes that are known to influence system-level properties.

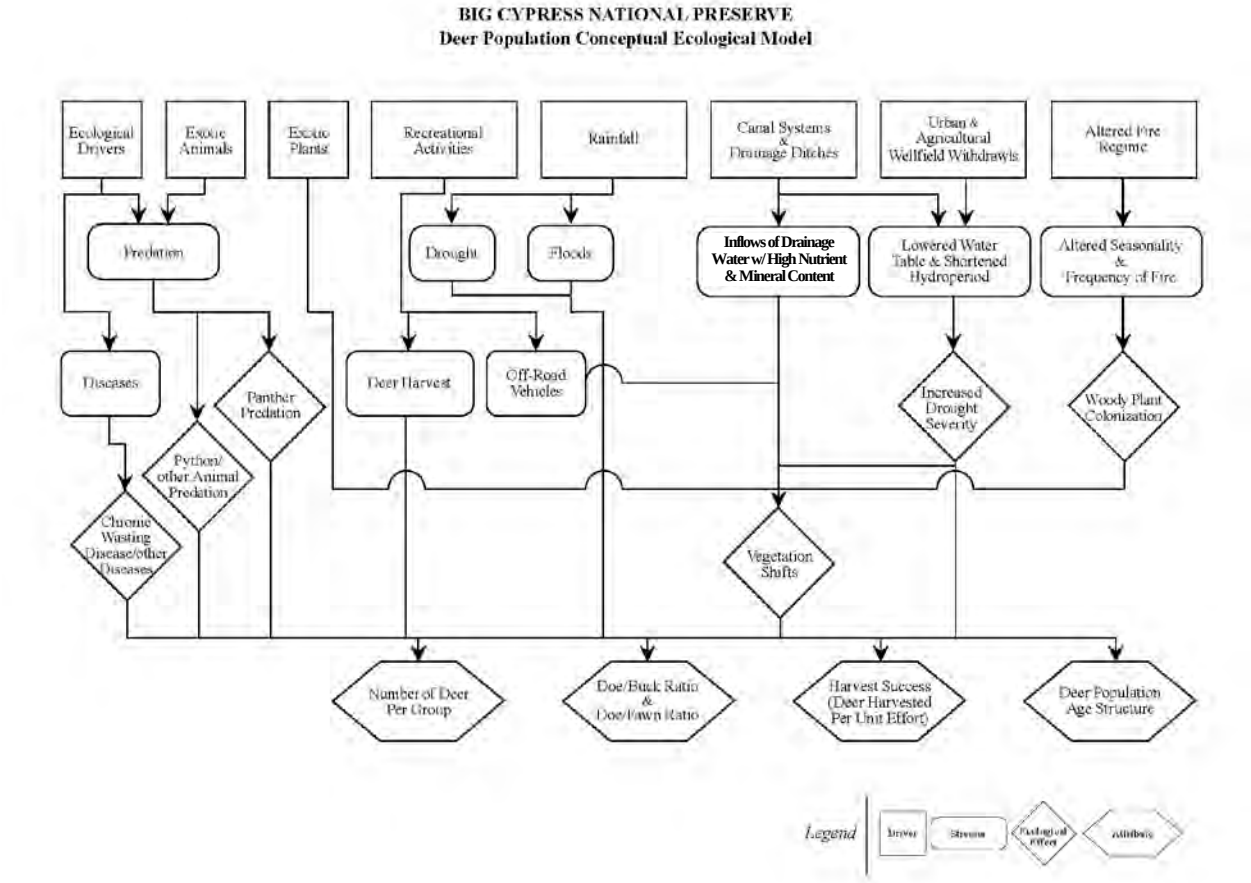

Figure 3 – Big Cypress National Preserve Deer Population Conceptual Ecological Model

CONCLUSION

The bottom line is that choosing to implement an adaptive management process does not mean that all of the challenges associated with complex system management are solved. Instead it means cultivating a group of focused stakeholders, developing a shared vocabulary for identifying and discussing the different types of uncertainty that present challenges to forming management recommendations, and committing to document the resolution of different perspectives over time. Using both the first and second loops of the double loop learning process enable making management decisions in a timely manner and retaining the flexibility to shift decision processes over time as evidence of causal mechanisms becomes clear. Williams et al. (2009) perhaps said it best:

> "An adaptive management project is recognized as successful if (1) stakeholders are involved and committed to the process; (2) progress is made toward achieving management objectives; (3) results from monitoring and assessment are used to adjust management decisions; and (4) implementation is consistent with applicable laws."

Appendix G

Addition Habitat Comparison Analysis

HABITAT COMPARISON ANALYSIS

As discussed in the description of alternative 3 in chapter 2 (“Alternatives”) of the Hunting Management Plan/Environmental Assessment, rules, regulations, and potential quotas for the Addition would be determined by extrapolating the available NPS and FWC data for areas in the Preserve that are most similar in habitat types to areas in the Addition, based on the habitat map presented in chapter 3 (“Existing Conditions”) and shown in figure 1, below.

In order to determine which management units within the original Preserve boundaries are most similar to the habitats present in the Northeast Addition, a GIS habitat comparison analysis was conducted using the existing habitat map shown in figure 1 and the management units shown in figure 2. The GIS analysis included an examination of the land cover types [as defined by the Florida Land Cover Classification System (FWC 1999)] present in the Bear Island Unit, Corn Dance Unit, Northeast Addition (North of I-75), and Northeast Addition (South of I-75).

The results of the GIS habitat comparison analysis indicate that the land cover types present in the Northeast Addition (North of I-75) are most similar to the Bear Island Unit and the land cover types present in the Northeast Addition (South of I-75) are most similar to the Corn Dance Unit. Using the results of the GIS habitat comparison analysis, both the Bear Island Unit and Corn Dance Unit were used to extrapolate proposed maximum quota limits for deer quota permits; since the maximum quota limits extrapolated from the Bear Island Unit were more conservative than those extrapolated from the Corn Dance Unit, the maximum quota limits extrapolated from the Bear Island Unit were used in the impacts analysis in the Hunting Management Plan/Environmental Assessment.

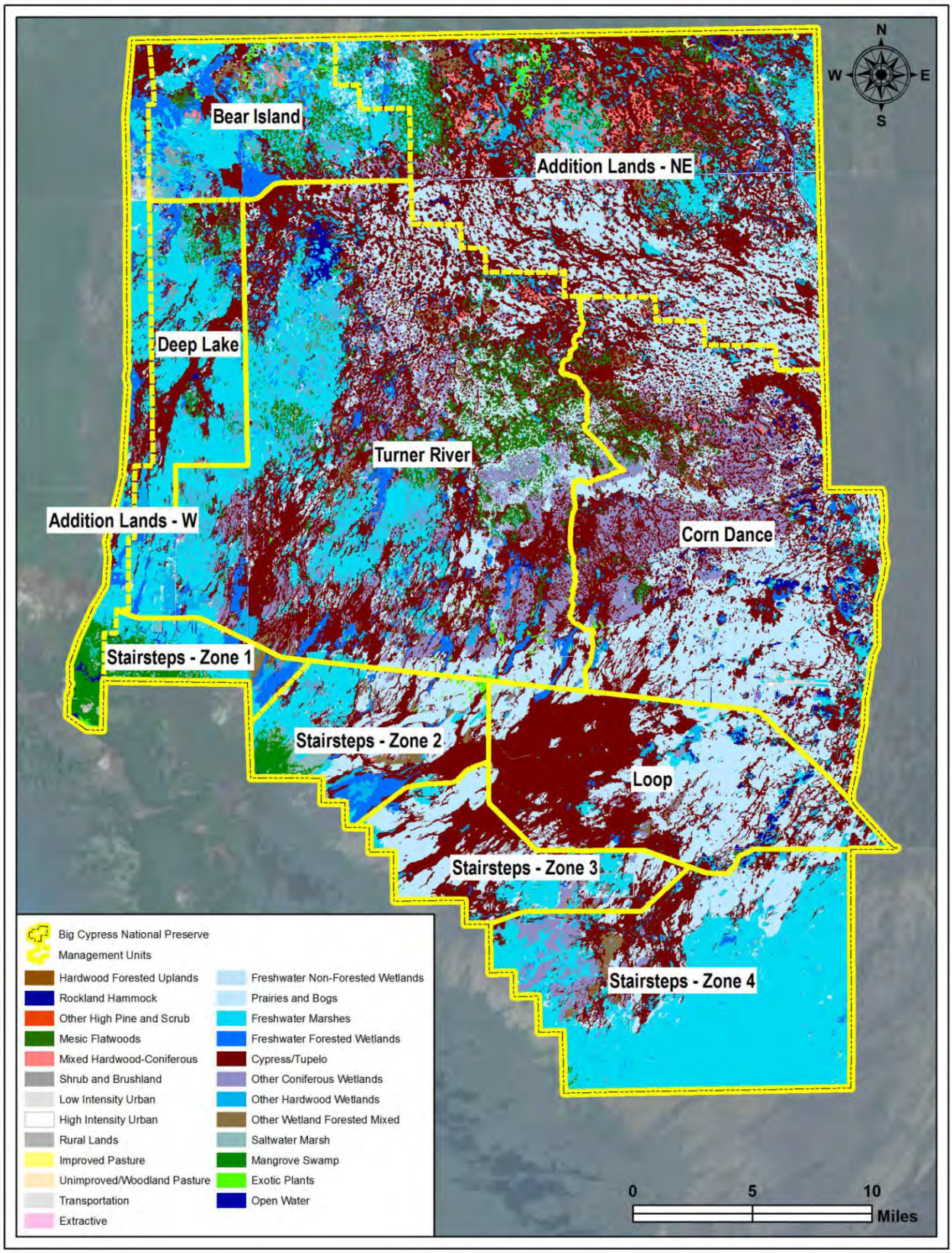

Figure 1 – Big Cypress National Preserve Habitat Map

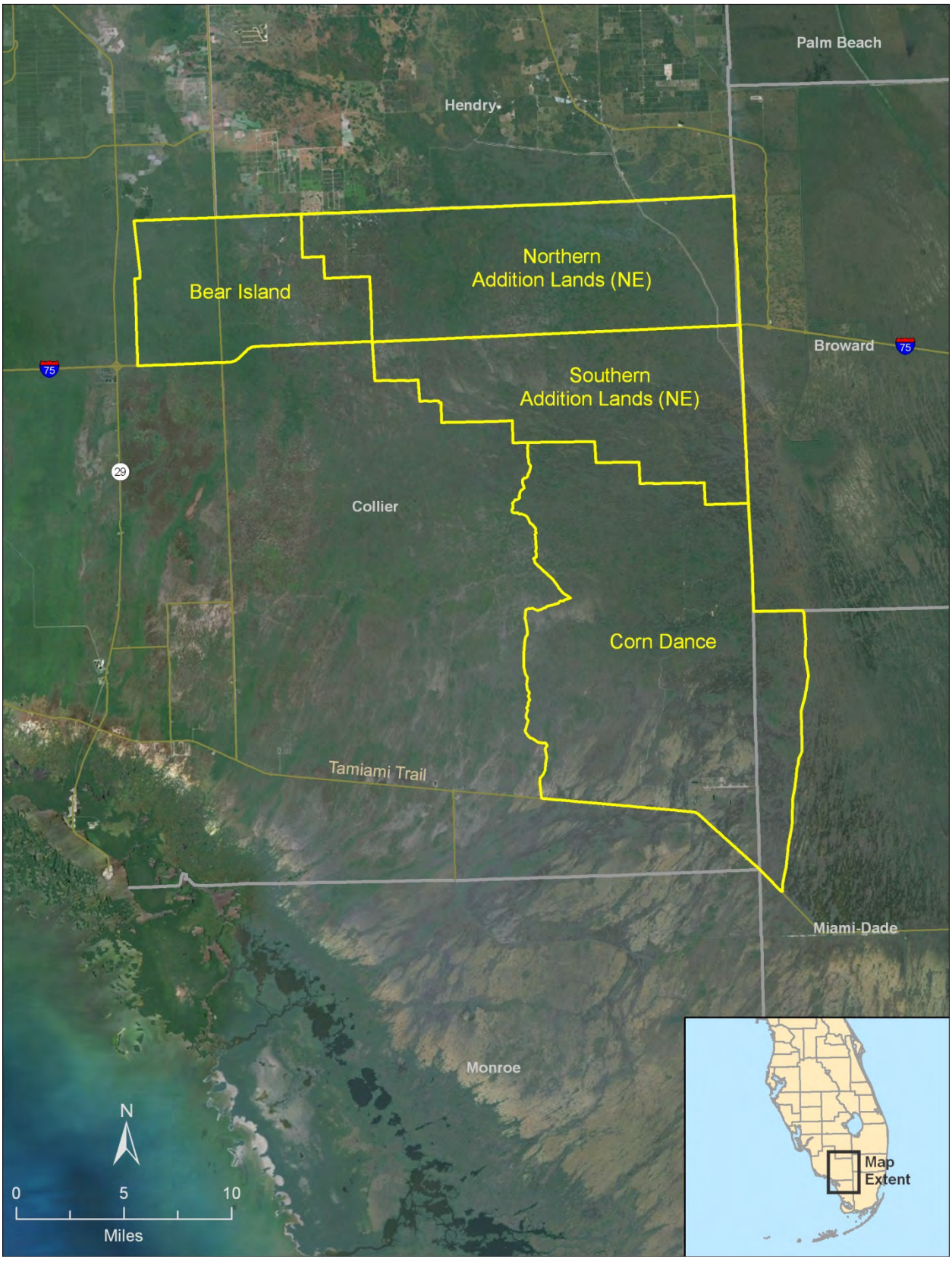

Figure 2 – Management Units Used for the Habitat Comparison Analysis

Table 1 – Habitat Comparison Analysis

Land Cover Code	Land Cover Description	Bear Island (38,801 Acres)		Corn Dance (120,281 Acres)		Northern NE Addition (70,951 Acres)		Southern NE Addition (56,927 Acres)	
		Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)
1110	Upland Hardwood Forest	150.5	0.4	105.9	0.1	199.7	0.3	12.6	0.0
1123	Live Oak	N/A	N/A	N/A	N/A	N/A	N/A	0.6	0.0
1125	Cabbage Palm	70.8	0.2	N/A	N/A	44.4	0.1	11.3	0.0
1130	Rockland Hammock	74.1	0.2	2546.7	2.1	338.8	0.5	75.0	0.1
1230	Upland Coniferous	N/A	N/A	3.4	0.0	N/A	N/A	N/A	N/A
1311	Mesic Flatwoods	3736.0	9.6	3115.3	2.6	6624.6	9.3	234.2	0.4
1400	Mixed Hardwood-Coniferous	451.3	1.2	230.3	0.2	4310.3	6.1	36.2	0.1
1410	Successional Hardwood Forest	N/A	N/A	N/A	N/A	56.9	0.1	N/A	N/A
1500	Shrub and Brushland	947.2	2.4	17.2	0.0	186.3	0.3	3.6	0.0
18212	Low Structure Density	N/A	N/A	N/A	N/A	1.4	0.0	N/A	N/A
1822	High Intensity Urban	24.5	0.1	303.1	0.3	182.4	0.3	38.9	0.1
18222	Residential, High Density > 5 Dwelling Units/AC	N/A	N/A	N/A	N/A	10.3	0.0	N/A	N/A
18223	Commercial & Services	N/A	N/A	2.9	0.0	N/A	N/A	N/A	N/A
1831	Rural Open	250.2	0.6	N/A	N/A	111.2	0.2	4.3	0.0
183111	Oak - Cabbage Palm Forests	43.8	0.1	N/A	N/A	58.2	0.1	5.9	0.0
183213	Improved Pasture	9.1	0.0	N/A	N/A	102.5	0.1	N/A	N/A
183214	Unimproved/Woodland Pasture	N/A	N/A	N/A	N/A	123.7	0.2	N/A	N/A
1840	Transportation	N/A	N/A	121.3	0.1	2.3	0.0	N/A	N/A
1841	Roads	402.4	1.0	220.1	0.2	520.4	0.7	290.8	0.5
1877	Spoil Area	N/A	N/A	113.9	0.1	N/A	N/A	N/A	N/A
2111	Wet Prairie	76.6	0.2	741.3	0.6	271.1	0.4	310.4	0.5
21121	Shrub Bog	2066.8	5.3	N/A	N/A	3170.4	4.5	1539.5	2.7
2113	Marl Prairie	373.4	1.0	N/A	N/A	2416.7	3.4	24239.6	42.6
2120	Freshwater Marshes	4027.0	10.4	942.0	0.8	3363.9	4.7	552.8	1.0
2125	Glades Marsh	6763.5	17.4	2114.3	1.8	3851.5	5.4	2732.3	4.8
2131	Sawgrass	3198.6	8.2	18.4	0.0	1595.0	2.2	468.1	0.8
2140	Floating/Emergent Aquatic Vegetation	1.7	0.0	N/A	N/A	N/A	N/A	N/A	N/A
2200	Freshwater Forested Wetlands	5370.8	13.9	1620.6	1.3	2354.6	3.3	428.7	0.8
2210	Cypress/Tupelo (incl Cy/Tu mixed)	2658.7	6.9	493.3	0.4	11292.2	15.9	1176.4	2.1
2211	Cypress	175.7	0.5	953.1	0.8	562.9	0.8	159.4	0.3
2213	Isolated Freshwater Swamp	98.2	0.3	975.3	0.8	692.7	1.0	93.7	0.2
22131	Dome Swamp	317.1	0.8	25863.4	21.5	13230.4	18.6	16793.4	29.5
2214	Strand Swamp	2987.4	7.7	17578.8	14.6	6302.9	8.9	5538.2	9.7
2221	Wet Flatwoods	48.5	0.1	6300.9	5.2	338.0	0.5	213.6	0.4
22211	Hydric Pine Flatwoods	1444.2	3.7	6820.4	5.7	998.5	1.4	167.7	0.3
22212	Hydric Pine Savanna	24.5	0.1	N/A	N/A	2.8	0.0	353.8	0.6
22312	South Florida Bayhead	N/A	N/A	1635.2	1.4	440.5	0.6	N/A	N/A
2232	Hydric Hammock	1285.5	3.3	546.3	0.5	3639.6	5.1	826.7	1.5
2233	Mixed Wetland Hardwoods	610.4	1.6	79.4	0.1	38.2	0.1	N/A	N/A
2240	Other Wetland Forested Mixed	30.7	0.1	1.8	0.0	102.8	0.1	N/A	N/A

Land Cover Code	Land Cover Description	Bear Island (38,801 Acres)		Corn Dance (120,281 Acres)		Northern NE Addition (70,951 Acres)		Southern NE Addition (56,927 Acres)	
		Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)	Size (Acres)	% of Total Unit (Acres)
2242	Cypress/Pine/Cabbage Palm	575.4	1.5	1107.2	0.9	2232.6	3.1	407.3	0.7
3220	Artificial Impoundment/Reservoir	N/A	N/A	62.1	0.1	N/A	N/A	N/A	N/A
4200	Canal/Ditch	55.8	0.1	60.1	0.0	332.3	0.5	193.4	0.3
4210	Canal	30.8	0.1	0.0	0.0	6.7	0.0	15.5	0.0
5240	Saltwater Marsh	N/A	N/A	N/A	N/A	N/A	N/A	1.4	0.0
7000	Exotic Plants	423.5	1.1	127.6	0.1	763.5	1.1	N/A	N/A
7200	Melaleuca	N/A	N/A	N/A	N/A	59.3	0.1	N/A	N/A
7300	Brazilian Pepper	N/A	N/A	N/A	N/A	16.7	0.0	N/A	N/A
7400	Exotic Wetland Hardwoods	N/A	N/A	N/A	N/A	0.6	0.0	N/A	N/A

Appendix H

Big Cypress National Preserve
Small Game and Wild Turkey
Harvest and Pressure Summary (2011-12)

BIG CYPRESS NATIONAL PRESERVE

Small Game and Wild Turkey Harvest and Pressure Summary

2011-12

Prepared by: Tad M. Bartareau

Summer 2012

EXECUTIVE SUMMMARY
2011-12

Big Cypress Wildlife Management Area (BCWMA) encompasses 582,030 acres of public hunting land cooperatively managed by Florida Fish and Wildlife Conservation Commission (FWC) and the National Park Service (NPS) and is located within Big Cypress National Preserve (BCNP). BCWMA is located on the Big Cypress Swamp extending east to Miami-Dade County, south to Monroe County, and north and west into Collier County. Additionally, BCWMA includes the 24,320 acre Dade-Collier Transition and Training Airport Area owned by Miami-Dade County, also known as the Jetport.

Public hunting and off-road vehicle (ORV) operation are the principal sources of recreation on BCWMA. Small game hunting is allowed on BCWMA during Archery, Muzzleloading Gun, General Gun, and Small Game seasons. Wild turkey hunting is allowed on BCWMA during Spring Turkey season. Data incorporated in this report summarize trends in small game and wild turkey harvest, hunter pressure, and characteristics of harvested game during the 2011-12 hunting seasons.

From 1985-86 to 2011-12 hunting seasons, the total Small Game harvest was variable ranging from a high of 921 in 1987-88 to low of 67 in 1998-99. The total harvest averaged 333 per year over the past 27 hunting seasons. From 2007-08 to 2011-12 hunting seasons, the total Small Game harvest was variable ranging from a high of 263 in 2009-10 to low of 104 in 2008-09. The total harvest averaged 198 per year over the past 5 hunting seasons. In 2011-12, total harvest (241) was greater than past 5 year average but substantially less than the long-term average.

Snipe, duck, and squirrel were the most harvested small game, with at least 13 animals harvested in each of the past 5 hunting seasons. Quail, raccoon, coot, and rabbit were the least harvested small game, with an average of only 1 or 2 animals harvested per year during the past 5 hunting seasons.

From 2007-08 to 2011-12, the total turkey harvest checked and estimated from BCWMA was variable ranging from a high of 55 in 2008-09 to low of 26 in 2010-11. In 2011-12, the total turkey harvest checked and estimated (36) was slightly higher than the 5 year average (35). The biological data for turkey adults in relation to juveniles remained fairly constant from 1985-86 to 2010-11.

FWC and NPS will continue to monitor hunter pressure and harvest data to ensure optimal small game and spring turkey hunting conditions for hunters and overall favorable wildlife health.

Small game season harvest and hunting pressure in the Big Cypress Wildlife Management Area, 2007-08 to 2011-12.

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	3	0	0	41	3	0	47	1	0	0	232
2008-09	6	0	0	16	3	3	13	0	0	0	231
2009-10	2	0	0	27	0	4	51	3	0	0	225
2010-11	10	0	0	38	0	0	31	0	0	0	109
2011-12	11	0	0	61	0	0	15	0	0	0	192
Average	6	0	0	37	1	1	31	1	0	0	198

Spring Turkey season harvest and hunting pressure in the Big Cypress Wildlife Management Area, 2007-08 to 2011-12.

Season	Number of Adults Harvested[1]	Number of Juveniles Harvested[1]	Checked Harvest	Self-checked Harvest	Man-Days of Hunting Pressure	Hunter Success
2007-08	14	0	14	17	1,624	52.4
2008-09	13	0	14	41	1,827	33.2
2009-10	10	2	12	16	1,681	60.0
2010-11	4	1	5	21	2,004	77.1
2011-12	3	3	6	30	1,771	49.2
Average	9	1	10	25	1,781	54.4

[1]Checked harvest

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INTRODUCTION

Description of Big Cypress Wildlife Management Area

Public hunting of white-tailed deer (*Odocoileus virginianus*) and off-road vehicle (ORV) operation are the principal sources of recreation on Big Cypress Wildlife Management Area (BCWMA). Located within the 729,000 acre Big Cypress National Preserve (BCNP), the BCWMA encompasses 582,030 acres of public hunting land cooperatively managed by Florida Fish and Wildlife Conservation Commission (FWC) and the National Park Service (NPS). BCWMA is located on the BCNP extending east to Miami-Dade County, south to Monroe County, and northwest into Collier County. Additionally, BCWMA includes the 24,320 acre Dade-Collier Transition and Training Airport Area owned by Miami-Dade County, also known as the Jetport (Appendix A).

The vegetative cover of BCNP (Fig. 1) is mainly composed of cypress swamp, wet prairies and marshes, pinelands, and hardwood hammock (Duever et al. 1986). Over 50% of BCNP is cypress swamps, and most of this consists of open stands of small cypress growing amongst seasonally flooded grasslands known as cypress prairie. In addition to these cypress-dominated wetlands, another 25% of the BCNP is comprised of various forms of treeless wet prairies and marshes. About 15% of the Preserve supports pine forests, most of which are considered hydric pine flatwoods. Less than 4% of BCNP is elevated enough to support upland hardwood forests and hammocks ,and about 1% extend into the mangrove zone along Florida's southwest coast (University of Georgia 1999). Interspersed tree hammocks allow refuge for deer and hog during wet season high water events, primarily May through October (Comiskey et al., 1994; Labisky et al. 1995).

The BCWMA is divided into six different management units: Bear Island, Deep Lake, Turner River, Corn Dance, Loop, and Stairsteps. Small game hunting is allowed on BCWMA during Archery, Muzzleloading Gun, and General Gun and Small Game seasons. Wild turkey hunting is

allowed on BCWMA during Spring Turkey season. Hunting pressure, legal game harvest, and success have been documented on BCWMA for the past 27 hunting seasons (1985-86 to 2011-12). Data incorporated in this report summarize trends in small game and wild turkey harvest, hunter pressure, hunter success, and characteristics of harvested game during the 2011-12 hunting season.

Hunting

Flora and fauna in BCNP are protected from collection and injury. Hunting of game animals and fishing are permitted under Federal and State regulations issued by the NPS and FWC. Special Florida wildlife management area regulations apply in the BCWMA (Appendix A).

BCWMA public hunts consist of five distinct seasons - Archery, Muzzleloading Gun, General Gun, Small Game, and Spring Turkey - spanning varying lengths of time and each constrained to slightly different hunting regulations.

Season Lengths

During 2011-12, Archery, Muzzleloading Gun, General Gun, Small Game, and Spring Turkey seasons were 30, 16, 51, 31, and 37 days in length, respectively (Appendix A).

Regulation Changes

A number of regulation changes were made during the 2011-12 hunting season and the Regulations Summary and Area Map for Bear Island unit was amended to correct error in previous seasons map (Appendix A). First, "hunting during the spring turkey season with firearms other than shotguns or using a shot size larger than #2 is prohibited". Second, by Executive Order EO 11-15 for the 2011-12 hunting season, "taking of white-tailed deer as referenced in sections 68A-

15.064(5); F.A.C. is prohibited within Zone 4 of Stairsteps Unit", "the bag limit for deer shall be 1 annually within Zone 3 of the Stairsteps Unit", "(I)in Zone 3 of the Stairsteps Unit, the taking of deer not having at least one forked antler and having one or more antlers at least 5 inches in length visible above the hairline is prohibited", and (T)the forked antler shall have at least two points one inch or greater in length" (Appendix B). This Executive Order was effective prior to the archery season and will remain in place for one year.

Effective July 22, 2011, the National Park Service announced that ORV use within all units of BCNP will be along designated trail routes only. This move occurred after the NPS selected and marked ORV trails within the Corn Dance Unit, the last unit within the original BCNP where dispersed ORV use was authorized until May of 2011.

Loop Road was closed for repair during the 2011-12 hunting season to all but local vehicle traffic south of the Gator Hook Strand site and west of the Loop Road Education Center.

Check-in / -out Procedures

Six hunter check stations are present at major access points in BCWMA: two locations on I-75 mile marker 70 (north and south), Bear Island check station, Dona Drive check station, Monroe Station check station, and Forty-Mile Bend check station (Appendix A). The FWC attempts to staff these during peak activity periods. Hunters are required to check in and out through BCWMA approved check stations using hunter check-in forms.

During the 2011-12 Small Game season, no check stations were manned but hunters could check in or out using forms and self deposit boxes. Hunter check-in/out forms were used to estimate the number of man-days of pressure on BCWMA for Small Game and Spring Turkey seasons. Hunter pressure was determined by counting the number of days a hunter was in at least

one of the six BCWMA units (including the days that (s)he arrived and departed - unless it was the day before the season began) (Appendix C).

During the 2011-12 Spring Turkey season only Bear Island check station was staffed full time 8 hours a day for 7 days a week for the duration of the season. Bear Island has two legal access points; Alligator Alley North, and at the Bear Island Check Station. Consequently, more effort is placed on check station operations in this unit. Additionally, this unit supports higher densities of most game animals, and therefore generates a significant portion of the small game and spring turkey hunting activity. Bear Island check station has been consistently staffed during Spring Turkey season, from 1985-86 to 2011-12. This check station has been staffed during peak use periods such as Saturdays and Sundays, however it has not always been staffed for the entire season.

Data on hunter pressure and harvest numbers have been collected since the 1985-86 season. Over time, different methods were used to estimate hunter pressure including check-in forms, personal interviews/questionnaires, and vehicle surveys (see Jansen 1986). Consequently, there is no reliable method of comparing annual variation in small game and spring turkey harvest figures or extrapolating estimated harvest figures. Harvest numbers reported in this summary differentiate between estimated harvest (harvest *not* verified by check station operators) and checked harvest (harvest verified by check station operators) (Appendix D). With the data obtained through check station operators, we were able to record physical characteristics of harvested turkey that represent a subset of the BCWMA population (Appendix E).

HARVEST

Data incorporated in this report summarize trends in Small Game and Spring Turkey harvest, and characteristics of harvested game during the 2011-12 hunting seasons.

Small Game

The total Small Game harvest for the 1985-86 to 2010-11 hunting seasons from BCWMA are shown in Table 1 and Fig. 2. Small Game harvest data by season for the past 5 hunting seasons (2007-08 to 2011-12) from BCWMA are shown in Table 2. Small Game harvest for the past 5 hunting seasons (2007-08 to 2011-12) from BCWMA are shown in Table 3. These numbers represent checked and self-checked harvest.

From 1985-86 to 2011-12 hunting seasons, the total Small Game harvest was variable ranging from a high of 921 in 1987-88 to low of 67 in 1998-99 (Table 1). The total Small Game harvest averaged 333 per year over the past 27 hunting seasons. From 2007-08 to 2011-12 hunting seasons, the total Small Game harvest was variable ranging from a high of 263 in 2009-10 to low of 104 in 2008-09 (Table 2). The total Small Game harvest averaged 198 per year over the past 5 hunting seasons (Table 2). In 2011-12, total harvest (241) was greater than past 5 year average but substantially less than the long-term average.

Snipe, duck, and squirrel were the most harvested small game, with at least 13 animals harvested in each of the past 5 hunting seasons (Table 3). Quail, raccoon, coot, and rabbit were the least harvested small game, with an average of only 1 or 2 animals harvested per year during the past 5 hunting seasons (Table 3).

Snipe were the largest number of harvested small game, ranging from a high of 356 in 1988-89 to a low of 1 in 1998-99 (Table 1, Fig. 2). The snipe harvest averaged 107 per year over the 27

year period (Table 1). In 2011-12, snipe harvest (121) was higher than both the long-term (106) and past 5 year average (86) (Table 1 and 2, respectively). The majority of this harvest was collected from Stairsteps and Turner River Units, but snipe were also harvested from Loop, Deep Lake, and Corn Dance Units.

Ducks were the second largest number of harvested small game, ranging from a high of 111 in 2003-04 to low of 0 in 1986-87 and 1994-95 (Table 1, Fig. 2). The duck harvest averaged 47 per year over the 27 year period (Table 1). In 2011-12, duck harvest (89) was greater than both the long-term (47) and past 5 year average (72) (Table 1 and 2, respectively). The majority of this harvest was collected from Stairsteps Unit.

Squirrel were the third largest number of harvested small game, ranging from a high of 336 in 1990-91 to low of 2 in 1999-00 (Table 1, Fig. 2). The squirrel harvest averaged 68 per year over the 27 year period (Table 1). In 2011-12, squirrel harvest (15) was less than both the long-term (68) and past 5 year average (32) (Table 1 and 2, respectively). The majority of this harvest was collected from Bear Island, but squirrel were also harvested from Turner River and Loop Units.

Quail were the fourth most harvested small game, ranging from a high of 568 in 1987-88 to low of 1 in 1997-98 (Table 1, Fig. 2). No quail were harvested in 6 seasons during the period from 2000-01 to 2009-10. The quail harvest averaged 102 per year over the 27 year period (Table 1). In 2011-12, quail harvest (4) was substantially less than the long-term average (102) but greater than during the past 5 years (2) (Table 1 and 2, respectively). The majority of this harvest was collected from Deep Lake, but quail were also harvested from Corn Dance Unit.

The number of coot harvest ranged from a high of 16 in 1995-95 to low of 1 in 1989-90 and 2006-07 (Table 1, Fig. 2). No coot were harvested in 19 of the past 27 seasons. The coot harvest averaged 2 per year over the 27 year period (Table 1). In 2011-12, coot harvest (12) was

substantially greater than both the long-term (2) and past 5 year average (2) (Table 1 and 2, respectively). The majority of this harvest was collected from Stairsteps, but coot were also harvested from Turner River, Deep Lake, and Corn Dance Units.

Armadillo, coyote, dove, opossum, rabbit, raccoon, and coyote were harvested sporadically during the past 27 hunting seasons (Table 1, Fig. 2). One crow was harvested during 2011-12 Archery season. No armadillo, dove, coyote, opossum, raccoon, or rabbit were harvested in 2011-12 (Table 2).

Spring Turkey

Spring Turkey harvest numbers reported in this summary differentiate between estimated harvest (harvest derived from hunter check-out forms at unmanned check stations and *not* verified by check station operators) and checked harvest (harvest verified by check station operators). Spring Turkey harvest data for the period 2007-08 to 2011-12 from BCWMA are shown in Table 4. These numbers represent checked and self-checked harvest. Harvest data for Spring Turkey season for the period 1985-86 to 2010-11 on the Bear Island Unit are shown in Table 5. These harvest figures represent a total checked harvest on the Bear Island Unit of BCWMA.

From 1985-86 to 2011-12, the total turkey harvest checked at Bear Island was variable ranging from a high of 36 in 1995-96 to low of 4 in 2002-03. In 2011-12, the total number of checked turkey harvest at Bear Island (6) was substantially less than the long-term average (17).

From 2007-08 to 2011-12, the total turkey harvest checked and estimated from BCWMA was variable ranging from a high of 55 in 2008-09 to low of 26 in 2010-11 (Table 4). In 2011-12, the total turkey harvest checked and estimated (36) was slightly higher than the 5 year average (35).

The majority of this harvest was collected from Turner River, but turkeys were also harvested from Bear Island, Corn Dance, and Stairsteps Units.

Physical measurements could only be examined for checked harvest in this summary and not estimated harvest. Check station operators recorded physical characteristics of harvested spring turkey that represent a subset of the BCWMA population. Turkey biological data has been collected on the Bear Island Unit since 1985-86 (Table 6). Analyzed morphometric data are based on checked turkeys and are dependent on hunters providing harvest for measurements.

The harvest of turkey adults in relation to juveniles remained fairly constant from 1985-86 to 2010-12 (Table 6). Harvest of adult turkeys checked at Bear Island exceeded that of juveniles in 21 (78%) of the past 27 years. Average harvest rate was 2.4 adults per juvenile.

The biological data of adults in relation to juveniles remained fairly constant from 1985-86 to 2010-11 (Table 6). In 2011-12, average live weight for adults (14.0 lb) was slightly less than the long-term average (14.4 lb) while average spur length was the same (2.2 cm). The average beard length for adults in 2011-12 (25.0 cm) was greater than the long-term average (21.4 cm).

PRESSURE

Data incorporated in this report summarize trends in wild turkey hunter pressure, and hunter success during the 2000-01 to 2011-12 hunting seasons. These numbers represent actual man-days of hunter pressure estimated from mandatory hunter check-in/out forms. Man-days of hunting pressure are estimates for the entire BCWMA.

Hunter success was calculated by dividing number hunter man-days of pressure by number of game harvested. A higher number for hunter success means that it took more man-days for hunters to harvest game. All past data were recalculated in this way for comparison purposes.

From 1985-86 to 2011-12, the total man-days of hunter pressure for BCWMA ranged from a high of 22,020 in 1989-90 to low of 8,785 in 1994-95 (Table 1). The total man-days of hunter pressure for BCWMA during small game season in 2011-12 (192) were slightly less than the 5-year average (198) (Table 3).

From 2007-08 to 2011-12, the total man-days of hunter pressure during Spring Turkey for BCWMA ranged from a high of 2,004 in 2010-11 to low of 1,624 in 2007-08 (Table 4). The total man-days of hunter pressure for BCWMA during turkey season in 2011-12 (1,771) were slightly less than the 5-year average (1,781).

From 1985-86 to 2011-12, the total man-days of hunter pressure during Spring Turkey for Bear Island was variable ranging from a high of 1,403 in 1996-97 to low of 199 in 2004-05 (Fig. 3). The total man-days of hunter pressure during turkey for Bear Island in 2010-11 (397) were substantially less than the long-term average (639) (Table 5).

From 2007-08 to 2011-12, the total hunter success during Spring Turkey for BCWMA ranged from a high of 77.1 in 2010-11 to low of 33.2 in 2008-09. The total hunter success during turkey season in 2011-12 (49.2) was slightly lower than the 5-year average (54.4) (Table 4).

From 1985-86 to 2011-12, the total hunter success during Spring Turkey for Bear Island was variable and ranged from a high of 143 in 2002-03 to low of 18.1 in 2004-05 (Table 5). In 2011-12 hunting season, the hunter-success (66.2) was substantially higher than the long-term average (45.3).

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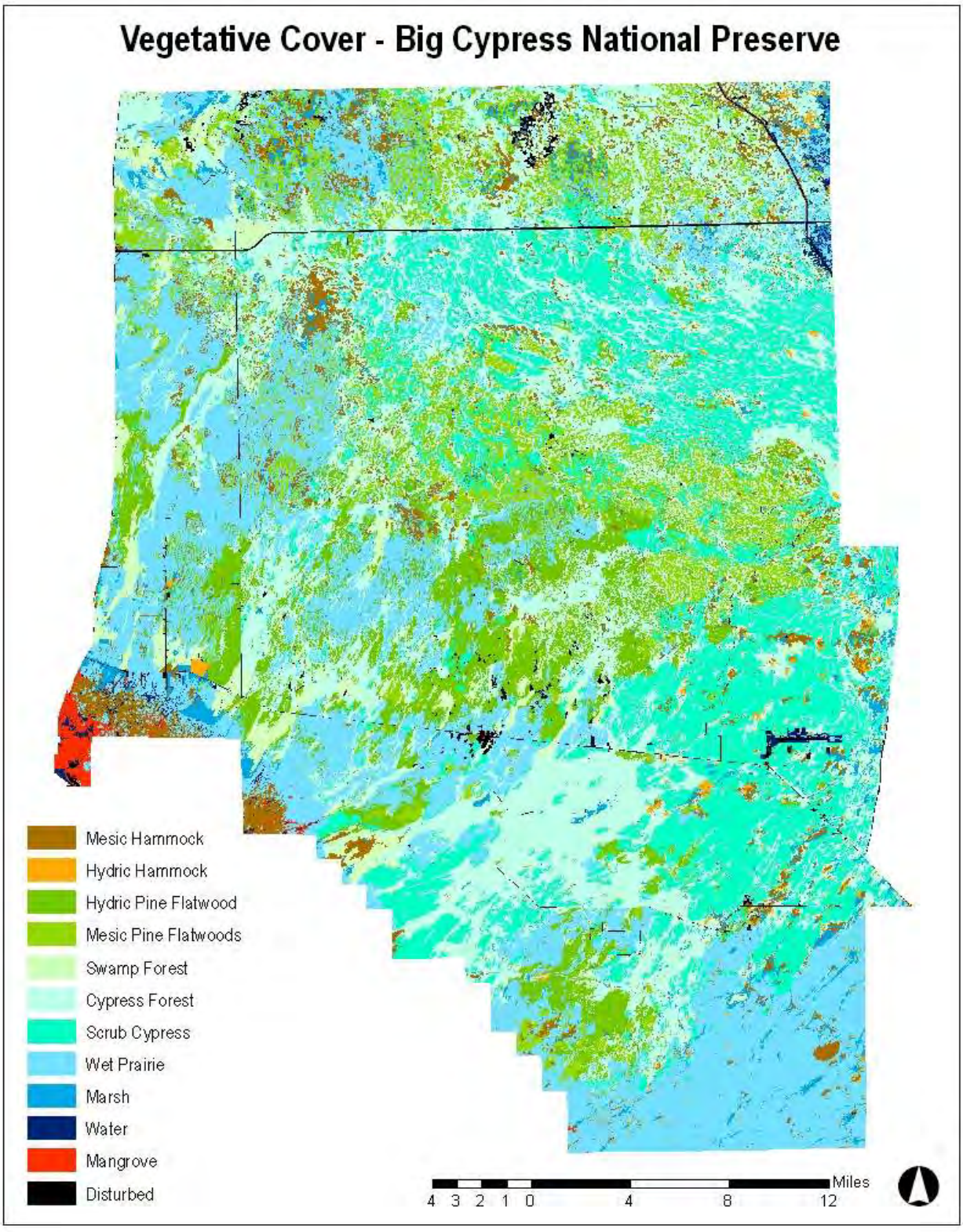


Figure 1. Vegetative cover for Big Cypress National Preserve.

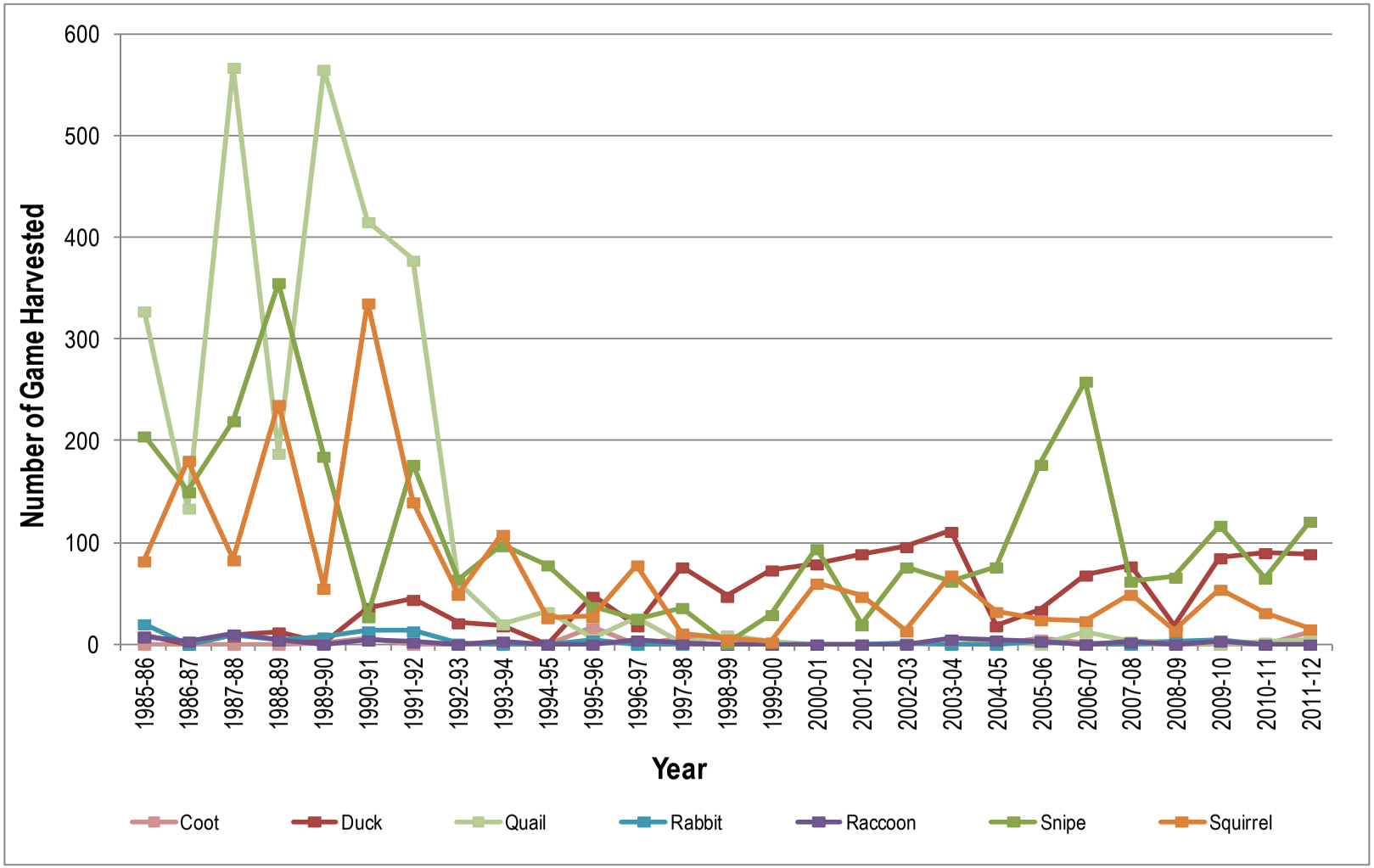


Figure 2. Small Game harvest in Big Cypress Wildlife Management Area during 1985-86 to 2011-12.

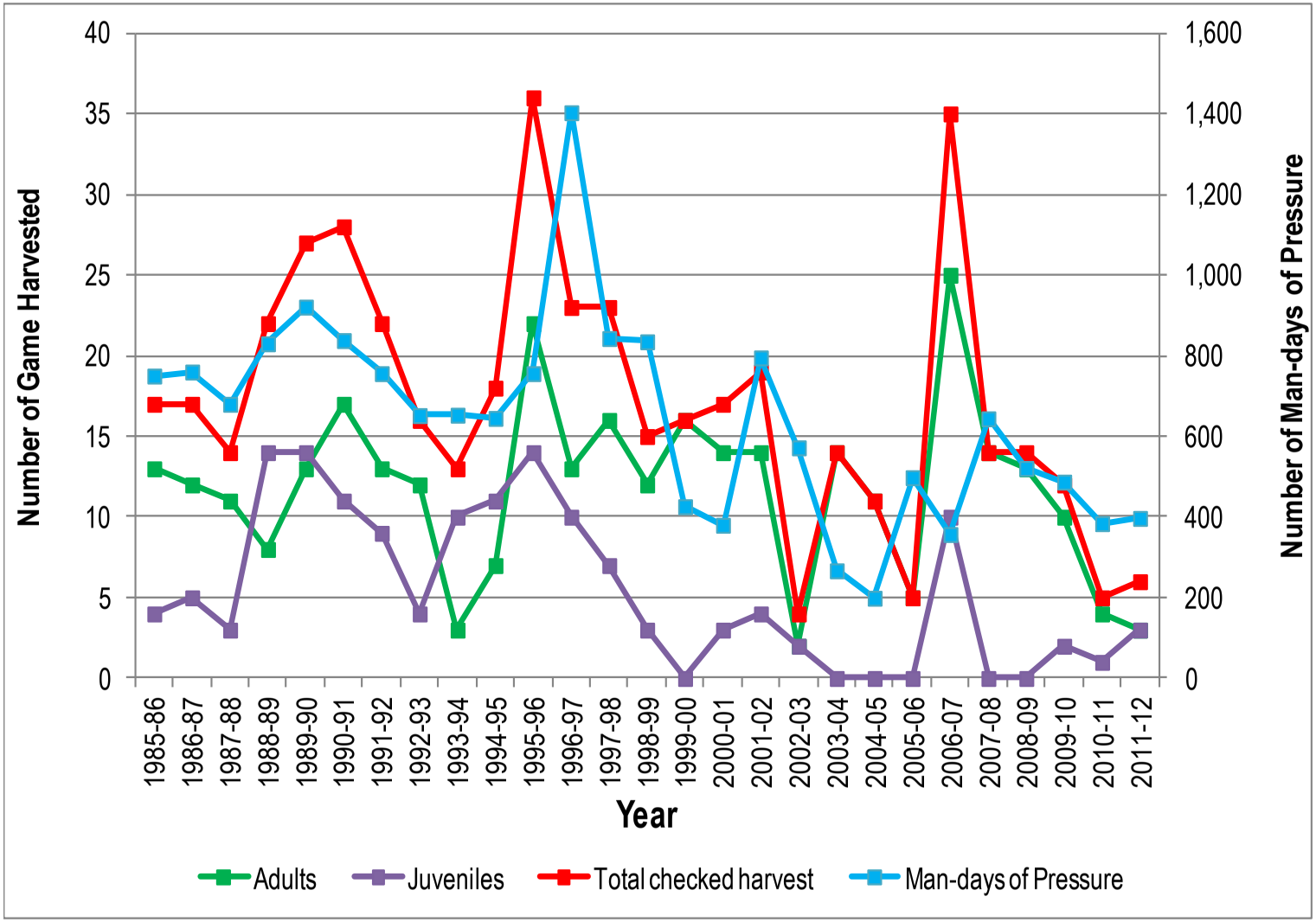


Figure 3. Man-days of pressure and checked Spring Turkey harvest on the Bear Island Unit of the Big Cypress Wildlife Management Area during 1985-86 to 2011-12.

Table 1. Small game harvest and hunting pressure by season for the Big Cypress Wildlife Management Area, 1985-86 to 2011-12*.

Season	Duck	Coot	Dove	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Coyote	Man-Days of Hunting Pressure
1985-86	8	0	0	205	328	20	82	7	0	0	0	17,355
1986-87	0	0	0	150	134	0	181	3	0	0	0	18,255
1987-88	8	0	18	220	568	9	83	10	4	1	0	17,864
1988-89	12	0	0	356	188	4	236	4	0	0	0	22,020
1989-90	1	1	0	185	566	7	55	0	0	3	0	22,015
1990-91	36	6	2	27	416	13	336	4	0	0	0	14,737
1991-92	44	0	1	177	378	13	140	2	0	4	0	17,657
1992-93	21	0	0	64	60	1	49	0	0	1	0	16,857
1993-94	18	0	0	97	20	0	108	3	0	6	0	16,145
1994-95[1]	0	0	0	78	32	0	26	0	0	0	0	8,785
1995-96	47	16	0	37	5	4	27	0	0	4	0	11,495
1996-97	18	0	0	25	26	0	78	4	0	0	0	15,471
1997-98	76	5	0	36	1	0	11	1	0	0	0	14,405
1998-99[2]	47	5	0	1	9	0	5	0	0	0	0	17,767
1999-00[3]	73	0	0	29	2	0	2	0	0	0	0	11,554
2000-01	79	0	0	94	0	0	60	0	0	0	0	14,886
2001-02	89	0	0	19	0	0	47	0	0	0	0	15,747
2002-03	96	0	0	76	0	1	13	0	0	1	0	16,282
2003-04	111	0	0	62	0	0	68	5	0	0	0	14,160
2004-05[4]	18	0	0	76	3	0	32	4	0	0	0	12,419
2005-06[5]	33	5	0	177	0	3	24	3	0	0	0	11,390
2006-07	68	1	0	259	12	0	23	0	0	0	0	12,858
2007-08	77	0	0	62	3	0	49	2	0	0	0	14,859
2008-09	18	0	0	66	3	3	13	0	0	0	1	16,357
2009-10	85	0	0	117	0	4	54	3	0	0	0	15,830
2010-11	90	0	0	65	2	0	31	0	0	0	0	13,749
2011-12	89	12	0	121	4	0	15	0	0	0	0	12,343
Average	47	2	1	107	102	3	68	2	0	1	0	15,306

*Totals represent checked and self-checked harvest.

[1]General Gun season was 9 days long in Turner River and Corn Dance Units and closed in Stairsteps and Loop Units.

[2]Archery season closed for 2 days due to hurricane.

[3]Closures affected all units during Muzzleloading Gun season, as well as Corn Dance, Stairsteps, and Loop Units during General Gun seasons.

[4]Closure due to hurricane Francis and Ivan affected all units during Archery season.

[5]Closure in Corn Dance and Loop Units, parts of Bear Island, and Zones 3 and 4 of Stairsteps due to high water and hurricane Wilma affected Muzzleloading Gun season.

Table 2. Small game harvest and hunting pressure by season for the Big Cypress Wildlife Management Area, 2007-08 to 2011-12.

Muzzleloader

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	0	0	0	0	0	0	0	1	0	0	3,197
2008-09	0	0	0	0	0	0	0	0	0	0	2,922
2009-10	0	0	0	0	0	0	0	0	0	0	3,099
2010-11	0	0	0	0	0	0	0	0	0	0	2,639
2011-12	0	0	0	0	0	0	0	0	0	0	2,640

General Gun

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	74	0	0	21	0	0	2	0	0	0	8,727
2008-09	12	0	1	50	0	0	0	0	0	0	10,658
2009-10	83	0	0	90	0	0	3	0	0	0	9,388
2010-11	80	0	0	27	2	0	0	0	0	0	8,271
2011-12	73	12	0	60	3	0	0	0	0	0	7,155

Small Game

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	3	0	0	41	3	0	47	1	0	0	232
2008-09	6	0	0	16	3	3	13	0	0	0	231
2009-10	2	0	0	27	0	4	51	3	0	0	225
2010-11	10	0	0	38	0	0	31	0	0	0	109
2011-12	11	0	0	61	0	0	15	0	0	0	192

Total (Includes Archery)

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	77	0	0	62	3	0	49	2	0	0	14,859
2008-09	18	0	1	66	3	3	13	0	0	0	16,357
2009-10	85	0	0	117	0	4	54	3	0	0	15,830
2010-11	90	0	0	65	2	0	31	0	0	0	13,749
2011-12	89	12	0	121	4	0	15	0	0	0	12,343
Average	72	2	0	86	2	1	32	1	0	0	14,628

Table 3. Small game season harvest and hunting pressure for the Big Cypress Wildlife Management Area, 2007-08 to 2011-12.

Season	Duck	Coot	Coyote	Snipe	Quail	Rabbit	Squirrel	Raccoon	Opossum	Armadillo	Man-Days of Hunting Pressure
2007-08	3	0	0	41	3	0	47	1	0	0	232
2008-09	6	0	0	16	3	3	13	0	0	0	231
2009-10	2	0	0	27	0	4	51	3	0	0	225
2010-11	10	0	0	38	0	0	31	0	0	0	109
2011-12	11	0	0	61	0	0	15	0	0	0	192
Average	6	0	0	37	1	1	31	1	0	0	198

Table 4. Harvest data for Spring Turkey season for the Big Cypress Wildlife Management Area, 2007-08 to 2011-12.

Season	Number of Adults Harvested[1]	Number of Juveniles Harvested[1]	Checked Harvest	Self-checked Harvest	Man-Days of Hunting Pressure	Hunter Success
2007-08	14	0	14	17	1,624	52.4
2008-09	13	0	14	41	1,827	33.2
2009-10	10	2	12	16	1,681	60.0
2010-11	4	1	5	21	2,004	77.1
2011-12	3	3	6	30	1,771	49.2
Average	9	1	10	25	1,781	54.4

[1]Checked harvest

Table 5. Harvest data for Spring Turkey season on the Bear Island Unit of the Big Cypress Wildlife Management Area, 1985-86 to 2011-12.

Season	Number of Adults Harvested[1]	Number of Juveniles Harvested[1]	Checked Harvest	Season Length	Man-Days of Hunting Pressure	Hunter Success
1985-86	13	4	17	37	750	44.1
1986-87	12	5	17	37	760	44.7
1987-88	11	3	14	37	680	48.6
1988-89	8	14	22	37	830	37.7
1989-90	13	14	27	37	921	34.1
1990-91	17	11	28	37	838	29.9
1991-92	13	9	22	37	756	34.4
1992-93	12	4	16	37	652	40.8
1993-94	3	10	13	37	653	50.2
1994-95	7	11	18	37	645	35.8
1995-96	22	14	36	37	756	21.0
1996-97	13	10	23	37	1403	61.0
1997-98	16	7	23	37	843	36.7
1998-99	12	3	15	37	835	55.7
1999-00	16	0	16	37	426	26.6
2000-01	14	3	17	37	380	22.4
2001-02	14	4	19	37	795	41.8
2002-03	2	2	4	37	572	143.0
2003-04	14	0	14	37	267	19.1
2004-05	11	0	11	37	199	18.1
2005-06	5	0	5	37	498	99.6
2006-07	25	10	35	37	357	10.2
2007-08	14	0	14	37	644	46.0
2008-09	13	0	14	37	521	37.2
2009-10	10	2	12	37	487	40.6
2010-11	4	1	5	37	384	76.8
2011-12	3	3	6	37	397	66.2
Average	12	5	17	37	639	45.3

[1]Checked harvest

Table 6. Spring Turkey harvest and biological data for the Bear Island Unit on the Big Cypress Wildlife Management Area, 1985-86 to 2011-12.

Season	Age	Number Harvested[1]	Average Live Weight (lbs)	Average Beard Length (cm)	Average Spur Length (cm)
1985-86	Adult	13	14.1	18.9	1.9
	Juvenile	4	9.8	7.3	0.2
1986-87	Adult	12	15.0	16.9	1.8
	Juvenile	5	10.8	7.5	0.8
1987-88	Adult	11	13.6	20.4	2.0
	Juvenile	3	9.0	5.5	0.5
1988-89	Adult	8	14.6	21.2	2.2
	Juvenile	14	10.9	6.2	0.9
1989-90	Adult	13	14.0	19.7	2.4
	Juvenile	14	10.1	9.9	1.3
1990-91	Adult	17	15.0	21.7	2.5
	Juvenile	11	10.7	8.4	0.8
1991-92	Adult	13	13.3	20.0	2.1
	Juvenile	9	10.0	7.7	0.7
1992-93	Adult	12	13.8	18.8	1.8
	Juvenile	4	9.3	6.9	0.5
1993-94	Adult	3	15.9	24.1	2.3
	Juvenile	10	10.8	8.7	0.6
1994-95	Adult	7	14.3	20.5	2.3
	Juvenile	11	9.5	9.4	0.7
1995-96	Adult	22	15.3	21.2	2.2
	Juvenile	14	11.6	7.0	0.5
1996-97	Adult	13	14.3	23.3	2.4
	Juvenile	10	11.0	8.3	0.9
1997-98	Adult	16	15.2	22.2	2.1
	Juvenile	7	10.1	3.6	0.7
1998-99	Adult	12	14.4	22.9	2.6
	Juvenile	3	12.5	9.8	0.7
1999-00	Adult	16	14.2	21.4	2.1
	Juvenile	0	-	-	-
2000-01	Adult	14	15.4	21.9	2.4
	Juvenile	3	8.6	13.4	1.0
2001-02	Adult	14	15.4	21.9	2.4
	Juvenile	3	10.8	8.6	0.7
2002-03	Adult	2	15.0	21.8	2.3
	Juvenile	2	9.5	9.8	-
2003-04	Adult	14	14.8	22.6	2.3
	Juvenile	0	-	-	-
2004-05	Adult	11	11.4	22.5	2.3
	Juvenile	0	9.3	6.2	0.5
2005-06	Adult	5	12.8	20.0	2.1
	Juvenile	0	-	-	-
2006-07	Adult	25	14.6	20.0	2.4
	Juvenile	10	10.6	3.5	0.8
2007-08	Adult	14	15.0	21.0	2.0
	Juvenile	0	-	-	-
2008-09	Adult	13	14.8	23.6	2.2
	Juvenile	0	-	-	-
2009-10	Adult	10	16.0	22.2	2.2
	Juvenile	2	8.8	7.8	0.3
2010-11	Adult	4	13.4	21.4	1.6
	Juvenile	1	10.5	8.0	0.5
2011-12	Adult	3	14.0	25.0	2.2
	Juvenile	3	10.3	8.0	1.5
Average	Adult	12	14.4	21.4	2.2
	Juvenile	5	10.2	7.8	0.7

[1]Checked harvest

APPENDIX A. Big Cypress Wildlife Management Area

2011-12 Regulations Summary and Area Map.

2011-2012 Hunting Season

Big Cypress

Wildlife Management Area

Regulations Summary and Area Map
July 1, 2011 - June 30, 2012

A cooperative public wildlife and recreational area

National Park Service

Florida Fish and Wildlife Conservation Commission

MyFWC.com

regulations pertaining to hunting and other recreational use on the Big Cypress Wildlife Management Area. **Regulations that are new or differ substantially from last year are shown in bold print.** Area users should familiarize themselves with all regulations. For exact wording of the wildlife laws and regulations, see the Florida Fish and Wildlife Conservation Commission's wildlife code, on file with the Secretary of State and state libraries. This brochure, the Florida Hunting Regulations handbook and quota permit worksheets should provide the information necessary for you to plan your hunting activities. These publications are available from any Commission office, county tax collector and at MyFWC.com.

Persons using wildlife management areas are required to have appropriate licenses, permits and stamps. The following persons are exempt from all license and permit requirements (except for quota permits when listed as "no exemptions," recreational use permits, antlerless deer permits and the Migratory Bird Hunting and Conservation Stamp [federal duck stamp]): Florida residents who are 65 years of age or older, residents who possess a Florida Resident Disabled Person Hunting and Fishing Certificate, residents in the U.S. Armed Forces, not stationed in Florida, while home on leave for 30 days or less, upon submission of orders, and children under 16 years of age. Children under 16 years of age are exempt from the federal duck stamp. Anyone born on or after June 1, 1975 and 16 years of age or older must have passed a Commission-approved hunter-safety course prior to being issued a hunting license, except the Hunter Safety Mentoring exemption allows anyone to purchase a hunting license and hunt under the supervision of a licensed hunter, 21 years of age or older, for one year.

Licenses and permits may be purchased from county tax collectors, license agents, at MyFWC.com/license or by telephone at 1-888-486-8356. A no-cost Migratory Bird Permit is available when purchasing a hunting license. Any waterfowl hunter 16 years of age or older must possess a federal duck stamp, available where hunting licenses are sold, at most post offices or at duckstamp.com.

QUOTA PERMIT INFORMATION:
Muzzleloading Gun (first 9 days) - 200 (Bear Island Unit), no-cost, quota permits.
General Gun (first 9 days) - 200 (Bear Island Unit), 500 (Turner River Unit), no-cost, quota permits.

Permit applications. Hunters must submit electronic applications for quota and special-opportunity permits through the Commission's Total Licensing System (TLS). Worksheets listing hunts, application periods, deadlines and instructions are available at county tax collector's offices, FWC offices or MyFWC.com. Quota application periods occur throughout the year beginning April 1; please refer to the hunting handbook or MyFWC.com for specific dates. Worksheets will be available about 2 weeks prior to each application period.

Guest hunters. For each non-transferable archery, muzzleloading gun, general gun, wild hog, spring turkey and mobility-impaired quota permit issued through the Commission's TLS, only one guest permit may be obtained. The following persons may be a guest hunter, but are not required to obtain a guest permit: a youth under 16 years of age, a youth supervisor, a mentor license holder or a mentor license supervisor. A quota permit holder (host) may only bring 1 guest hunter at a time. The following persons are not considered to be guest hunters: other quota permit holders, non-hunters and exempt hunters (on areas and during seasons that allow exemptions). The host must share the bag limit with the guest and the host is responsible for violations that exceed the bag limit. The guest and host must enter and exit the area together and must share a street-legal vehicle while hunting on the area. ATVs may be ridden independently, if allowed on the area. The guest may only hunt while the host is on the area. A person is only eligible for one guest permit per hunt. Guest permits may only be obtained from license agents or county tax collector's offices. Guest permits may be obtained up to and during the last day of the hunt. Refer to the quota hunt worksheets for additional information.

Youth and mentor license holders. A youth hunter (less than 16 years of age) must be supervised by a person at least 18 years of age. A mentor license holder must be supervised by a licensed hunter at least 21 years of age. Unless exempt, only those supervisors with proper licenses and permits may hunt. If the supervisor is hunting during any hunt (not including special-opportunity) for which quota permits are issued, at least one person in the party must be in possession of a quota permit. During a hunt that allows exemptions, a non-exempt supervisor of a youth must have a quota permit to hunt. A non-hunting supervisor is allowed to accompany a youth or mentor license holder during any hunt (including special-opportunity).

Transfer of permits. Quota and guest permits are not transferable. Except for youth under 16 years of age, a positive form of identification is required when using a non-transferable permit. The sale or purchase of any quota permit or guest permit is prohibited.

NATIONAL PARK SERVICE OFF-ROAD VEHICLE (ORV) PERMIT:
Vehicle operators must be state licensed (regular or learner's permit) and obtain an ORV operator's permit from the NPS for all vehicles, including airboats, used off-road on the Big Cypress Wildlife Management Area. All ORVs and their operators must be permitted and the vehicles inspected prior to operation in the preserve. The ORV permit is issued for the vehicle, but NPS maintains record of applicant and ownership information for each permitted ORV. Vehicle operators are responsible for knowing National Park Service regulations that apply to ORV use in the preserve. Please contact the Big Cypress National Preserve ORV Office, 33100 Tamiami Trail East, Ochopee, FL 34141, 239-695-1205, regarding vehicle use regulations or at nps.gov/bicy/planyourvisit/orv-use.htm. The National Park Service ORV permit is available at the Oasis Visitor Center.

GENERAL AREA REGULATIONS:
All general laws and regulations relating to wildlife and fish shall apply unless specifically exempted for this area. Hunting or the taking of wildlife or fish on this area shall be allowed only during the open seasons and in accordance with the following regulations:

1. Any person hunting deer or accompanying another person hunting deer shall wear at least 500 square inches of daylight fluorescent-orange material as an outer garment, above the waistline. These provisions are not required when hunting with a bow and arrow during archery season.
2. Taking of spotted fawn, swimming deer or roosted turkey is prohibited. Species legal to hunt are listed under each season.
3. It is illegal to hunt over bait or place any bait or other food for wildlife on this area.
4. Driving a metal object into any tree, or hunting from a tree into which a metal object has been driven, is prohibited.
5. No person shall cut, damage or remove any natural, man-made or cultural resource without written authorization of the landowner or primary land manager.
6. Taking or attempting to take any game with the aid of live decoys, recorded game calls or sounds, net gun, artificial light, net, trap, snare, drug or poison is prohibited. Recorded calls and sounds can be used to hunt furbearers, wild hog and crows.
7. The wanton and willful waste of wildlife is prohibited.
8. Hunting, fishing or trapping is prohibited on any portion of the area posted as closed to these activities.
9. People, dogs, vehicles and other recreational equipment are prohibited in areas posted as "Closed to Public Access" by FWC administrative action.
10. Taking or hunting wildlife from any motorized vehicle, aircraft or boat which is under power is prohibited, until power and movement from that power has ceased.

11. Most game may be hunted from ½ hour before sunrise until ½ hour after sunset (see exceptions under each season).
12. The release of any animal is prohibited, without written authorization of the landowner or primary land manager.
13. The head and evidence of sex may not be removed from the carcass of any deer or turkey on the area.
14. The planting or introduction of any non-native plant is prohibited, without written authorization of the landowner or primary land manager.
15. Wild hog may not be transported alive.
16. Littering is prohibited.
17. It is unlawful to set fire to any forest, grass or woodlands.
18. A Fish and Wildlife Conservation Commission Law Enforcement Officer may search any camp, vehicle or boat, in accordance with law.
19. Falconers may hunt during the statewide falconry season anytime a management area is open for public access. Falconers are not exempt from quota permits during hunts requiring them.
20. Construction of buildings or other structures is prohibited, unless permitted by the National Park Service.
21. Cutting or damaging fences used to contain animals (including cattle fences) is a felony of the third degree.
22. The collection of plants, rocks, minerals, animal life or other natural objects is allowed only in accordance with written permits obtained in advance from the National Park Service.

PUBLIC ACCESS AND VEHICLES:

1. Open to public access year round.
2. All vehicles and airboats used off-road on the Big Cypress Wildlife Management Area shall have a National Park Service ORV permit. See NATIONAL PARK SERVICE OFF-ROAD VEHICLE (ORV) PERMIT section, page 5.
3. To access the Bear Island Unit, all persons shall enter and exit the area at the Bear Island check station on the north end of Turner River Road or at the I-75 walk-in only access check station, located north of I-75 in the southeast portion of the Bear Island Unit.
4. Vehicle use on Eleven-mile Road or the Florida Trail is prohibited, however, vehicles may cross Eleven-mile Road at marked designated crossing points. Maps are available at the Visitor Center.
5. On Jetport Road, only vehicles with pneumatic tires may be operated and parked vehicles are prohibited.
6. Parked vehicles may not obstruct a road, gate or firelane.
7. No motor vehicle shall be operated on any part of any wildlife management area that has been designated as closed to vehicular traffic.
8. All airboats must be equipped with an orange flag at least 10 inches wide and 12 inches long and displayed at a minimum height of 10 feet above the bottom of the vessel.
9. Public access inside any fenced portion of the Jetport property is prohibited.

HUNTERS AND CHECK STATIONS:

1. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**
2. **In Zone 3 of the Stairsteps Unit harvested deer must have at least one antler having 2 or more points (each point 1-inch or more in length) and at least one antler 5 inches or more in length. Bag limit for deer in Zone 3 is 1 annually.**
3. All hunters shall check in at a designated check station when entering the area, retain in their possession a check station pass while hunting and check out at the same check station when exiting the area and shall check all game taken.
4. Hunters using the Bear Island Unit shall enter and exit only at the designated entrance at the north end of Turner River Road or designated entrances along I-75. The I-75 entrances are walk-in only and equipped with self-service check stations.
5. Deer, wild hog and turkey may be dressed or consumed in the field, but each portion shall be identified with the license number of the person who took the game and be readily traceable to the person of the animal bearing sex identification.
6. It is important that game stay intact as much as possible and be brought to the check station as soon as possible. Important biological data are obtained from the following animals and parts: deer (head, heart, kidney, and liver), hog (head) and turkey (wings and tail). If game is processed in the field, the above items should be brought to the check station along with the meat.
7. Deer jawbones shall be saved and brought to the check station.
8. Hunting equipment and dogs may be taken onto the WMA after 8 a.m. the day before the opening of a season and shall be removed by 6 p.m. one day after the end of the season, but see #6 under the DOGS section and #'s 4 and 16 under the NATIONAL PARK SERVICE RULES AND INFORMATION section.
9. Licensed hunters are allowed to take Reptiles of Concern incidental to lawful hunting activities during established hunting seasons.
10. Reptiles of Concern shall not be transported alive from the area. Please report all take of Reptiles of Concern at 866-392-4286 or at MyFWC.com.

GUNS:

1. All firearms shall be securely encased and in a vehicle, vessel, camper or tent, during periods when they are not a legal method of take. Persons in possession of a valid Concealed Weapon or Firearm License may carry concealed handguns.
2. Target practice is prohibited.
3. Hunting or the display or use of a gun in a manner capable of taking wildlife on or from the rights-of-way of Burns Road, County Roads 839, 841, 837, State Roads 84 (I-75) or 94, or U.S. 41 is prohibited.
4. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used. Muzzleloading guns may only be used in the Deep Lake Unit during the small game season.
5. Hunting with a gun and light is prohibited, except see #10 under the NATIONAL PARK SERVICE RULES AND INFORMATION section.
6. Muzzleloading guns used for taking deer must be .40 caliber or larger, if firing a single bullet, or be 20 gauge or larger if firing two or more balls.
7. Children under the age of 16 may not be in possession of a firearm unless in the presence of a supervising adult.
8. No person shall have a gun under control while under the influence of alcohol or drugs.
9. For hunting non-migratory game, only shotguns, rifles, pistols, bows, crossbows or falconry may be used. **Hunting during the spring turkey season with firearms other than shotguns or using a shot size larger than #2 is prohibited.**
10. For hunting migratory game, only shotguns, bows or falconry may be used. Shotguns shall not be larger than 10 gauge and shall be incapable of holding more than three shells in the magazine and chamber combined.
11. Firearms using rimfire or non-expanding, full metal jacket (military ball) ammunition are prohibited for taking deer.
12. Fully automatic or silencer-equipped firearms, centerfire semi-automatic rifles having a magazine capable of holding more than five rounds, explosives or drug-injecting devices and set guns are prohibited.

DOGS:

1. Hunting deer or wild hog with dogs is prohibited.
2. The possession of dogs is prohibited, except bird dogs or retrievers are allowed for hunting purposes only.
3. Dogs are prohibited in the Loop Unit.
4. No person shall allow any dog to pursue or molest any wildlife during any pursuit in which the taking of wildlife by the use of dogs is prohibited.
5. Leashed dogs may not be used for trailing wounded game.

CAMPING:

1. Camping is allowed in accordance with the regulations of the National Park Service. See the NATIONAL PARK SERVICE RULES AND INFORMATION section for additional camping rules.
2. Primitive camping is not limited to designated campsites except in Bear Island Unit and in Zone 4 when the campsite is accessed by airboat.
3. Camping on Bear Island Unit is allowed at designated campsites only; only tents, trailers and self-propelled camping vehicles may be used in the Bear Island Campground. Only tents may be used in the Gator Pit and Pink Jeep Trail designated campsites.
4. Draining or dumping refuse or waste from any trailer or other vehicle is prohibited.
5. Fires are allowed only on designated camping areas or in backcountry campsites and must be completely extinguished prior to the user leaving the campsite.

BAG AND POSSESSION LIMITS: During quota hunts, host hunter and guest must share all bag and possession limits.

1. **Deer - Daily limit 1, annual limit 2 (all seasons combined), except in Zone 3 of the Stairsteps Unit where the bag limit for deer is 1 annually. Hunting deer in Zone 4 is prohibited.**
2. Wild hog - Daily limit 1, annual limit 2 (all seasons combined).
3. Turkey - Daily limit 1, season limit 2, possession limit 2.
4. Gray squirrel, quail and rabbit - Daily limit 12, possession limit 24 for each.
5. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria - No bag limits.
6. Bobcat and otter - Prohibited.
7. Migratory birds - See Migratory Bird Hunting Regulations pamphlet.

ARCHERY SEASON:

September 8 through October 2 (all Units).
November 12 through January 8 (Deep Lake Unit only).

Permits, Stamps and License Requirements - Check station pass, hunting license, management area permit, archery permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds) and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length).** wild hog with shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to Archery Season - In addition to these regulations, all General Area Regulations shall apply.

1. Hunting with firearms or crossbows (except by disabled crossbow) is prohibited, except that centerfire shotguns are allowed for taking migratory birds when one or more species are legal to hunt in all units except Deep Lake Unit (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).
2. Duck hunting is prohibited on the Bear Island and Deep Lake Units during the special September season.
3. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

MUZZLELOADING GUN SEASON:
October **8-23** (except Deep Lake Unit)
Permit, Stamp and License Requirements - Quota permit (if hunting Bear Island Unit Oct. **8-16**), check station pass, hunting license, management area permit, muzzleloading gun permit, deer permit (if hunting deer), and migratory bird permit (if hunting migratory birds).
Legal to Hunt – **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length)**, wild hog with shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Muzzleloading Gun Season - In addition to these regulations, all General Area Regulations shall apply.
1. Hunting with archery equipment or firearms, other than muzzleloading guns, is prohibited, except that centerfire shotguns are allowed for taking migratory birds when one or more species are legal to hunt in *all units except* Deep Lake Unit (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).
2. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

GENERAL GUN SEASON:
November **12** through January **1** (except Deep Lake Unit)
Permit, Stamp and License Requirements - Quota permit (if hunting Nov. **12-20** in the Bear Island or Turner River Units), check station pass, hunting license, management area permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds) and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt – **Deer with at least one antler 5 inches or more in length, except in Zone 3 of the Stairsteps Unit deer must also have at least one antler having 2 or more points (each point 1-inch or more in length)**, wild hog with a shoulder height of 15 inches or more, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
1. Regulations Unique to General Gun Season - In addition to these regulations, all General Area Regulations shall apply. **Hunting deer in Zone 4 of the Stairsteps Unit is prohibited.**

SMALL GAME SEASON:
January **2** through February **8**.
Permit, Stamp and License Requirements - Check station pass, hunting license, management area permit, migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt – Gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Small Game Season - In addition to these regulations, all General Area Regulations shall apply.
1. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used.
2. Hunting with centerfire rifles is prohibited.

TRAPPING: Prohibited.

SPRING TURKEY SEASON:
March **3** through April **8**.
Permit, Stamp and License Requirements - Check station pass, hunting license, management area permit and wild turkey permit.
Legal to Hunt - Bearded turkey or gobbler.
Regulations Unique to Spring Turkey Season - In addition to these regulations, all General Area Regulations shall apply.
1. In the Deep Lake Unit, only muzzleloading guns, bows or raptors may be used.
2. Legal shooting hours are ½ hour before sunrise until 1 p.m.
3. Hunting other animals is prohibited.
4. **Hunting with firearms other than shotguns or using a shot size larger than #2 is prohibited.**

MIGRATORY BIRD SEASONS:
Duck may be hunted during the special September season in all units except Bear Island and Deep Lake units. Rail, common moorhen, mourning dove, white-winged dove, snipe, duck, geese, coot, woodcock and crow may be hunted during seasons established by the Commission for these species that coincide with the archery, muzzleloading gun, general gun or small game seasons.
Permit, Stamp and License Requirements – Quota permit (if hunting during any quota period), check station pass, hunting license, management area permit, migratory bird permit, and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - See Migratory Bird Hunting Regulations pamphlet.
Regulations Unique to Migratory Bird Seasons - In addition to these regulations, all General Area Regulations and Migratory Bird Regulations shall apply.
1. Hunting with bird dogs or waterfowl retrievers is allowed except in the Loop Unit.
2. Hunting duck, geese and coot with lead shot is prohibited.
3. Centerfire shotguns are allowed for hunting during established area seasons when one or more migratory birds are legal to hunt, except in the Deep Lake Unit.

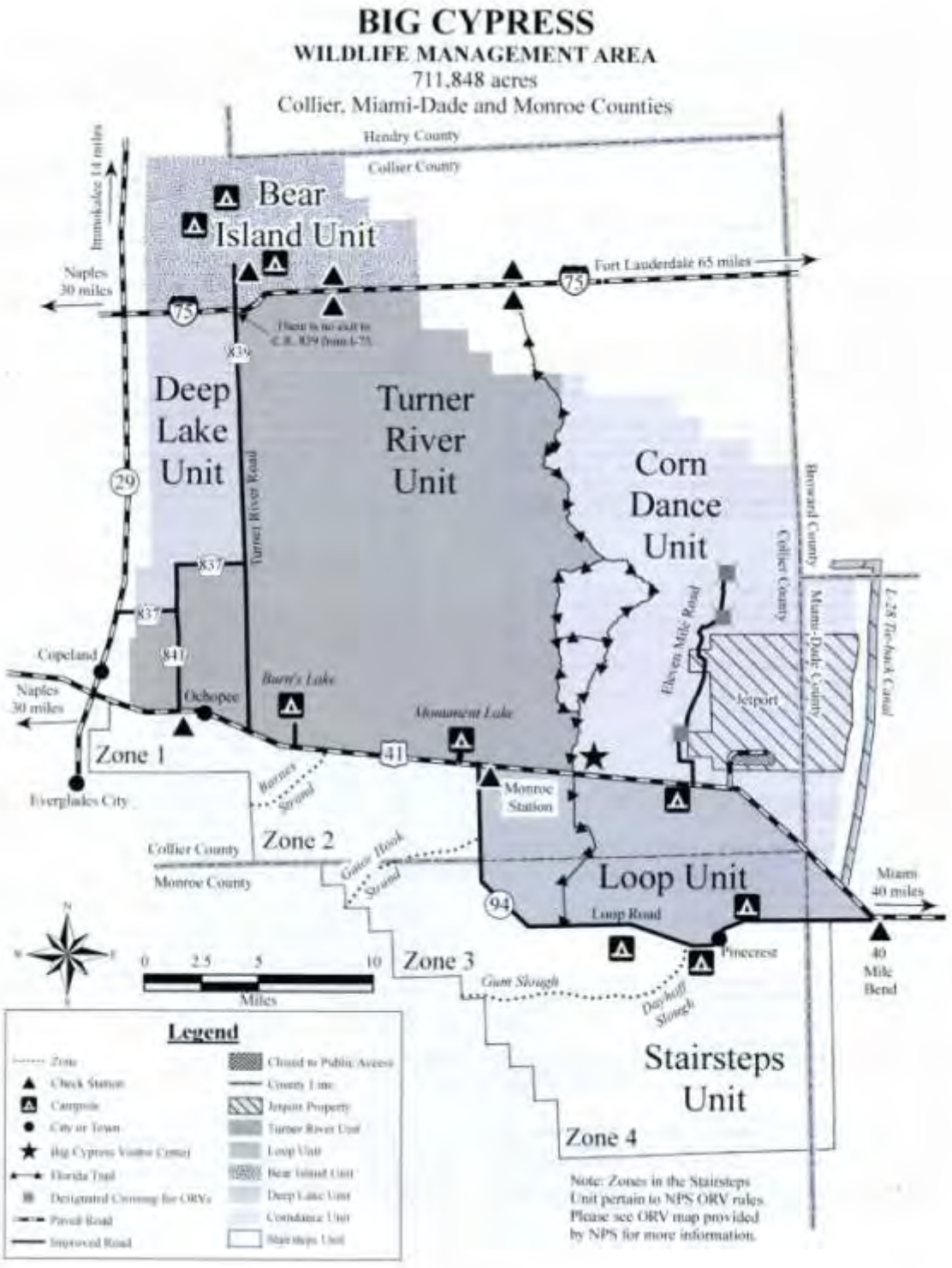
FISHING AND FROGGING:
Allowed year round.
Permit, Stamp and License Requirements– Fishing license (not required when frogging).
Legal to Take - See Florida Freshwater Fishing Regulations Summary.
Regulations Unique to Fishing and Frogging – All General Area Regulations and General Freshwater Fishing Regulations shall apply. Frogs may be taken by gig only. See #s 13, 14 and 15 in the NATIONAL PARK SERVICE RULES AND INFORMATION section.

GENERAL INFORMATION:
1. Information for persons with disabilities can be found at MyFWC.com/ADA.
2. If you have any questions about this material, please call the Fish and Wildlife Conservation Commission South Region Office at 561-625-5122 (**TDD** 800-955-8771).
3. Small tracts of private property are located within the boundary of the wildlife management area. These lands may be posted against trespass and should not be considered to be part of the wildlife management area.

NATIONAL PARK SERVICE RULES AND INFORMATION:
This area is a national preserve and Big Cypress National Preserve regulations shall apply. For further information, contact the Big Cypress National Preserve, 33100 Tamiami Trail East, Ochopee, Florida 34141, 239-695-1205 or nps.gov/bicy.
1. *Time limits apply to camping.* Please contact Big Cypress NP for current camping regulations and limitations on the maximum number of days an individual may camp.
2. Backcountry camping in the Bear Island Unit is allowed only in designated campsites: Gator Pit and Pink Jeep Trail sites.
3. Backcountry camping in Zone 4 is allowed as follows: Airboat users must camp in designated campsites only. Those gaining access by foot or non-motorized vessels may camp anywhere so long as the campsite is at least ½ mile from Loop Road and ½ mile from any designated campsite or airboat trail.
4. Except for Zone 4, during archery, muzzleloading gun, general gun and spring turkey hunting seasons, an individual may camp or leave camping gear unattended for the length of the season in backcountry areas and the designated campsites in Bear Island, Gator Pit and Pink Jeep Trail, provided such equipment / camps are marked with the owner's name, address and telephone number. Sites / equipment may be occupied after 8 a.m. one day before the opening of the season and must be removed by 6 p.m. one day after the close of that season.
5. Dead wood lying on the ground may be collected to fuel for campfires within the preserve. This wood cannot be removed from the Preserve.
6. Preserve campsites must be located at least ½ mile from and out of sight of designated state or county roads.
7. All backcountry users are required to have a backcountry use permit (free).
8. Consumption of alcohol or possession of an open container of alcohol in or on a motor vehicle, including off-road vehicles and airboats, is prohibited.
9. All private property owners in the preserve are required to obtain a burn permit in advance from the Florida Division of Forestry by calling 239-690-3502 between 9 a.m. and 4:30 p.m. Call Big Cypress Dispatch at 800-788-0511 on the day of the burn to avoid false reports of fire caused by others reporting your smoke.
10. The preserve is closed to the viewing of wildlife with an artificial light, except that artificial lights may be used during frogging activities.
11. It is prohibited to destroy, injure, deface, remove, dig or disturb from their natural state living or dead wildlife, fish, plants, non-fossilized and fossilized paleontological specimens, cultural or archaeological resources or the parts of each thereof.
12. The taking, feeding or intentional disturbance of wildlife (including snakes and other reptiles) is prohibited except as authorized by specific hunting regulations.
13. Frogging regulations: 1) Commercial frogging is prohibited; 2) frogs may be taken by gig only; 3) the daily bag limit is one five-gallon bucket per vessel or individual; and 4) the possession limit is 10 lbs of dressed frog legs. Recreational frogging for personal use is allowed.
14. Fishing in freshwaters must be by hook and line.
15. Fishing is prohibited in the canal on the north side of U.S. Highway 41 in front of the Oasis Visitor Center for a distance of 200 yards east and west from a midpoint located directly opposite of the front door of the building and the Turner River Canal from the bridge on U.S. Highway 41 to 1/10 of a mile North.
16. During archery, muzzleloading, general gun and spring turkey seasons an individual may leave tree stands or similar devices unattended for the length of the specific season provided such equipment is marked with the owner's name, address and telephone number. Individuals may bring this equipment into the preserve after 8 a.m. one day before the opening of the specific season and must be removed by 6 p.m. one day after the close of that season.
17. Off-road vehicle use is prohibited between 10 p.m. and 5 a.m.
18. Target practice or random discharge of firearms is prohibited.

COOPERATION REQUESTED:
If you see law violators or suspicious activities, contact your nearest Commission regional office or call 1-888-404-FWCC. You may qualify for a cash reward from the Wildlife Alert Reward Association.

The U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex or handicap. If you believe that you have been discriminated against in any program, activity or facility as described above, or if you desire further information, please write to: The Office for Human Resources, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. The project described in this publication is part of a program funded by federal dollars under the Wildlife Restoration Act. Federal funds pay 20 percent of the cost of the program.


BIG CYPRESS
WILDLIFE MANAGEMENT AREA
711,848 acres
Collier, Miami-Dade and Monroe Counties
Hendry County
Collier County
Bear Island Unit
Immokalee 14 miles
Naples 30 miles
Fort Lauderdale 65 miles
75
There is no exit to C.R. 839 from I-75
839
Deep Lake Unit
Turner River Unit
Corn Dance Unit
Turner River Road
29
837
837
841
Copeland
Naples 30 miles
Ochopee
Burn's Lake
Monument Lake
Eleven Mile Road
Airport
Broward County
Collier County
Miami-Dade County
L-28 Tie-back Canal
Zone 1
41
Everglades City
Barnes Strand
Monroe Station
Collier County
Monroe County
Zone 2
Grace Hook Strand
Loop Unit
Loop Road
94
Miami 40 miles
Pinecrest
40 Mile Bend
Zone 3
Gum Slough
Daphall Slough
Stairsteps Unit
Zone 4
0 2.5 5 10
Miles
Legend
Zone
Check Station
Campsite
City or Town
Big Cypress Visitor Center
Florida Trail
Designated Crossing for ORVs
Paved Road
Improved Road
Closed to Public Access
County Line
Airport Property
Turner River Unit
Loop Unit
Bear Island Unit
Deep Lake Unit
Corn Dance Unit
Stairsteps Unit
Note: Zones in the Stairsteps Unit pertain to NPS ORV rules. Please see ORV map provided by NPS for more information.

APPENDIX B. Executive Order (EO 11-15): Special Regulations for the Stairsteps Unit of Big Cypress Wildlife Management Area.

Order Number: EO 11-15

Special regulations for the Stairsteps Unit of Big Cypress WMA

The Fish and Wildlife Conservation Commission of the State of Florida, acting under the authority of Article IV, Section 9 of the Florida Constitution and as approved at the public meeting held on Wednesday June 8, 2011, hereby establishes special hunting regulations for the Stairsteps Unit of Big Cypress Wildlife Management Area for the 2011-2012 hunting season as follows:

(1) The taking of white-tailed deer as referenced in sections 68A-15.064 (5); F.A.C. is prohibited within Zone 4 of the Stairsteps Unit.

(2) The bag limit for deer shall be 1 annually within Zone 3 of the Stairsteps Unit.

(3) In Zone 3 of the Stairsteps Unit, the taking of deer not having at least one forked antler and having one or more antlers at least 5 inches in length visible above the hairline is prohibited. The forked antler shall have at least two points one inch or greater in length.

(2) Any provisions of Rules 68A-15.064 (5), F.A.C., which are inconsistent herewith, are hereby superseded.

This order shall take effect upon signing and shall remain in effect until 11:59 p.m. on 30 June 2012 or until superseded by subsequent order or rule.

Specific Authority: Article IV, Section 9, Florida Constitution

Law Implemented: Article IV, Section 9, Florida Constitution

GIVEN UNDER MY HAND AND SEAL OF THE FISH AND WILDLIFE CONSERVATION COMMISSION OF THE STATE OF FLORIDA, THIS 8th DAY OF JUNE, 2011.

Nick Wiley
Executive Director

Attest: _____
Agency Clerk

FISH AND WILDLIFE CONSERVATION COMMISSION STATE OF FLORIDA

APPENDIX C. Big Cypress Wildlife Management Area man-days pressure worksheet.

Big Cypress WMA Weekly Pressure and Harvest Summary

Check Station_____week covered_____

Number of Hunters checked in for each unit

	Bear Island	Corn Dance	Turner River	Loop Road	Deep Lake	Stairsteps
Mon						
Tue						
Wed						
Thu						
Fri						
Sat						
Sun						
Tot						

Put a mark in the box for each day the hunter is checked in, including the day of arrival, the day of departure, and all days in between. If the hunter marks down more than one unit, split the days equally between units and mark the number of days attributed to each unit on the check-in/out forms. Total the week's pressure for each unit and enter it in the bottom row.

APPENDIX D. Big Cypress Wildlife Management Area weekly harvest summary worksheet.

BIG CYPRESS WMA WEEKLY HARVEST REPORT

UNIT	ARCHERY	MUZZLELOADER	GENERAL GUN	SMALL GAME	SPRING GOBLER	HUNT DATE REPORTED	HARVEST	DEER		HOG		TURKEY		*DUCK	DOVE	SNIPE	QUAIL	RABBIT	SQUIRREL	RACCOON	WOODCOCK	REMARKS
								M	F	M	F	M	F									
BEAR ISLAND							CHECKED															
							EST															
							TOTAL															
DEEP LAKE							CHECKED															
							EST															
							TOTAL															
CORN DANCE							CHECKED															
							EST															
							TOTAL															
TURNER RIVER							CHECKED															
							EST															
							TOTAL															
LOOP ROAD							CHECKED															
							EST															
							TOTAL															
STAIRSTEPS							CHECKED															
							EST															
							TOTAL															
TOTAL BIG CYPRESS							CHECKED															
							EST															
							TOTAL															

*Please indicate the species and sex of waterfowl in remarks column.

APPENDIX E. Big Cypress Wildlife Management Area turkey biological data worksheet.

TURKEY BIOLOGICAL DATA

YEAR _____

WMA: NAME _____
CODE _____

CHECK STATION NO. _____

MGT. AREA ZONE (Unit)	I.D. NO.[1]	DATE	SEX M or F	AGE[2]	WEIGHT[3] LIVE / DRESSED	BEARD[3] LENGTH	SPUR[3] LENGTH R	SPUR[3] LENGTH L	DISEASE[4] EVIDENCE	CHECK-IN NO.	COMMENTS HUNTER'S NAME ADDRESS LICENCE #	COMMENTS CH. STA. OPERATOR

1.- Number entries for each bird sequentially beginning with 1.
2.- Age as shown on reverse side; A=Adult, S=Subadult.
3.- Weight and length measurements should be recorded in metric units.
4.- Check for evidence of sores and lesions on head and feet; note birds with extreme weight loss.

REVISED 5 March 90: DTC, NFE

Appendix I

Endangered Species Act
Section 7 Consultation Memorandums
between the National Park Service
and the U.S. Fish and Wildlife Service
(March 7, 2012, February 10, 2014,
and April 23, 2014)

United States Department of the Interior

NATIONAL PARK SERVICE
Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

IN REPLY REFER TO:
L7617 (BICY-S)

March 7, 2012

Memorandum

To: U.S. Fish and Wildlife Service, South Florida Ecological Services Office
Attention: Mr. Larry Williams, Field Supervisor

From: Superintendent, Big Cypress National Preserve

Subject: Hunting Management Plan EA, Request for Informal Consultation

The National Park Service (NPS), in cooperation with the Florida Fish and Wildlife Conservation Commission (FWC) and the U.S. Fish and Wildlife Service (FWS), has drafted a Hunting Management Plan/Environmental Assessment (EA) for Big Cypress National Preserve in accordance with NPS policies. The purpose of the plan is to allow the Preserve superintendent to provide for hunting opportunities in a manner that is in the best interest of the Preserve's resources and the public, while meeting the requirements set forth by the NPS, the Preserve's enabling legislation, the NPS/FWC Cooperative Partnership Agreement, and all federal, state, and local laws and regulations.

Hunting in the Preserve is authorized by Public Law (P.L.) 93-440, which established the Preserve in 1974. The original 1974 Preserve is a State Wildlife Management Area, and hunting is managed through regulations published each year by FWC. P.L. 93-440 was amended in 1988 by P.L. 100-301, which expanded the Preserve by 147,000 acres. These new lands, known as the Addition, were largely acquired by the federal government by 1996 and have not been open to hunting pending completion of an Addition General Management Plan. That plan was completed in 2010 and states that the NPS will develop a Hunting Management Plan and work with FWC to provide hunting access, define hunting seasons, and develop hunting regulations that are consistent with both agencies' policies and goals for the Addition.

Alternatives included in this plan are as follows:

Alternative 1 – No Action – Apply Current Management to the Addition
Under alternative 1 (no action), management of hunting in the entire Preserve would occur in accordance with the NPS/FWC Cooperative Partnership Agreement.

Alternative 2 – Minimum Management – No Hunting in the Addition
Under alternative 2, current hunting management would continue within the original Preserve boundaries, using the guidance outlined in the NPS/FWC Cooperative Partnership Agreement. In the Addition, public hunting would be prohibited.

Alternative 3 (Preferred Alternative) – New Adaptive Management Strategy
Under alternative 3, the NPS and FWC, in consultation with FWS, would cooperate to implement an adaptive management strategy to manage hunting in the Preserve in accordance with the NPS/FWC Cooperative Partnership Agreement.

To review the draft plan, visit http://parkplanning.nps.gov/bicy and follow the appropriate link to *Hunting Management Plan/EA.*

On page 125 the EA concludes that no impacts would occur to the West Indian manatee, and long-term, negligible, adverse impacts to the Cape Sable seaside sparrow, Everglade snail kite, red-cockaded woodpecker, wood stork, American crocodile, eastern indigo snake, and American alligator would result from implementation of the preferred alternative. As explained on page 107, this impact intensity would equate to a determination of "no effect" under Section 7 of the Endangered Species Act of 1973, as amended. Impacts of the preferred alternative on the Florida panther would be long-term, negligible to minor, and adverse, equating to a "not likely to adversely affect" determination.

This constitutes the NPS' request for informal consultation in accordance with Section 7 of the Endangered Species Act. We request your concurrence with the above determinations and any other comments you may have. Please provide your comments by April 6, 2012. Should you have any questions, please contact me.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

February 10, 2014

Memorandum

To: Pedro Ramos, Superintendent, Big Cypress National Preserve

From: for Larry Williams, Field Supervisor, South Florida Ecological Services Office

Subject: Big Cypress National Preserve Final Draft Hunting Management Plan/Environmental Assessment Comments and Consultation, Service Consultation Code: 2012-I-0159

This memorandum responds to the National Park Service's (NPS) Big Cypress National Preserve Final Draft Hunting Management Plan/Environmental Assessment (Hunting Management Plan) dated November 2012 and the NPS' March 7, 2012, request for informal consultation regarding the Hunting Management Plan. The Hunting Management Plan presents three alternatives for implementing hunting in both the original Big Cypress National Preserve (BICY) and the Addition Lands (Addition). This memorandum provides the U.S. Fish and Wildlife Service's (Service) comments, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*)(NEPA), on the Hunting Management Plan and provides our informal section 7 consultation, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), with the NPS on the preferred alternative for the Hunting Management Plan.

PROJECT DESCRIPTION AND BACKGROUND

The General Management Plan and Final Environmental Impact Statement (GMP) (NPS 1991) for the original BICY directed the development of a hunting management plan. The Big Cypress National Preserve – Addition Draft GMP/Wilderness Study/Off-Road Vehicle Management Plan/ Environmental Impact Statement (EIS) (NPS 2010) also stated a hunting management plan would be developed. The Hunting Management Plan represents the NPS' effort to comply with those directives.

The purpose of the Hunting Management Plan is to direct decision making efforts regarding hunting activities, seasons, bag limits, etc., for both the original BICY and the Addition. The Hunting Management Plan presents three alternatives for consideration and review. The alternatives, as described in the Hunting Management Plan, include:

- **Alternative 1 – No-Action – Apply Current Management to the Addition.** The NPS would continue to allow hunting in the original BICY and apply that same management program to the Addition. Existing regulations using the current communications,

coordination, and regulation modification process between NPS and FWC would be implemented throughout the Preserve. Changes in hunting management in BICY would be subject to NEPA whenever changes are proposed. There would be no obligation to use the best science available in making those decisions, and the timeframes necessary to complete NEPA would not necessarily be compatible with the Florida Fish and Wildlife Conservation Commission (FWC's) process for approval of seasons, permits, and bag limits.

- **Alternative 2 – No Hunting in the Addition.** This alternative would allow hunting to continue in the original BICY with no public hunting in the Addition. Under this alternative, harvest data on deer and hog populations in the Addition would not be collected. In addition, decisions on hunting seasons, permits, and bag limits would be made in a manner similar to the current process, using the existing regulations and employing the current communications, coordination, and regulation modification process between NPS and FWC. There would be no adaptive management feedback loop to dictate changes in hunting and wildlife management in BICY. This Alternative represents the baseline condition for the purpose of section 7 consultation under the Act.

- **Alternative 3 – New Adaptive Management Strategy.** This alternative would incorporate the best, and most current, science into decision-making regarding hunting in BICY. It includes a requirement for an annual feedback loop to assess the data obtained from prior seasons and make changes to seasons, bag limits, etc. based on those data. The framework would be implemented in a cooperative manner with the NPS, FWC, and the Service working together to incorporate the variables necessary to ensure that hunting activities undertaken in BICY are compatible with the endangered Florida panther (*Puma = [Felis] concolor coryi*). Under this alternative, an adaptive management strategy would be utilized. Wildlife Management Area regulations would be reviewed at least annually through the decision-making framework established in the NPS/FWC Cooperative Partnership Agreement that would provide a: 1) process by which the elements of the hunting regulations could be modified, and 2) communications protocol to change regulations.

The NPS has selected Alternative 3 as the Environmentally Preferred Alternative (PA). Additional details on each alternative are included in the Hunting Management Plan (NPS 2013).

The Adaptive Management objectives for the PA were developed based on policies outlined in Section 4.4.3 of the NPS *Management Policies* (2006), which states:

"Where harvesting is allowed and subject to NPS control, the [NPS] will allow harvesting only when (1) the monitoring requirement contained in section 4.4.2 and the criteria in section 4.4.2.1 ... have been met, and (2) the [NPS] has determined that the harvesting will not unacceptably impact park resources or natural processes, including the natural distributions, densities, age-class distributions, and behavior of

- *harvested species*
- *native species that the harvested species use for any purpose, or*
- *native species that use the harvested species for any purpose"*

The adaptive management objectives for this Hunting Management Plan are:

The [NPS] will successfully maintain native plants and animals by:

- *Preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;*
- *Restoring native plant and animal populations in parks when they have been extirpated by past human-caused actions; and*
- *Minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them.*

Based on these policies, under alternative 3, the NPS would conduct ecosystem management actions in the preserve to achieve the following objectives through the adaptive management process:

- A sustainable deer population in the Preserve, which ensures the effects of hunting in the Preserve are beneficial, discountable, or insignificant to the Florida panther population[1]
- A feral hog population in the Preserve that balances the feral hog as an invasive species and ensures that the effects of hunting in the Preserve are beneficial, discountable, or insignificant to the Florida panther.
- A sustainable population for all other game species in the Preserve including wild turkey and small game species

The life of the PA is 15 to 20 years.

BACKGROUND

At NPS' request, the Service played a significant role in the development of this Hunting Management Plan. Service staff attended workshops and meetings designed to assist in NPS' choice of alternatives, including the selected PA. NPS employed the "choosing by advantage" process to identify variables and metrics that were essential in developing alternatives that met the criteria for a hunting management plan and to involve stakeholder agencies, including the FWC and the Service. Meetings were attended by NPS, FWC, and Service representatives in an effort to ensure the position of all stakeholders was adequately considered in the development of the alternatives. NPS also held many public meetings to gather comments and suggestions from the general public and other stakeholders. Service staff attended some of these public meetings.

The Service provided specific comments on the draft Hunting Management Plan throughout its development. We, therefore, include few specific comments in this memorandum.

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1 Deer are the Florida panthers' most consistent prey item (Land 1994, USFWS 2008). Janis and Clark (2002) determined a predation success rate of one kill per 5.24 days for female panthers and one kill per 7.7 days for male panthers, with an average of one kill per animal per 6.45 days for the general panther population. Other literature (Anderson and Lindzey 2003, Cooley et al. 2008, Murphy et al. 2011) shows similar predation success rates of one deer-sized prey per panther approximately every 6.7 to 7.6 days or on average one deer-sized prey per week (Ruth and Murphy 2010).

COMMENTS

The Service is pleased to see a holistic approach to hunting management in BICY. The Service is also pleased by the spirit of cooperation displayed in the development of the PA for the Hunting Management Plan. The PA attempts to include all stakeholder groups and experts in the adaptive management process which will be overseen by the NPS and FWC, in consultation with the Service. Finally, we believe the NPS used the best available science, and the FWC provided much-needed support through the use of its deer population experts. As a result, we believe the PA has taken a "hard look" at the potential impacts of implementation of the PA.

THREATENED AND ENDANGERED SPECIES

The BICY consists of approximately 729,000 acres, including the original BICY and Addition, and is located in Collier and Monroe counties, Florida. Nine federally threatened or endangered species are present within, or use BICY. Species present include the Florida panther, endangered West Indian manatee (*Trichecus manatus*), endangered wood stork (*Mycteria americana*), endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*), endangered red-cockaded woodpecker (*Picoides borealis*), endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*), threatened American crocodile (*Crocodylus acutus*), and threatened eastern indigo snake (*Drymarchon corais couperi*). Critical habitat for the West Indian manatee is present within BICY boundaries and the Florida bonneted bat (*Eumops floridanus*), which was recently listed as endangered and is present within the BICY boundaries (FR Vol 77, No. 193, October 4, 2012).

In a March 7, 2012, memorandum from NPS to the Service, the NPS stated the Hunting Management Plan would serve as their biological assessment for the PA, and determined the selection of the PA would have no effect on the West Indian manatee, Cape Sable seaside sparrow, Everglade snail kite, red-cockaded woodpecker, wood stork, American crocodile, and eastern indigo snake. The NPS also determined the selection of the PA was not likely to adversely affect the Florida panther. Subsequent to the final rule listing the Florida bonneted bat as endangered, the NPS contacted the Service on January 15, 2014, and provided a determination that implementation of the Hunting Management Plan was not likely to adversely affect the Florida bonneted bat.

ANALYSIS

The Service consulted on the EIS for the Addition GMP (NPS 2010). In that consultation, we analyzed ORV and other recreational uses in the Addition. The Service also consulted on the Final Recreational Off-road Vehicle Management Plan and Supplemental Environmental Impact Statement (ORV Plan) (NPS 2001) which addressed recreational uses of ORVs in the original BICY. The Hunting Management Plan proposes three alternatives for regulating hunting activities in BICY. The PA includes a provision for introducing public hunting in the Addition. Since ORV activities were addressed in prior consultations, the discussion and analysis of the PA will only address the potential effects of hunting activities, not the use of ORVs.

Each of the above-referenced documents provides conservation measures if manatees, wood storks, Everglade snail kites, Cape Sable seaside sparrows, red-cockaded woodpeckers, crocodiles, or eastern indigo snakes are located in proximity to trails or in areas to be burned or receive other management actions. Taken together, the conservation measures in the Hunting Management Plan, the Addition GMP, and the ORV Plan are sufficient to conserve those species and to ensure that activities undertaken pursuant to the Hunting Management Plan are not likely to adversely affect the manatee, wood stork, Everglade snail kite, Cape Sable seaside sparrow, red-cockaded woodpecker, American crocodile, or eastern indigo snake. With respect to the eastern indigo snake, public use of ORV trails and human occupation in the backcountry could alter eastern indigo snake behavior, but not to an extent that those effects would be measurable or result in death or injury of an individual. Effects that are not measurable are considered insignificant and discountable in the context of the Act. The development of an educational plan under the GMP/EIS is consistent with the standardized protection measures developed by the FWS' South Florida Field Office to minimize potential adverse effects to the eastern indigo snake resulting from land development projects as explained in the 1999 Multi-Species Recovery Plan (Service 1999). The most recent iteration of the Service's standardized protection measures for the eastern indigo snake is published on Service's website (http://www.fws.gov/verobeach/ReptilesPDFs/EasternIndigoSnakeConservationGuidelines.pdf) These measures include the creation and distribution of educational materials regarding eastern indigo snake identification, biology and habitat requirements. Based on this information, the NPS has determined the implementation of the PA is not likely to adversely affect the above-listed species. The Service concurs and will not consider these species further in this document.

The Service listed the Florida bonneted bat (*Eumops floridanus*) as an endangered species during the final stages of development of this Hunting Management Plan. The Service is developing guidelines for consultations regarding this species. The Florida bonneted bat does occur on BICY, however, current locations for the bonneted bat are unknown. Historic records indicate bonneted bats were at least foraging near the Deep Lake Unit of BICY. Due to the limited range of acoustic sampling methods, this information does not mean the bonneted bat is not present in other areas of BICY.

After reviewing location information and potential activities that may take place during implementation of the Hunting Management Plan, the NPS believes "the Florida bonneted bat could be impacted by flushing and short-term displacement; however, their daytime roosting locations in tree cavities and nocturnal feeding behavior would limit their exposure to hunters. Additionally, since no construction or other permanent ground disturbing activities are associated with this project, impacts to the Florida bonneted bat would be negligible." The NPS has stated, in a teleconference on January 22, 2014, they plan on implementing protection measures for either manmade or natural roost sites that they currently implement for RCWs (*e.g.*, buffer zones around known roost sites). Hunters are required to vacate BICY between 10 pm and 5 am, the times where bonneted bats would be most active. Hunters camping overnight in BICY will not be hunting between 10 pm and 5 am, thereby minimizing the potential for bat/hunter interactions. Those types of activities would also have to comply with guidance provided in the GMP. In

addition, the NPS plans on incorporating educational materials and efforts to further minimize the potential for hunters to interact with bonneted bats. Based on these conservation measures and other information presented, the NPS has determined the implementation of the Hunting Management Plan is not likely to affect the Florida bonneted bat. The Service concurs.

The remainder of this analysis is focused on the Florida panther, as that is the species most likely to be affected by the introduction of public hunting in the Addition. Public hunting is part of the baseline condition for the original BICY boundaries, so this analysis will focus on the Addition.

For the purposes of this consultation, the Service used the status of the Florida panther as described in the 2008 Recovery Plan (Service 2008) and updated in the August 13, 2012, Biological Opinion for the Off Road Vehicle (ORV) Trail Heads and U.S. Highway 41 Turn Lanes Project, Service Consultation Code 2012-I-0139. The Service's goal for Florida panther conservation in south Florida is to locate, preserve, and restore lands containing sufficient area and appropriate land cover types to ensure the long-term survival of a population of 80 to 100 individuals (adults and subadults) south of the Caloosahatchee River. As of July 2012, 49 known radio-collared panthers (alive or status unknown) were documented within a 25-mile radius of the ORV Trailheads project from 6,664 telemetry observations. It is not known if all these animals are currently alive. In 2009, Rancher's Supply (a consultant to the FWC) found evidence of 80 individual panthers during their annual count of both radio-collared and uncollared panthers in south Florida (FWC 2010). The area surveyed included BICY.

As stated earlier, the environmental baseline for this Hunting Management Plan is represented by Alternative 2. Hunting occurs in the original BICY but is prohibited in the Addition. The PA would maintain hunting in the original BICY, and expand hunting opportunities to the Addition. According to the schedule presented in the Hunting Management Plan (NPS 2013), hunting would occur on a maximum of 165 days per year for all included seasons and ORV use is prohibited between 10 pm and 5 am. Therefore, this analysis is focused on those hunting opportunities that may introduce an additional variable potentially affecting the Florida panther population in BICY. Hunting seasons, bag limits, and other elements would be evaluated under the adaptive management strategy framework established through the Hunting Management Plan (NPS 2013).

The PA calls for the development of a "clear decision-making and communications framework between the NPS and FWC, in consultation with the [Service], to manage hunting in the entire Preserve. Wildlife Management Area regulations would be reviewed at least annually through the decision-making framework established in the NPS/FWC Cooperative Partnership Agreement" (NPS 2013). Furthermore, "decisions regarding modifications to the Hunting Management Plan, hunting regulations, law enforcement needs, threatened and endangered species, nonnative / exotic species, research and monitoring, and public access would be made by the NPS and FWC, in consultation with the [Service], through the adaptive management process" (NPS 2013).

The PA includes a provision for population monitoring of major game species (*i.e.*, deer and hog), as well as the Florida panther population. These data will be used under the science-based adaptive management framework in conjunction with traditional and innovative hunting management tools (*e.g.*, quotas, season dates, bag limits, season limits) to provide for a sustainable prey base for the Florida panther. The adaptive management framework identifies the use of a 5-year average for both deer survey and hunter check-in data to determine if changes are needed to the hunting program to ensure that the level of deer harvest does not result in a reduction of available prey for the Florida panther.

Essentially, the PA directs the NPS and FWC, in consultation with the Service, to develop an adaptive management strategy to guide decisions regarding hunting management in BICY and incorporate a feedback loop for validation of assumptions and facilitation of science-based decisions regarding changes to the hunting program in BICY. More specific information about the components incorporated into an adaptive management framework may be viewed in the description of the PA in the Hunting Management Plan (NPS 2013).

The development of the adaptive management strategy, itself, does not enable hunters to enter BICY to harvest game species. Development of a plan or strategy is similar to a change in land ownership in that it does not change the land use or baseline conditions of the land in question. Implementation of the adaptive management strategy, however, may facilitate hunting activities in BICY, in particular the Addition. Therefore, it is the implementation of the adaptive management strategy that requires a more detailed analysis of hunting's effects on panther prey and panthers in BICY.

In performing the analysis of the development and implementation of the PA, the Service considered the introduction of public hunting in the Addition as the potential introduction of a competing predator for the Florida panther. Public hunting has never occurred on the Addition and hunting of any kind has been prohibited in the Addition for more than 20 years. The Big Cypress National Preserve Harvest and Pressure Summary for 2010 to 2011 (FWC 2011) reported hunter effort in the form of man days per deer harvested from the 2006-2007 season to the 2010-2011 season. For all forms of hunting, including archery, muzzle-loading, and general gun, the lowest level of effort required to harvest a buck was 36 hunter days. The greatest level of effort was 93 hunter days. The means of harvest for these levels of effort figures were muzzle-loading and archery, respectively. For the purpose of this analysis, the FWC provided an analysis of hunter pressure and deer harvest for BICY from 1980 to 2012 (Figure 1). This figure, while showing some trends between hunter pressure and harvest, does not show a significant relationship. It is likely hydrology and rainfall may play a role in this relationship that may clarify the relationship of hunter-days to harvest success; however, those data are not available at this time (Fletcher and McCarthy 2011).

Ackerman et al. (1982) predicted the deer kill rate for a resident male cougar was one deer every 8 to 11 days. Resident female kill rates were predicted to be one deer every 14 to 17 days. A female with three, 13-month old kittens had a predicted kill rate of one deer every 3.3 days. Janis

and Clark (2002) determined a predation success rate of one kill per 5.24 days for female panthers and one kill per 7.7 days for male panthers, with an average of one kill per animal per 6.45 days for the general panther population. Other literature (Anderson and Lindzey 2003, Cooley et al. 2008, Murphy et al. 2011) shows similar predation success rates of one deer-sized prey per panther approximately every 6.7 to 7.6 days or on average one deer-sized prey per week (Ruth and Murphy 2010). These studies provide guidance regarding the energy needs of Florida panthers.

Land (1991) noted deer survival rates averaged 81.3 percent over a 4-year period between 1987 and 1991 in the Bear Island Unit of BICY. In this study, Land also found bobcats predated more deer than panthers. Bobcats alone, and bobcats and panthers together also killed more deer than were harvested by hunters. Land found the Bear Island population to be stable with female deer replacing themselves before death. Land concluded hunting in Bear Island did not appear to have adverse impacts on the deer population as a whole. It should be noted, an antlerless season existed at the time of this report. Antlerless harvest is now prohibited throughout BICY in areas that are open to hunting.

The NPS states that under the PA "adverse impacts to the Florida panther would be very similar to those of Alternative 1, with the exception of the impacts on the panther prey base." To investigate the interactions of predators and their prey, the Service reviewed literature related specifically to deer and large predators including mountain lions (*Puma concolor*), wolves (*Canis lupus*), and coyotes (*Canis latrans*). We found one particular reference, Ballard et al. (2001), which reviewed studies of deer population and predator relationships conducted throughout North America including mule deer and black-tailed deer (*Odocoileus hemionus*), as well as white-tailed deer. They found widely differing relationships between predators and their prey, mainly based on the relationship of the deer population to carrying capacity. While these studies were not performed in the same type of habitat present in BICY, we do believe they represent the best scientific and commercial data available.

Bleich and Taylor (1998) observed deer mortality for individually monitored deer in the Western Great Basin of California. For females, the primary cause of mortality was predation, comprising 83 percent of mortality. Human induced mortality and malnutrition comprised 4.8 and 12.2 percent, respectively. For the 11 male deer where cause of death was determinable, 36.4 percent were predated and 63.6 percent of mortalities were attributed to hunter harvest. The authors speculated mountain lion predation may regulate deer populations in ecosystems where severe drought or winters occur unpredictably. Drought and unusual weather conditions occur in South Florida in an unpredictable fashion, similar to the conditions of this study.

Compensatory mortality is a theory that states a total population's mortality remains unchanged at low to intermediate exploitation rates because natural mortality decreases in compensation for reduced density. Conversely, additive mortality represents an increase in mortality due to exploitation that results in an increase in total mortality (Allen et al. 1998). Bartmann et al. (1992) reviewed compensatory mortality in the Piceance Basin of Colorado and determined

coyote predation was compensatory to starvation mortality in deer populations that were at carrying capacity. Coyote predation was not compensatory to starvation when deer populations were not at carrying capacity. In BICY, it is unlikely the deer population is at carrying capacity. Therefore, it is unlikely, if the same relationship exists, that panther-caused mortality is compensatory to starvation in our system.

Mackie et al. (1998) summarized research in Montana on mule and white-tailed deer. They found hunting to be the largest source of female deer mortality, with natural mortality representing 0 to 25 percent of mortalities observed. They did not believe hunter harvest or other sources of mortality were compensatory in this population. In BICY, NPS and the FWC are proposing to allow harvest of antlered individuals only; therefore, hunter harvest effects will be focused on the male portion of the population. White-tailed deer are polygynous, so one buck services several does, making loss of male deer less important to the population as a whole.

Both Hamlin and Mackie (1989) and Mackie et al. (1998) noted there is a potential for predation to influence deer populations, particularly in areas where there may be multiple predators. Hamlin and Mackie (1989) indicated that predation combined with other sources of mortality, including hunting, could influence low density deer populations and potentially keep them from increasing. This observation indicates introduction of hunter harvest should be undertaken in a precautionary manner to observe the potential effects on the deer populations in BICY, particularly the Addition. The adaptive management framework and communication structure will allow NPS and the FWC, in consultation with the Service, to monitor and respond to this type of scenario should it arise.

In a study conducted on Vancouver Island, British Columbia, Hatter (1988) noted wolf predation was the primary limiting factor in fawn recruitment in that population of black-tailed deer. Atkinson and Janz (1994) noted reduced wolf densities yielded increased fawn survival during the first 3 months of life, likely resulting in an increase in fawn recruitment. The increase in fawn survival was reversed when wolf control efforts ceased. In these studies, the predator appeared to be controlling fawn recruitment into the population. BICY is not a closed system as Vancouver Island is, making a similar type of study problematic. However, the potential exists that the panther population does have a significant effect on the deer population in BICY.

Nelson and Mech (1986*a*) observed wolf predation was responsible for twice the mortality attributed to hunting in white-tailed deer in Minnesota. Of 85 deer mortalities, 44 were attributed to wolf predation, 22 to hunting, 12 to probable wolf predation, and 7 to miscellaneous causes. Their study also indicated wolf predation was limiting yearling deer recruitment into the population in this area.

In a study in Montana, Dusek et al. (1992) determined mortality rates for 154 adult, female radio-collared deer in three different habitat types. Hunting was the largest source of mortality in all areas. Their study concluded hunting regulations in that area had little effect on natural mortality rates and was, therefore, additive to other forms of mortality. This study focused on female deer

and the relationship of hunting to natural mortality levels. Antlerless deer harvest is not permitted in BICY. Therefore, hunter harvest, while being an additive source of mortality for bucks, will not be an additive source of mortality for does in BICY.

During a predator removal experiment in Texas, Beasome (1974) noted fawn mortality was 61 to 74 percent higher in areas without predator removal. Deer densities in the treatment areas increased from 15.6 to 19.6 deer per kilometer squared (km^2) while those in the untreated area declined from 8.0 to 7.8 deer per km^2. This study also indicated predator densities had an effect on recruitment of deer into the breeding population. In this case, the removal of a large predator from the study area resulted in an increase in the prey population. A relationship that likely exists between panthers and their prey, in particular deer, as hog are almost non-existent in BICY.

Using these and other case studies of predator/prey relationships, Ballard et al. (2001) concluded the deer population's relationship to carrying capacity was critical to the impacts of predation. Where deer populations appeared limited by predation, such populations were below forage carrying capacity. Conversely, deer populations at or near carrying capacity did not respond to predator removal experiments, indicating the effects of predation were compensatory in nature.

Other factors also influence fitness and fawn survival. Kunkel and Mech (1994) noted fawns from white-tailed does greater than 4 years of age in Minnesota were heavier and had better survival rates than fawns from younger does. A buck only harvest strategy ensures older does are retained in the population. If this dynamic also occurs in BICY, an unhunted or buck only harvest would allow does to reach a more advanced age with a potential for greater fawn survival.

Collectively, these studies appear to support the idea that panther population in south Florida, and in particular in BICY, may be driving the deer population - rather than the availability of deer as prey driving the panther population. Since the deer population in BICY occurs at low densities, most likely related to resource availability and hydrology, and predator mortality is additive in deer populations at low densities, panther predation could be having an effect on recruitment of fawns or yearlings into the population. Most of the published literature indicated hunter harvest did not appear to have an effect on fawn or yearling recruitment (Ballard 2008). This may be due to the fact panthers, and other large predators, are more efficient at finding and killing prey than humans. Assuming hunter harvest is not affecting recruitment of fawns or yearlings into the breeding population, then the proposed introduction of hunting into the Addition should not have a measurable effect on the deer population in this management unit. The adaptive management approach included in the PA will allow NPS to assess this assumption and validate it, by requiring continued monitoring of deer populations, hunter harvest, and panthers. These data will be incorporated into the feedback loop for assessing the effects of implementation of the PA on panther and deer populations in BICY.

The adaptive management process requires an action to be taken so data can be collected on the effects of the action and input into a feedback loop to assess if changes to the action are necessary to achieve the stated goals. For the Addition, 5 years of consistently collected deer

survey data and hunter harvest data do not exist. Three years of consistently collected deer survey data do exist, so the 5 years of data desired should be reached in two seasons. Since the 5-year average cannot be used for the first two seasons, the NPS and FWC, in consultation with the Service, will be reviewing data at least annually to determine whether changes in quotas, bag limits, or seasons should be implemented.

Predator cycles follow prey cycles with a lag (Laundre et al. 2007). Laundre et al. (2007) also noted that a puma population in southern Idaho and northwestern Utah increased during an increase in mule deer abundance and declined four years after mule deer abundance declined. Therefore, annual review of deer data will allow the NPS and FWC, in consultation with the Service, to identify any change in prey cycles before that change results in a change in the predator population. This frequency of review of the data should ensure potential adverse effects to the panther prey base are identified and addressed before those effects could result in effects on the Florida panther.

The NPS and FWC have committed to following the protocols established in the Hunting Management Plan to ensure hunters harvest a reasonable number of bucks while the deer population is sustainable and the panther population is not affected. There will be no increase in the quotas for the Addition until sufficient data exist to support a change in the number of quota permits. As currently planned, this would not occur until a 5-year average for hunter check-in data can be established and additional access or ORV trails were available in the Addition (NPS 2013).

Because the relationship between panthers, hunters, and prey will be complex and difficult to predict, two elements must be in place to ensure adverse effects to panthers do not occur. The first element is an initial hunting program that is conservative and prevents adverse effects to panthers. The PA provides that through limiting hunting quota permits to 30 per season, in the Addition, for the initial years of implementation of the Hunting Management Plan. The second element includes trigger points and feedback loops sufficient to conserve the panther population. The PA provides that through its inclusion of annual data reviews and the types and levels of change or unforeseen events that could result in changes to seasons or quota permits for the Addition.

The goal of the adaptive management framework is to ensure hunting activities do not alter the existing predator/prey relationship in BICY and, therefore, do not have a measurable effect on the Florida panther. Based on this information, the NPS has determined effects to the Florida panther population would be expected to be minimized with the PA and result in long-term, negligible to minor, adverse, regional effects to the Florida panther (NPS 2013). As stated in the Hunting Management Plan, this level of effects equates to a determination that implementation of the PA "may affect, but is not likely to adversely affect" the Florida panther. Based on this information, the Service concurs.

CONCLUSION

The Service supports selection of Alternative 3, of the PA, due to its inclusion of an adaptive management strategy in making decisions regarding hunting activities within BICY. We believe the PA offers the best use of science in decision-making and creates a cooperative atmosphere between NPS, the FWC, and the Service. Adaptive management focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable resource systems (Williams et al., 2009). The adaptive management strategy and decision-making framework will ensure the best science is used to formulate decisions regarding hunting in BICY and the needs of threatened or endangered species like the Florida panther are adequately considered in those decisions.

This consultation applies to the development of the Hunting Management Plan and implementation of the PA. Any additional proposals or modifications to the adaptive management framework may require additional consultation in accordance with section 7 of the Act.

This letter fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary. In this case, development and implementation of the adaptive management framework will require additional section 7 consultation as the implementation is the action that actually results in hunters entering the Addition.

We look forward to working with you to protect BICY for its conservation and historic value. If you have any questions, please contact Jane Tutton at 772-469-4235,

cc: electronic only
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NPS/RO, Atlanta, Georgia (Tim Pinion)
FWC, Tallahassee, Florida (Nick Wiley)
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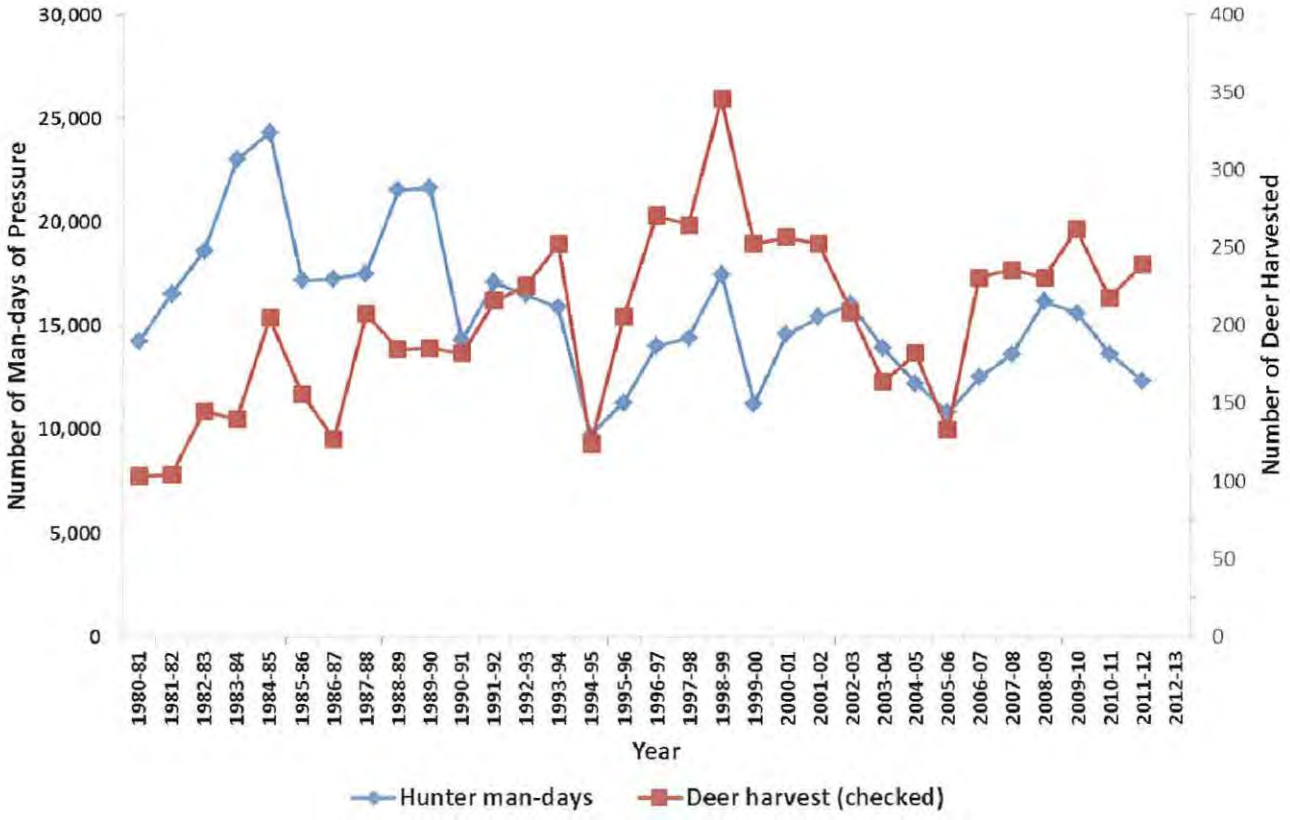
Figure 1. Hunter pressure and deer harvest from Big Cypress Wildlife Management Area (Big Cypress National Preserve), 1980-2012.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

April 23, 2014

Memorandum

To: Pedro Ramos, Superintendent, Big Cypress National Preserve

From: Craig Aubrey, Field Supervisor, South Florida Ecological Services Office

Subject: Big Cypress National Preserve Final Draft Hunting Management Plan/Environmental Assessment Comments and Consultation, Service Consultation Code: 2012-I-0159

This memorandum supersedes the U.S. Fish and Wildlife Service's (Service) February 10, 2014, memorandum responding to the National Park Service's (NPS) November 2012 Big Cypress National Preserve Final Draft Hunting Management Plan/Environmental Assessment (Hunting Management Plan) and the NPS' March 7, 2012, request for informal consultation regarding the Hunting Management Plan. The Hunting Management Plan presents three alternatives for implementing hunting in both the original Big Cypress National Preserve (BICY) and the Addition Lands (Addition). This memorandum provides the Service's comments, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*)(NEPA), on the Hunting Management Plan and provides our informal section 7 consultation, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), with the NPS on the preferred alternative for the Hunting Management Plan.

PROJECT DESCRIPTION

The General Management Plan and Final Environmental Impact Statement (GMP) (NPS 1991) for the original BICY directed the development of a hunting management plan. The Big Cypress National Preserve – Addition Draft GMP/Wilderness Study/Off-Road Vehicle Management Plan/ Environmental Impact Statement (EIS) (NPS 2010) also stated a hunting management plan would be developed. The Hunting Management Plan represents the NPS' effort to comply with those directives.

The purpose of the Hunting Management Plan is to provide for hunting opportunities in the best interest of BICY resources and the public, meet NPS requirements, and comply with the enabling legislation, the NPS/FWC Cooperative Partnership Agreement and all other applicable requirements. The Hunting Management Plan will also direct decision making efforts regarding hunting activities, seasons, bag limits, etc., for both the original BICY and the Addition. The Hunting Management Plan presents three alternatives for consideration and review. The alternatives include:

- **Alternative 1 – No-Action – Apply Current Management to the Addition:** The NPS would continue to allow hunting in the original BICY and apply that same management program to the Addition. Existing regulations using the current communications, coordination, and regulation modification process between NPS and FWC would be implemented throughout the Preserve. Changes in hunting management in BICY would be subject to NEPA whenever changes are proposed. There would be no obligation to use the best science available in making those decisions, and the timeframes necessary to complete NEPA would not necessarily be compatible with the Florida Fish and Wildlife Conservation Commission (FWC's) process for approval of seasons, permits, and bag limits.

- **Alternative 2 – No Hunting in the Addition:** This alternative would allow hunting to continue in the original BICY with no public hunting in the Addition. Under this alternative, harvest data on deer and hog populations in the Addition would not be collected. In addition, decisions on hunting seasons, permits, and bag limits would be made in a manner similar to the current process, using the existing regulations and employing the current communications, coordination, and regulation modification process between NPS and FWC. There would be no adaptive management feedback loop to dictate changes in hunting and wildlife management in BICY. This Alternative represents the baseline condition for the purpose of section 7 consultation under the Act.

- **Alternative 3 – New Adaptive Management Strategy:** This alternative would incorporate the best, and most current, science into decision-making regarding hunting in BICY. It includes a requirement for an annual feedback loop to assess the data obtained from prior seasons and make changes to seasons, bag limits, etc. based on those data. The framework would be implemented in a cooperative manner with the NPS, FWC, and the Service working together to incorporate the variables necessary to ensure that hunting activities undertaken in BICY are compatible with the endangered Florida panther (*Puma = [Felis] concolor coryi*). Under this alternative, an adaptive management strategy would be utilized. Wildlife Management Area regulations would be reviewed at least annually through the decision-making framework established in the NPS/FWC Cooperative Partnership Agreement that would provide a: 1) process by which the elements of the hunting regulations could be modified, and 2) communications protocol to change regulations.

The NPS has selected Alternative 3 as the Environmentally Preferred Alternative (PA). Additional details on each alternative are included in the Hunting Management Plan (NPS 2013).

The Adaptive Management objectives for the PA were developed based on policies outlined in Section 4.4.3 of the NPS *Management Policies* (2006), which states:

"Where harvesting is allowed and subject to NPS control, the [NPS] will allow harvesting only when (1) the monitoring requirement contained in section 4.4.2 and the criteria in section 4.4.2.1 ... have been met, and (2) the [NPS] has determined that the harvesting will not unacceptably impact park resources or natural processes, including the natural distributions, densities, age-class distributions, and behavior of

- *harvested species*
- *native species that the harvested species use for any purpose, or*
- *native species that use the harvested species for any purpose"*

The adaptive management objectives for this Hunting Management Plan are:

The [NPS] will successfully maintain native plants and animals by:

- *Preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;*
- *Restoring native plant and animal populations in parks when they have been extirpated by past human-caused actions; and*
- *Minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them.*

Based on these policies, under alternative 3, the NPS would conduct ecosystem management actions in the preserve to achieve the following objectives through the adaptive management process:

- A sustainable deer population in the Preserve, which ensures the effects of hunting in the Preserve are beneficial, discountable, or insignificant to the Florida panther population[1]
- A feral hog population in the Preserve that balances the feral hog as an invasive species and ensures that the effects of hunting in the Preserve are beneficial, discountable, or insignificant to the Florida panther.
- A sustainable population for all other game species in the Preserve including wild turkey and small game species

The life of the PA is 15 to 20 years.

BACKGROUND

At NPS' request, the Service played a significant role in the development of this Hunting Management Plan. Service staff attended workshops and meetings designed to assist in NPS' choice of alternatives, including the selected PA. NPS employed the "choosing by advantage" process to identify variables and metrics that were essential in developing alternatives that met the criteria for a hunting management plan and to involve stakeholder agencies, including the FWC and the Service. NPS also held many public meetings to gather comments and suggestions from the general public and other stakeholders. Service staff attended some of these public meetings.

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1 Deer are the Florida panthers' most consistent prey item (Land 1994, USFWS 2008). Janis and Clark (2002) determined a predation success rate of one kill per 5.24 days for female panthers and one kill per 7.7 days for male panthers, with an average of one kill per animal per 6.45 days for the general panther population. Other literature (Anderson and Lindzey 2003, Cooley et al. 2008, Murphy et al. 2011) shows similar predation success rates of one deer-sized prey per panther approximately every 6.7 to 7.6 days or on average one deer-sized prey per week (Ruth and Murphy 2010).

The Service provided specific comments on the draft Hunting Management Plan throughout its development. We, therefore, include few specific comments in this memorandum.

THREATENED AND ENDANGERED SPECIES

The BICY consists of approximately 729,000 acres, including the original BICY and Addition, and is located in Collier and Monroe counties, Florida. Nine federally threatened or endangered species are present within, or use BICY. Species present include the Florida panther, endangered West Indian manatee (*Trichecus manatus*), endangered wood stork (*Mycteria americana*), endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*), endangered red-cockaded woodpecker (*Picoides borealis*), endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*), threatened American crocodile (*Crocodylus acutus*), and threatened eastern indigo snake (*Drymarchon corais couperi*). Critical habitat for the West Indian manatee is present within BICY boundaries and the Florida bonneted bat (*Eumops floridanus*), which was recently listed as endangered, is present within the BICY boundaries (FR Vol 77, No. 193, October 4, 2012).

In a March 7, 2012, memorandum from NPS to the Service, the NPS stated the Hunting Management Plan would serve as its biological assessment for the PA, and determined the selection of the PA would have no effect on the West Indian manatee, Cape Sable seaside sparrow, Everglade snail kite, red-cockaded woodpecker, wood stork, American crocodile, and eastern indigo snake. The NPS also determined the selection of the PA was not likely to adversely affect the Florida panther. Subsequent to the final rule listing the Florida bonneted bat as endangered, the NPS contacted the Service on January 15, 2014, and provided a determination that implementation of the Hunting Management Plan was not likely to adversely affect the Florida bonneted bat.

ANALYSIS

The Service consulted on the EIS for the Addition GMP (NPS 2010). In that consultation, we analyzed ORV and other recreational uses in the Addition. The Service also consulted on the Final Recreational Off-road Vehicle Management Plan and Supplemental Environmental Impact Statement (ORV Plan) (NPS 2001) which addressed recreational uses of ORVs in the original BICY. The Hunting Management Plan proposes three alternatives for regulating hunting activities in BICY. The PA includes a provision for introducing public hunting in the Addition. Since ORV activities were addressed in prior consultations, the discussion and analysis of the PA will only address the potential effects of hunting activities, not the use of ORVs.

Each of the above-referenced documents provides conservation measures if manatees, wood storks, Everglade snail kites, Cape Sable seaside sparrows, red-cockaded woodpeckers, crocodiles, or eastern indigo snakes are located in proximity to trails or in areas to be burned or receive other management actions. Taken together, the conservation measures in the Hunting Management Plan, the Addition GMP, and the ORV Plan are sufficient to conserve those species and to ensure that activities undertaken pursuant to the Hunting Management Plan are not likely