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CENTER FOR BIOLOGICAL DIVERSITY—CONSERVANCY OF SOUTHWEST FLORIDA—EARTHWORKS
NATIONAL PARKS CONSERVATION ASSOCIATION—NATURAL RESOURCES DEFENSE COUNCIL
SIERRA CLUB—SOUTH FLORIDA WILDLANDS ASSOCIATION

December 22, 2014

Larry Williams
State Supervisor
US Fish and Wildlife Service
1339 20th St.
Vero Beach, FL 32960

RE: Nobles Grade 3-D Seismic Survey

Dear Mr. Williams,

The undersigned organizations are dedicated to protecting environmentally sensitive lands—including federal public lands and wildlife habitat. We are writing on behalf of our members in Florida and nationwide to share our concerns regarding the proposed Nobles Grade 3-D seismic survey project within the Big Cypress National Preserve (BCNP), a unit of the National Park Service (NPS).

This large project is proposed for sensitive lands that serve as essential habitat for federally-listed species. Based on the best available scientific evidence, we believe the proposed project is likely to adversely affect species protected under the Endangered Species Act (ESA); therefore, the United States Fish and Wildlife Service (USFWS) is required to engage in formal consultation to investigate all potential adverse effects on wildlife and to comply with section 7 of the ESA, 16 U.S.C. § 1536. Such formal consultation should include:

- Conducting species surveys to determine which species are found in the project area;
- Determining the distance at which vibrations and noise from seismic surveying are felt by wildlife;
- Considering cumulative impacts from the Nobles Grade seismic survey and the neighboring Tocala seismic survey;
- Evaluating long-term effects on the landscape from surveying, such as changes to hydrology and habitat characteristics;
- Reviewing all possible impacts that may result from completion of the survey such as additional oil and gas development within the Preserve.

Project Background:

Burnett Oil Company has submitted a state permit application (Application G-169-14) to Florida's Department of Environmental Protection and a Plan of Operations (Project No. 13BOC2197) to the National Park Service (NPS) to perform geophysical exploration over four phases on a total of 234,510± acres, or approximately one-third, of BCNP. According to NPS, the applicant has since reduced this proposal to Phase I, which is 70,540± acres within the Big Cypress National Preserve and the Addition lands. This is still an enormous area. Based on

information provided to the state and NPS, the proposed source and receiver lines could total more than 1,500 miles of disturbance in the Preserve in Phase I alone.[1]

We believe an Environmental Impact Statement and formal consultation with USFWS should be conducted for any Plan of Operations submitted to NPS pursuant to the National Environmental Policy Act and Endangered Species Act. The scope and gravity of the impacts of the Burnett proposal will potentially cause significant impacts that will extend well beyond what can be analyzed in an Environmental Assessment.

The type of geophysical exploration proposed by Burnett will involve the use of vibroseis buggies or off-road vehicles which vibrate large plates against the ground to generate a seismic signal which is then measured to model local geology. Impacts from this activity can include removal of trees and other vegetation, surface and sheet flow disturbance from vehicles, cut lines that can extend up to fifty feet in width, equipment staging areas, and noise from vehicles, helicopters and generators. The USFWS has identified that seismic surveys can be impactful to natural resources, as stated on the agency's website:

> *"Seismic surveys generally cover many square miles. Access roads may be constructed or existing roads upgraded to support exploration. The extensive nature of seismic surveys and access requirements make seismic exploration among the most potentially disruptive and damaging type of oil and gas activity."*[2]

We are concerned that the large-scale survey proposed by the Burnett Oil Company has the potential to significantly alter the sensitive ecosystems and habitats found in BCNP. Given the flat topography of the Everglades, even minor disruption to surface elevation due to rutting and soil compaction from vehicles may permanently alter hydrology. Furthermore, vibrations and vehicle traffic may crack or fracture shallow limestone strata leading to the drainage of perched hydrologic environments or sinkhole formation.[3] These impacts to hydrology may in turn alter the character of habitat areas, such as wetlands, that wildlife depends on. Additionally, noise from vibroseis buggies, destruction of wildlife burrows, clearing of vegetation, and increased traffic levels will likely also adversely affect wildlife.

The USFWS should carefully consider all direct and indirect impacts associated with seismic surveys. This includes reviewing the cumulative impacts of the 70,540± acre Nobles Grade 3-D seismic survey and the adjacent proposed 103,000± acre Tocala 3-D seismic survey (Exhibit 1), and evaluating the impacts of future full field development in these areas as well as other reasonable foreseeable development since surveys often lead to additional oil and gas activities.

Wildlife Impacts:

Burnett acknowledges in its original January 2014 Plan of Operations (table 10.3) that BCNP and the Addition lands are home to federally- protected species such as the wood stork

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[1] Calculations based on the following information found in the Nobles Grade 3-D Seismic Survey, Application for Permit to Perform Geophysical Exploration, Permit No. G-169-14, page 3: "The initial survey design for NG3-D PHASE I consists of 64 source lines and 167 receiver lines oriented generally east/west and north/south, respectively. The 64 source lines are approximately 1,155 feet apart with source point station spacing of 82.5-foot intervals. The 167 receiver lines are approximately 495 feet apart with receiver point spacing of 165± feet."

[2] US Fish and Wildlife Service. (2014) . Oil and Gas Exploration and Production. Retrieved from: http://www.fws.gov/refuges/oil-and-gas/exploration.html

[3] Kugler, N. (2014). Opinion and Recommendation: Nobles Grade 3-D Seismic Survey Application. Letter to Jennifer Hecker, Conservancy of Southwest Florida. (See attached).

(*Mycteria Americana*), red-cockaded woodpecker (*Picoides borealis*), Florida panther (*Puma concolor coryi*), and eastern indigo snake (*Drymarchon corais couperi*). [4]

Wood Stork

The BCNP is home to nearly 200 species of birds,[5] including several species that are protected as imperiled species at the state and federal level. This includes the wood stork, which is a federally threatened species. Protecting existing wading bird rookeries and wood stork colonies from the direct and indirect effects of seismic surveying should be a top consideration.

Wood storks and other wading birds have historically utilized habitat within the proposed Nobles Grade project area (Exhibit 2). Best available scientific evidence shows that foraging wetlands within 18.6 miles of a colony site are considered part of the wood stork's Core Foraging Area.[6] Wetland impacts on this area may reduce foraging opportunities for the wood stork and thus have an adverse effect on the species.[7]

As their foraging habitat dries out, wood storks travel to higher quality areas.[8] Locations of these high quality areas may not be predictable from year to year, given changes in rainfall.[9] Although conducting activities during drier conditions seems to provide greater protection of vegetation, and is a preferable time of year to conduct activities should they be permitted, it also may also expose wood storks to disturbance during important foraging times. These impacts should also be considered by the USFWS.

The BCNP is critical to wood storks in south Florida as it contains foraging habitats for five colonies, including one colony centrally located on BCNP.[10] Because these lands provide for this large number of wood storks, this project may have impacts felt not only at a colony level, but also at a population level.[11]

Red-cockaded Woodpecker

The red-cockaded woodpecker (RCW) is a federally endangered species. Like the wood stork, it too has historically utilized areas within the proposed Nobles Grade seismic project (Exhibit 3). RCWs rely on foraging habitat within one half mile of their nesting sites.[12] Disturbance of foraging RCWs and potential abandonment of active nests is impossible to predict, and sensitivity to novel sounds such as those generated by vibroseis buggies is a potentially

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[4] Burnett Oil Company Inc. (2014). Nobles Grade 3-D Seismic Survey Big Cypress National Preserve and Big Cypress National Preserve Addition Plan of Operations. Section 10 (p. 134)

[5] Big Cypress National Preserve. Birds. Last updated March 7, 2014. Accessed March 20, 2014. <http://www.nps.gov/bicy/naturescience/birds.htm>.

[6] US Fish and Wildlife Service, May 18, 2010 Letter to Army Corps of Engineers re: South Florida Programmatic Concurrence, Revised.

[7] *Ibid.*

[8] Davis, et al., 2010. Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area.

[9] *Ibid.*

[10] As Nobles Grade area was defined in Davis, et al., 2010.

[11] Davis, et al., 2010. Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area

[12] US Fish and Wildlife Service, 2003. Recovery Plan for the Red Cockaded Woodpecker, Revised.

significant adverse impact.[13] USFWS should pursue a thorough investigation of the direct and indirect impacts of this project on RCWs given the BCNP population's status as an essential support population for the Florida recovery unit.[14]

Florida Panther

Although a wide-ranging species, disturbance is also a factor in assessing impacts to the endangered Florida panther, which utilizes habitat within the project area (Exhibit 4). Panthers have shown, in studies conducted in the Big Cypress National Preserve itself, alterations in their normal behavior and use of habitat areas due to concentrated human activity, which USFWS considers "harassment" due to the effects on ordinary biological functions or feeding, reproducing, and rearing young.[15] Furthermore, panther prey species, such as white-tailed deer, may also be affected by human presence and loud activities, which in turn will adversely affect panther foraging efficacy. USFWS should evaluate these impacts fully prior to issuing any decision on the project as the entire project boundary falls within primary panther habitat (Exhibit 5).

Florida Panthers are particularly vulnerable to any increases in traffic, such as those associated with industrial activity (Exhibit 6). According to the Florida Fish and Wildlife Conservation Commission, "Every individual is important for the panther's survival" and "Road kills are a leading cause of death for Florida panthers and black bears. Entire litters have died in vehicle collisions."[16] So far this year, 23 panthers have been killed by vehicles alone, an all-time road mortality record for the species. Therefore, the traffic impact is critical to thoroughly assess and properly address.[17]

Eastern Indigo Snake and Other Burrowing Species

The eastern indigo snake is a federally threatened species. It is critical that the presence of burrowing species is considered in the review of this project as the weight of machinery and vibrations may collapse burrows.[18] The project should be reviewed in accordance with the USFWS Eastern Indigo Snake Effect Determination Key and all the best available science that demonstrates the snake's use of refugia such as holes, pipes, and gopher tortoise burrows.[19] Reliance solely on the Service's *Standard Protection Measures for the Eastern Indigo Snake* document is not sufficient to avoid such effects. Instead, a formal analysis of the project's direct, indirect, and cumulative effects is necessary to develop appropriate terms and conditions to adequately address threats to the snake.

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[13] Davis, et al., 2010. Oil and Gas Impacts in the Big Cypress Ecosystem: An Analysis of Impacts Associated with Proposed Activities in the Nobles Grade Area

[14] US Fish and Wildlife Service, 2003. Recovery Plan for the Red Cockaded Woodpecker, Revised.

[15] US Fish and Wildlife Service, 2008. Florida Panther Recovery Plan, Revised.

[16] Florida Fish and Wildlife Conservation Commission, Fact Sheet: Safe roads for people and panthers," available at: http://www.floridapanthernet.org/images/uploads/safe_roads_FINAL_w-ADA.pdf.

[17] Florida Fish and Wildlife Conservation Commission, Panther Pulse, http://www.floridapanthernet.org/index.php/pulse/#.VIoAOn8o4dU.

[18] Wilson, T. (2011). Effects of Seismic Exploration on Pygmy Rabbits. *Natural Resources and Environmental Issues* 17(7).

[19] US Fish and Wildlife Service, November 9, 2007 Letter to Army Corps of Engineers re: Eastern Indigo Snake and Wood Stork

General Fish and Wildlife Resource Impacts

Disturbance to federally-protected wildlife that affects their normal behavior in foraging, nesting, or denning, could constitute or contribute to take under the Endangered Species Act. These could include potential long-term shifts in habitat use,[20] disturbance, or damage to nests/burrows.[21] Indirect impacts may also include increased wildlife deaths along roadways as a result of greater levels of vehicle traffic. All of these potential behavioral impacts need to be thoroughly reviewed and accounted for.

Conclusion:

Improved oil and gas extraction and refining technologies have contributed to a renewed interest in oil and gas extraction in south Florida.[22] Oil and gas activities within BCNP are currently managed by the outdated 1991 Minerals Management Plan and 1998 Lands Exchange Act which the undersigned organizations have previously recommended be updated by NPS with formal ESA consultation with USFWS to better address the use of new oil exploration and extraction technologies.[23] In addition to revising this plan, current oil and gas proposals within BCNP should be carefully reviewed by the agencies.

It is critical that USFWS consider all direct and indirect impacts to listed species, including those summarized above. Wildlife surveys must be conducted to account for wildlife uses within the project area and to identify nesting, foraging, denning, or other high use areas. USFWS should also evaluate at what distance seismic activities can be felt or heard by wildlife and consider all impacts to habitat.

Seismic surveys will likely result in greater oil and gas activities within the preserve. The current Burnett proposal will cover 70,540± acres and cause more than 1,500 miles of disturbance from the laying of the source and receiver lines alone.[1] In the January 2014 Plan of Operations, the applicant expressed interest in conducting additional surveys beyond the 70,540± acre project. It is likely that following completion of the project, the applicant may wish to apply for additional surveys impacting even more of the Preserve or pursue oil and gas extraction activities. Both of these scenarios, future surveys and extraction, should be taken into account by USFWS when evaluating project impacts. Lastly, USFWS should consider the potential cumulative large scale impacts of the Nobles Grade survey, and the adjacent 103,000 acre Tocala seismic survey."

The Nobles Grade 3-D seismic survey has the potential to adversely impact multiple federally listed species across a very large area. Consequently, USFWS is required to complete a

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[20] Ashenhurst, A., Hannon, S. (2008). Effects of seismic lines on the abundance of breeding birds in the Kendall Island Bird Sanctuary, Northwest Territories, Canada. *Artic 61*(2) 190-198.

[21] Wilson, T. (2011). Effects of Seismic Exploration on Pygmy Rabbits. *Natural Resources and Environmental Issues* 17(7).

[22] Morgan, Curtis (2013 May 18). Oil Industry Eyes South Florida Again. Miami Herald. Retrieved from http://www.miamiherald.com/news/local/in-depth/article1951665.html

[23] Letter from conservation groups to Pedro Ramos, Superintendent, Big Cypress National Preserve, May 16, 2014 (See attached).

[1] Calculations based on the following information found in the Nobles Grade 3-D Seismic Survey, Application for Permit to Perform Geophysical Exploration, Permit No. G-169-14, page 3: "The initial survey design for NG3-D PHASE I consists of 64 source lines and 167 receiver lines oriented generally east/west and north/south, respectively. The 64 source lines are approximately 1,155 feet apart with source point station spacing of 82.5-foot intervals. The 167 receiver lines are approximately 495 feet apart with receiver point spacing of 165± feet."

thorough review of this project through formal consultation to evaluate all impacts and in doing so; we respectfully request that the Service address all of our aforementioned concerns and recommendations.

Thank you for considering our input on this important matter and please do not hesitate to contact any of us to discuss further.

Sincerely,

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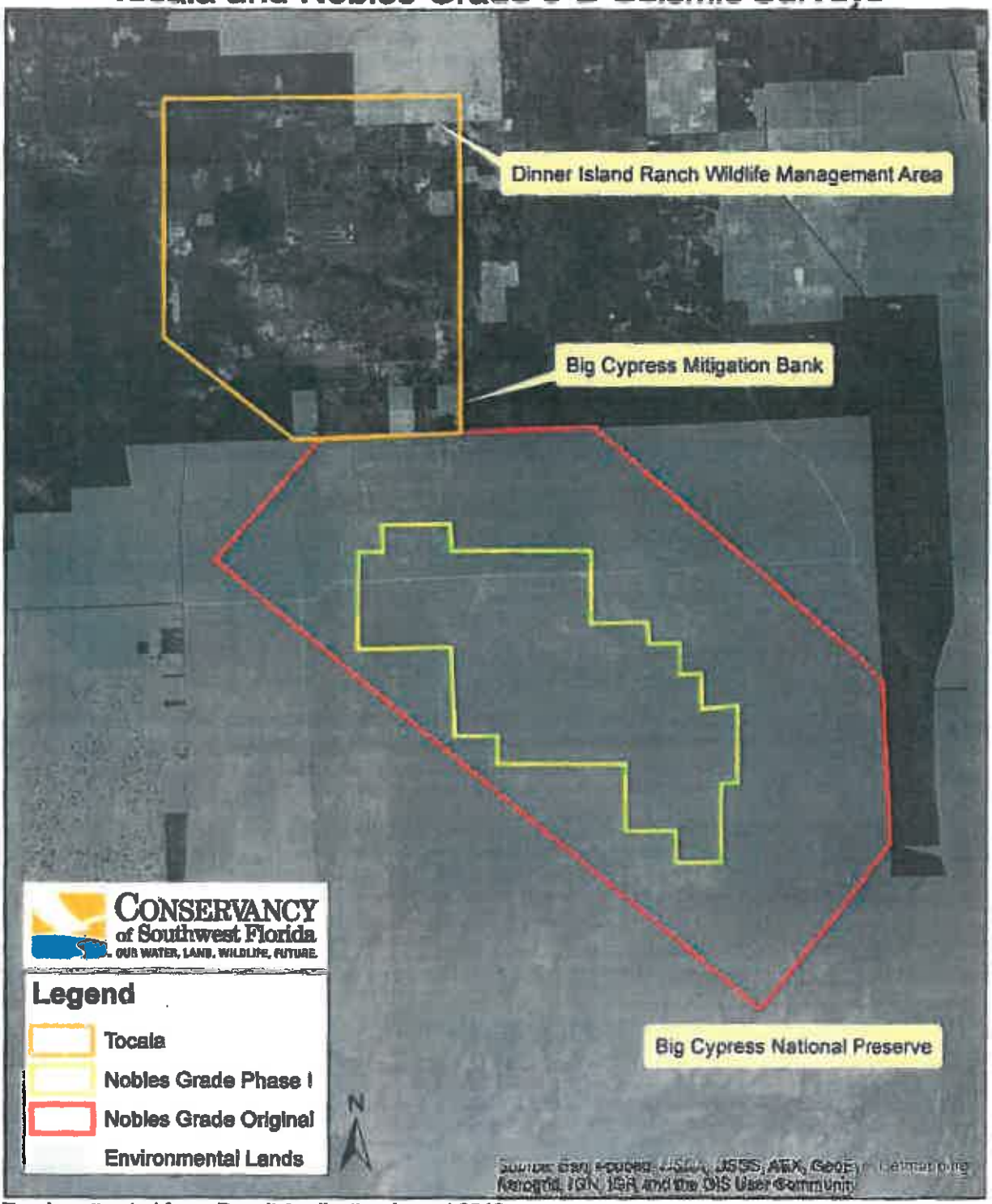
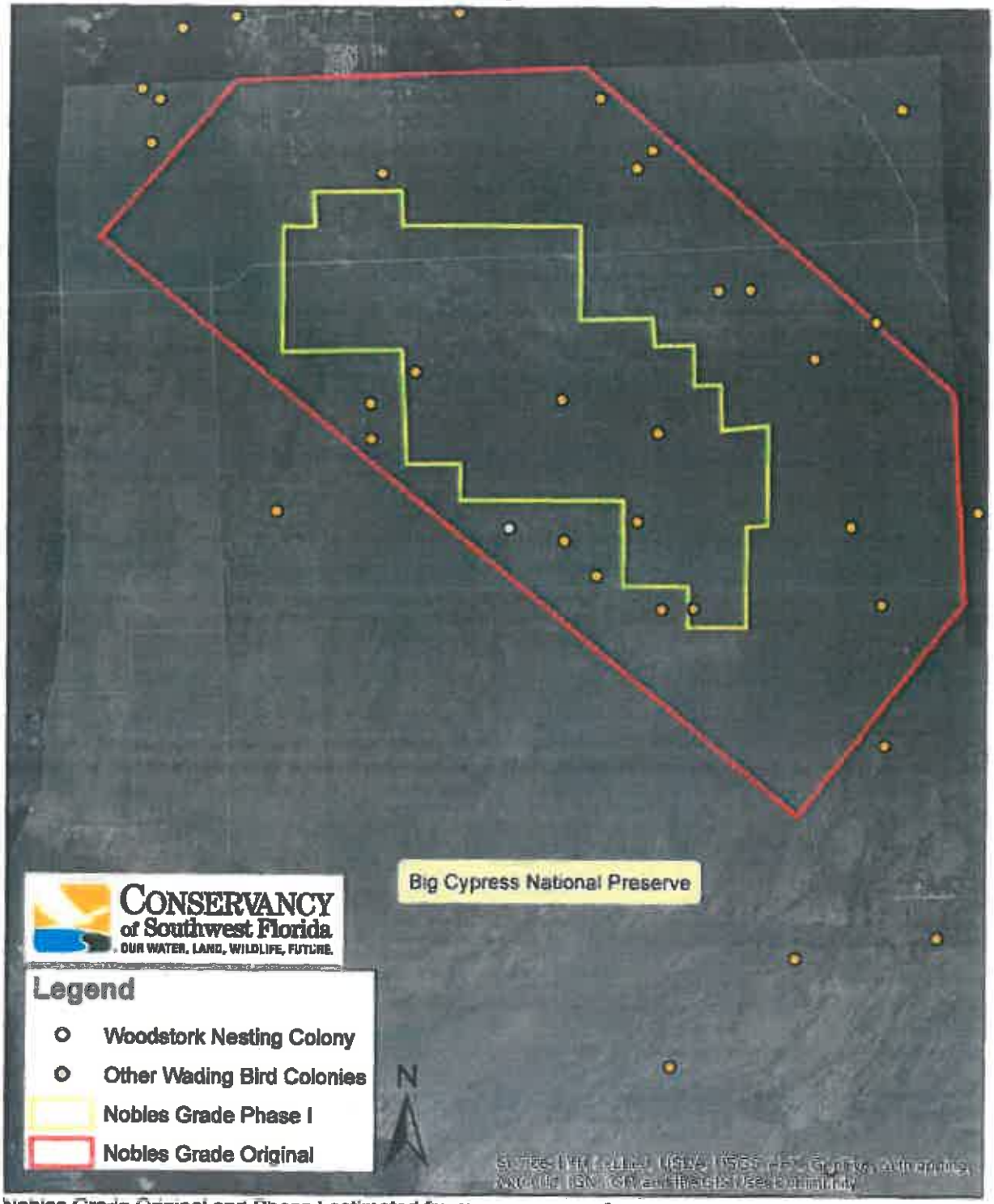
Cc:
Jane Tutton; U.S. Fish and Wildlife Service
Pedro Ramos; National Park Service
Don Hargrove; National Park Service
Ron Clark; National Park Service

Exhibit 1
Tocala and Nobles Grade 3-D Seismic Surveys



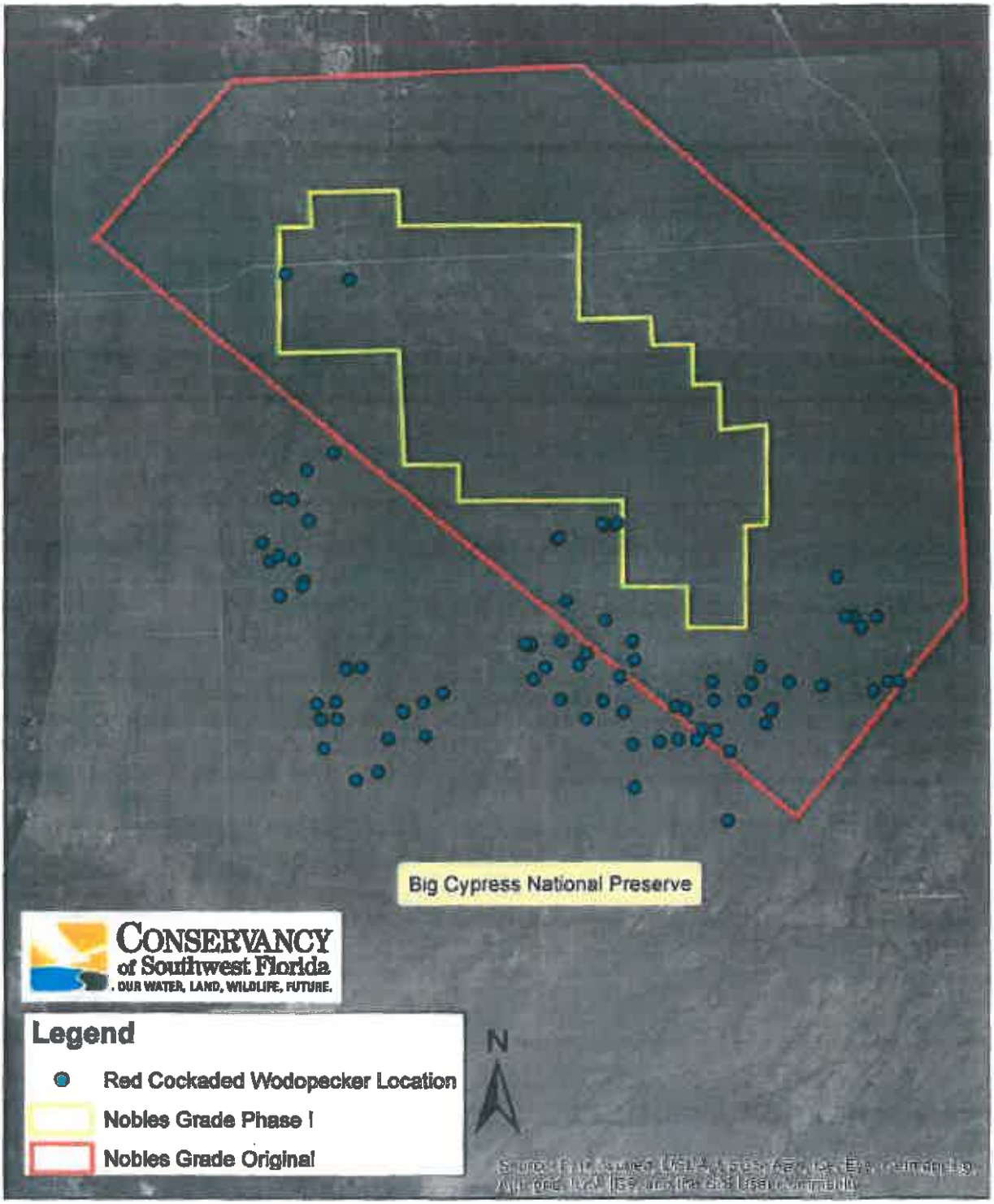
Tocala estimated from: Permit Application August 2013
Nobles Grade Original and Phase I estimated from:
Plan of Operations January 2014
Environmental Lands from: Florida Natural Areas Inventory, 2014

Exhibit 2
Wading Birds



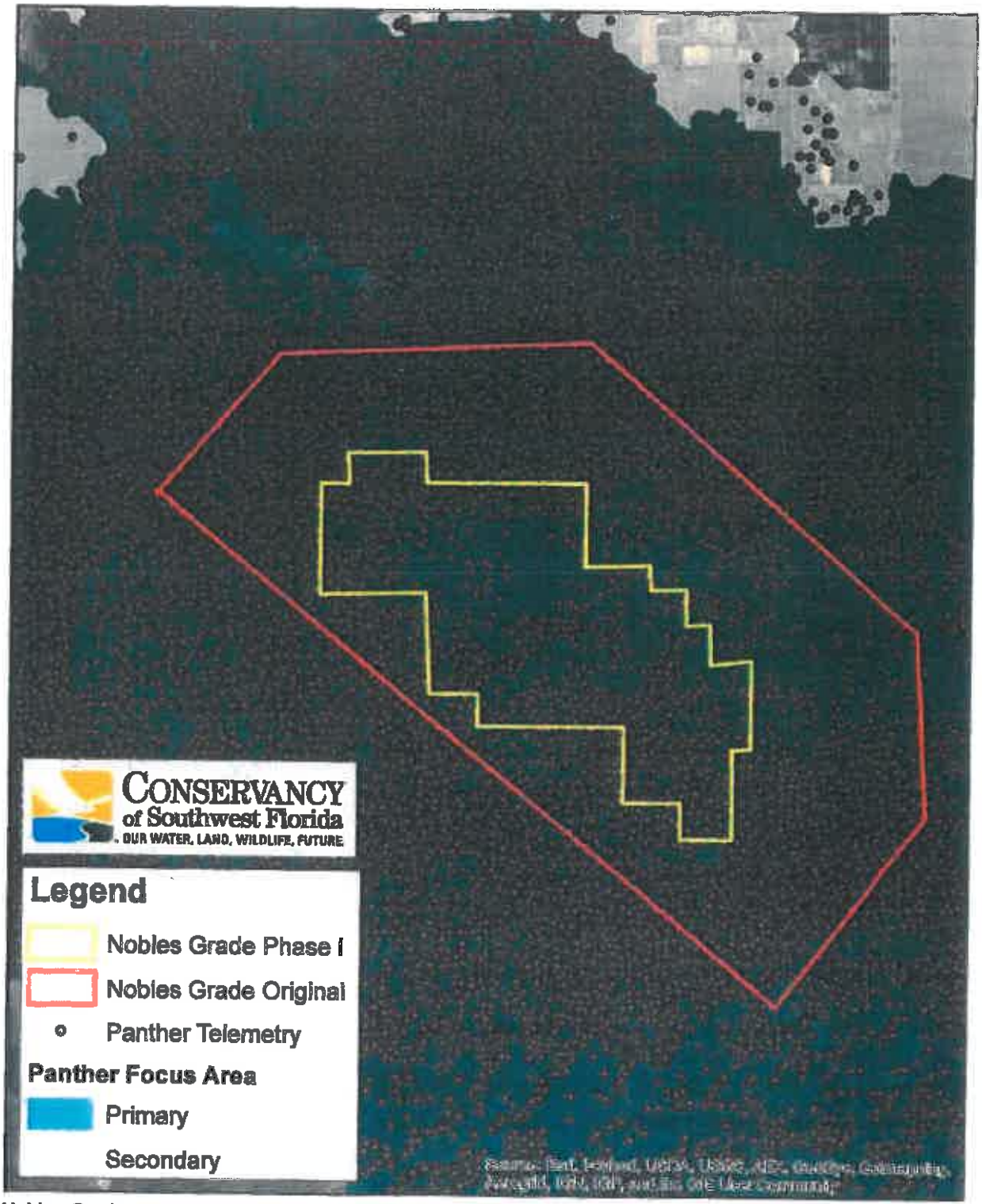
Nobles Grade Original and Phase I estimated from:
Plan of Operations January 2014
Big Cypress National Preserve Boundary from: Florida Natural Areas Inventory, 2014
Woodstork Nesting Colony from: US Fish and Wildlife Service, 1997-2006
Other Wading Bird Colonies from: Florida Fish and Wildlife Conservation Commission, 1999

Exhibit 3
Red Cockaded Woodpecker



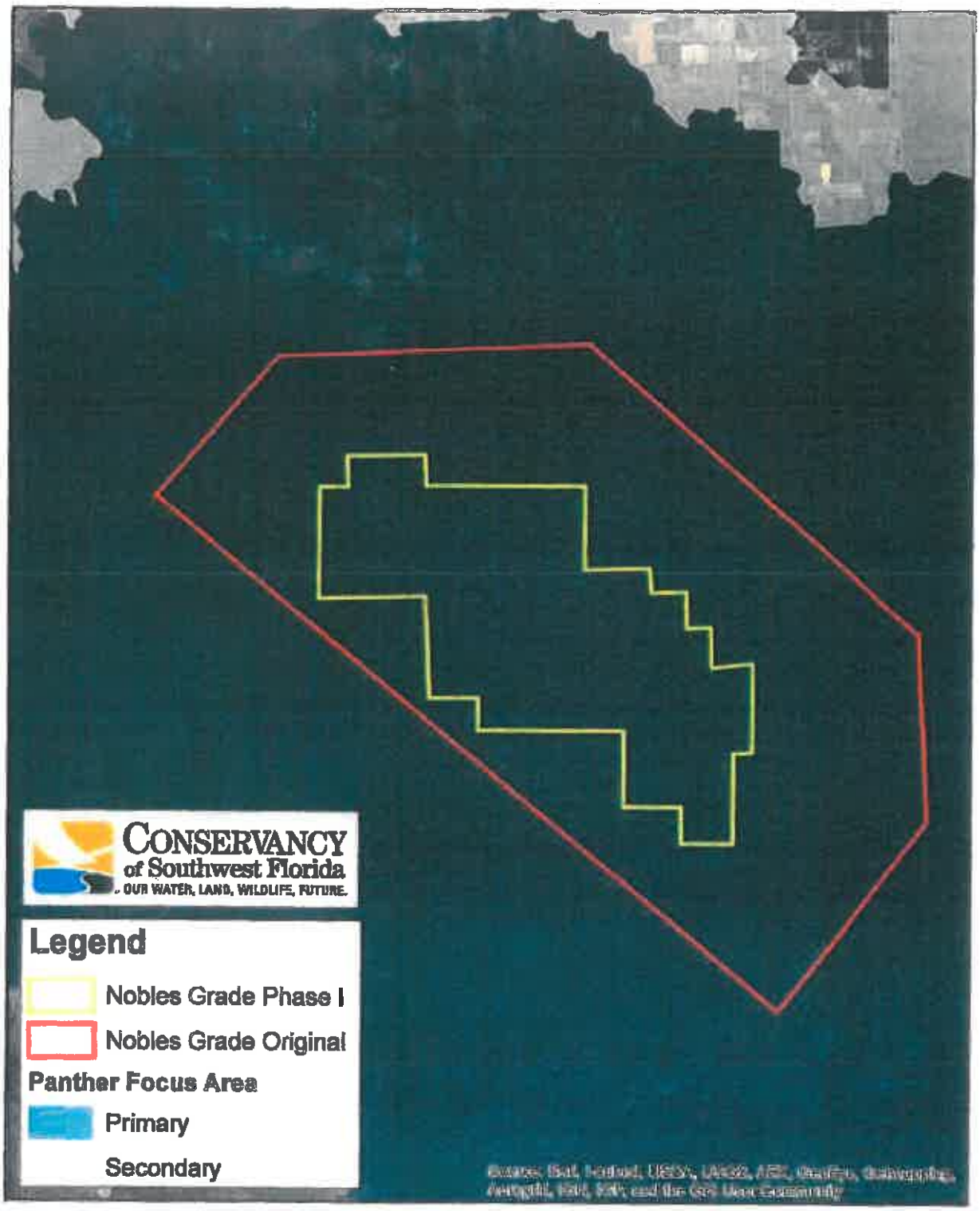
Nobles Grade Original and Phase I estimated from:
Plan of Operations January 2014
Big Cypress National Preserve Boundary from: Florida Natural Areas Inventory, 2014
Red Cockaded Woodpecker from Florida Fish and Wildlife Conservation Commission, 2005

Exhibit 4
Florida Panther



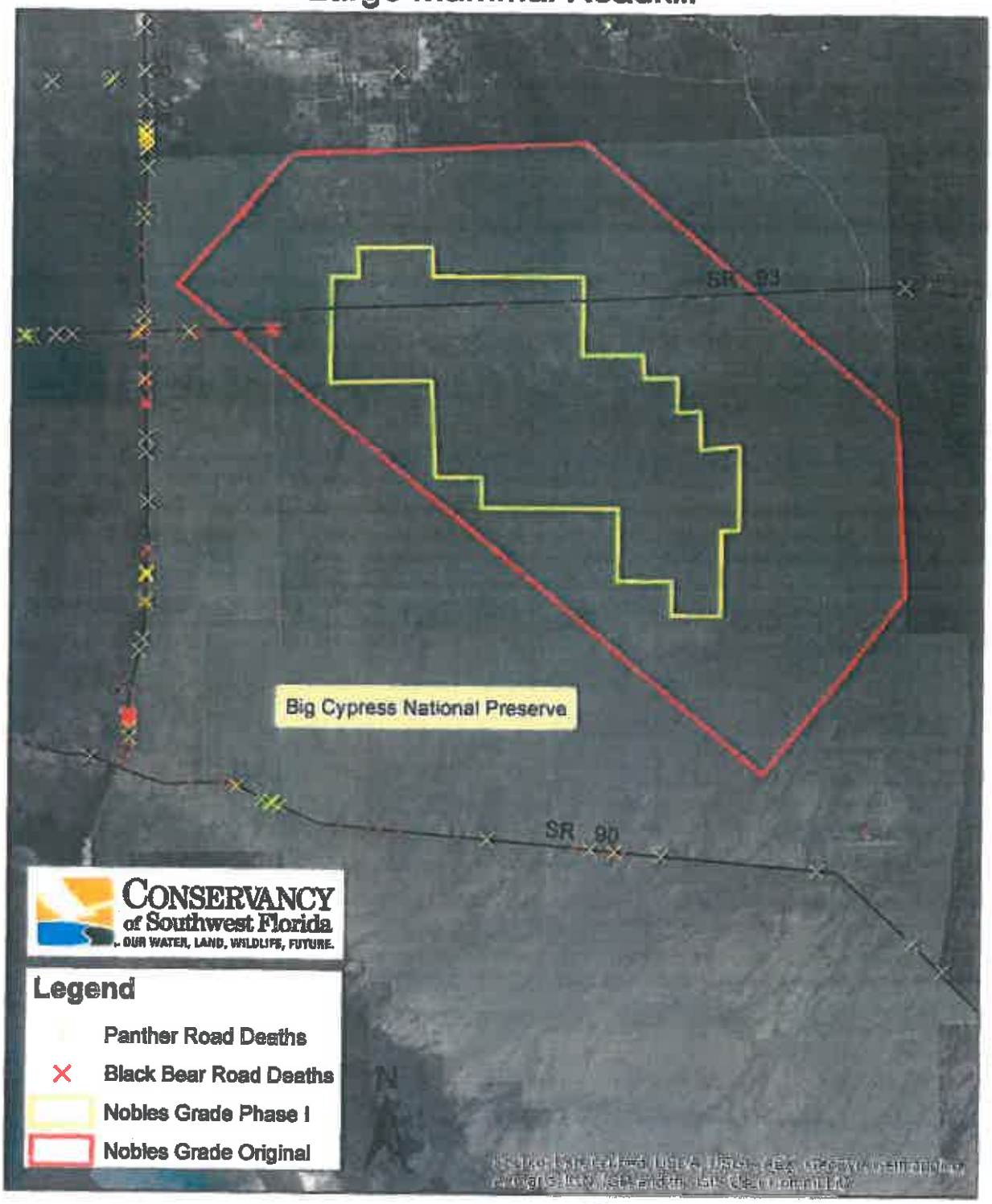
Nobles Grade and Phase I estimated from:
Plan of Operations January 2014
Panther Focus Area from: US Fish and Wildlife Service 2006
Panther Telemetry from: Florida Fish and Wildlife Conservation Commission 1981-2013

Exhibit 5
Florida Panther



Nobles Grade and Phase I estimated from:
Plan of Operations January 2014
Panther Focus Area from: US Fish and Wildlife Service 2006
Panther Telemetry from: Florida Fish and Wildlife Conservation Commission 1981-2013

Exhibit 6
Large Mammal Roadkill



Nobles Grade Original and Phase I estimated from:
Plan of Operations January 2014
Big Cypress National Preserve Boundary from: Florida Natural Areas Inventory, 2014
Florida Panther Road Deaths from: Florida Fish and Wildlife conservation Commission 1972-2013
Black Bear Road Deaths from: Florida Fish and Wildlife Conservation Commission, 1976-2012

Center for Biological Diversity – Conservancy of Southwest Florida – Earthworks
National Parks Conservation Association – Natural Resources Defense Council
Sierra Club – South Florida Wildlands Association

May 16, 2014

Pedro Ramos
Superintendent
Big Cypress National Preserve
33100 Tamiami Trail East
Ochopee, Florida 34141

Dear Superintendent Ramos:

On behalf of the undersigned organizations, and our members in Florida and nationwide who are dedicated to protecting federal lands and national park sites, we write to express our concerns about the current status of oil and gas exploration, production, and clean-up activities in the Big Cypress National Preserve (BICY). In particular, our concerns include the lack of updated 36 C.F.R. 9(B) regulations, the lack of a consistent, up-to-date oil and gas management plan for oil and gas activities throughout BICY (a "Preserve-wide Oil & Gas Plan") and Environmental Impact Statement (EIS) for same, and Burnett Oil Company, Inc.'s (Burnett's) proposal for geophysical exploration in BICY, as described in its state permit application.[1]

National park sites are some of the most special places in America, and our organizations have a long history of working to protect and restore BICY, Everglades National Park (ENP), and the greater Everglades ecosystem. Our priorities include protecting and restoring water flows, wildlife habitat, and the natural abundance of flora and fauna in and around BICY.

Upon its establishment, BICY was envisioned as "a nationally significant ecological resource" and "a primitive area where ecological processes are restored and maintained."[2] It was set aside to ensure the preservation, conservation, and protection of its natural scenic, floral, faunal, and recreational values, and for its importance as a watershed for Everglades National Park. It is home to many important species, including the endangered Florida panther—one of the most endangered mammals in the country—as well as the wood stork, red-cockaded woodpecker, Florida black bear, bobcat, manatee, and rare plants like the ghost orchid. It is also beloved for the many outdoor recreation opportunities it provides. At the same time, there are dozens of existing oil and gas sites, including producing oil wells, plugged wells, dry wells, injection wells, and other older wells of unknown status in BICY.[3] The future could bring even more oil and gas development to BICY.

[1] Florida Department of Environmental Protection, Oil and Gas Program Application No. G-169-14 and Environmental Resource Permit Program Application No. 11-0323836-001.
[2] National Park Service, Big Cypress National Preserve, General Management Plan and Final Environmental Impact Statement, Volume I, 1991.
[3] Florida Department of Environmental Protection Oil and Gas Permit Database, Pre-permit Oil and Gas Wells Database, and OCULUS database.

Impacts of Oil and Gas Activities

Every stage of oil and gas development, including exploration, construction, drilling, stimulation, processing, waste management, transportation of materials, ongoing production, plugging and abandonment, and site reclamation can have significant impacts on land, water, air, habitat, and other natural values. These impacts present significant threats to the many sensitive values in BICY, including: (a) wildlife mating, feeding, nesting, spawning, and migration routes, including those for threatened and endangered species; (b) watercourses, streams, wetlands, floodplains, water wells, springs, and other water sources; (c) archeological, historical and cultural resources; (d) opportunities for human recreation; (e) local economies dependent on fishing, recreation, tourism, and other social and economic values; (f) clean air and the airshed; (g) natural beauty, solitude, and visual resources; (h) soils, vegetation, and landscape; (i) the preservation of the natural soundscape of the Preserve; and (j) lands with wilderness characteristics.

It is critical to assess and document the specific impacts of any proposed oil and gas activities in BICY, since technologies, chemicals, equipment and infrastructure have changed and continue to change over time—just as the ecosystems and natural conditions in which they are applied change. Of particular concern in this regard are acidizing and acid fracturing, well stimulation practices involving dangerous acids and potentially other chemicals, including hydrochloric and hydrofluoric acids,[4] pumped at high pressures into a well. Records show that acidizing has taken place in the Preserve since the 1970s.[5] It is for these reasons that we are reaching out to you to express our concerns about the ongoing oil and gas activities in BICY.

Present Oil and Gas Regulatory Scheme in BICY

Congress authorized BICY on October 11, 1974. The original boundary of BICY is presently governed by a General Management Plan, including a Minerals Management Plan (MMP) regulating Oil and Gas activities, and an EIS dating from 1991. Subsequently, the Big Cypress National Preserve Addition Act of 1988 expanded the Preserve by 147,000 acres (the Addition). The Addition is governed by a 2010 General Management Plan and EIS. The 2010 General Management Plan for the Addition states:

> "Currently, oil and gas exploration in the Addition is managed in accordance with [the 1998 Lands Exchange Act]. A Preserve-wide oil and gas management plan is currently in preparation by the National Park Service. When completed, this plan will provide guidance for oil and gas exploration for the entire Preserve, including the Addition."

In effect, oil and gas activities within the entirety of BICY are governed by the 1991 MMP, a plan that is more than 23 years old. That 1991 MMP requires NPS to follow a process outlined in 36 C.F.R. 9(B).

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[4] Hydrofluoric acid is extremely toxic and exposure to it can be life threatening. The hazards of hydrofluoric acid are unique among other inorganic acids because the fluoride ions penetrate quickly and deeply into the body. At low concentrations, such as those used in the oil and gas industry, the symptoms of exposure may be delayed by up to a day, meaning that extensive damage may be done before harm is detected.

[5] "Calumet Florida, Inc. Master Plan of Operations," prepared by Calumet Florida, Inc. November 30, 1994.

Lack of Updated 36 C.F.R. 9(B) Regulations

The Preserve presently follows a process outlined in 36 C.F.R. 9(B), a rule promulgated in December 1978, to regulate non-federal oil and gas activities in all units of the national park system. In general, these regulations require non-federal parties to submit a "Plan of Operations," or "POP," for proposed oil and gas activities on federal lands. However, the federal regulatory process for reviewing POPs is now 40 ycars old, and thus long outdated in light of recent advances in oil and gas technology. Indeed, in November 2009, the NPS initiated rulemaking to modify this regulation, which some of our organizations commented on but which NPS has not finalized.

The undersigned are therefore extremely concerned and urge NPS to expedite the process of finalizing the modifications to 36 C.F.R. 9(B) regulations through an EIS. We support stronger statutory environmental protections than the outdated 36 C.F.R 9(B) regulations and an EIS which includes a thorough, scientific analysis of all of the modern techniques for performing oil and gas exploration, including seismic testing through vibroseis, as well as all extraction and clean-up methods. Such stronger rules are necessary to adequately protect BICY during any future oil and gas activities.

Lack of an Up-to-Date, Preserve-wide Oil and Gas Management Plan and EIS for BICY

We are also concerned at the lack of an up-to-date, Preserve-wide Oil & Gas Plan to replace and supersede the 1991 MMP and 1998 Lands Exchange Act. We urge NPS to expedite the development of a Preserve-wide Oil & Gas Plan specific to BICY in addition to an updated set of 36 C.F.R. 9(B) regulations, and to expedite an EIS for the new Preserve-wide Oil & Gas Plan that includes a thorough analysis of the modern techniques for performing oil and gas exploration (including seismic testing through vibroseis), extraction, and clean-up activities. A new EIS should consider conservation alternatives that go beyond current NPS requirements.

We support a Preserve-wide Oil & Gas Plan for BICY with stronger environmental protections than the long outdated 1991 MMP. A more environmentally protective Preserve-wide Oil & Gas Plan for BICY would be consistent with BICY's enabling legislation, which clearly states that the Preserve was created "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," despite non-federal mineral ownership.

Moreover, while the enabling legislation for BICY accounts for oil and gas activities within the Preserve by mineral in-holders, it also explicitly authorizes the Secretary to acquire any lands, waters, or interests therein which are located within the boundaries of the Preserve and the Addition. For the above reasons, we also believe that a thorough EIS for an updated, Preserve-wide Oil & Gas Plan should consider as one alternative a buy-out option of the mineral estate in-holdings in BICY, and a complete ban of oil and gas activities on fully federally owned lands within BICY.

Burnett's Proposal for Seismic Testing in BICY

There are several ongoing oil and gas activities within BICY of concern to the undersigned, including a proposal by Burnett Oil Company, Inc., to perform seismic testing for oil in BICY.

In particular, Burnett has submitted a state permit application (Application G-169-14) to Florida's Department of Environmental Protection (FDEP) to perform geophysical exploration on 366 square miles, or approximately one-third, of BICY. While NPS may not yet be considering a formal Plan of Operations for this proposed project pursuant to 36 C.F.R. 9(B), we want to let you know of our concerns as early in the process as possible.

Based on information provided in the state permit application, the proposed source and receiver lines could total more than 1500 miles of disturbance in the Preserve in Phase I alone.[6] The type of geophysical exploration proposed by Burnett—3-D seismic surveys using vibroseis—can cause significant environmental impacts. These include: removal of large amounts of trees and other vegetation; surface and sheet flow disturbance from vehicle paths of vibroseis trucks that may weigh up to 62,000 pounds,[7] cut lines, helicopter and equipment staging areas;[8] noise from helicopters, vehicles, engines, and generators; and reduced access for visitors. The cut lines can be equivalent to roads, and range in size up to fifty feet wide.

If NPS has not finalized a new Preserve-wide Oil & Gas Plan or a new set of 36 C.F.R. 9(B) regulations that include a thorough, scientific analysis of the impacts of vibroseis by the time Burnett submits a complete POP for such testing, NPS will be relying on the outdated MMP and regulations which do not properly account for the significant negative impacts to the human environment caused by seismic testing by vibroseis. Therefore, an EIS should be conducted for Burnett's POP pursuant to the National Environmental Policy Act (NEPA). The scope and gravity of the impacts of the Burnett proposal will potentially cause significant impacts on the human environment that will exceed well beyond what can be analyzed in an Environmental Assessment (EA).

Regardless of the status of an up-to-date Preserve-wide Oil & Gas Plan or updated 36 C.F.R. 9(B) regulations, review of any POP submitted by Burnett for the Nobles Grade 3-D Seismic Survey outlined in Application G-169-14 should also require a formal consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act (ESA), as well as review and consultation with other agencies pursuant to all other applicable governing laws to ensure the protection of our precious environmental, cultural, historical, and biological resources, prior to the approval or rejection of such POP.

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[6] Calculations based on the following information found in the Nobles Grade 3-D Seismic Survey, Application for Permit to Perform Geophysical Exploration, Permit No. G-169-14, page 3: "The initial survey design for NG3-D PHASE I consists of 64 source lines and 167 receiver lines oriented generally east/west and north/south, respectively. The 64 source lines are approximately 1,155 feet apart with source point station spacing of 82.5-foot intervals. The 167 receiver lines are approximately 495 feet apart with receiver point spacing of 165± feet."

[7] http://www.terrexseismic.com/terrex-seismic/equipment/vibroseis-trucks.aspx

[8] The state permit application includes a proposal to construct five (5) staging areas, only some of which will be on pre-existing well-pads.

In closing, we urge NPS to diligently begin the process to develop a new Preserve-wide Oil and Gas Plan for BICY, as well as updated 36 C.F.R. 9(B) regulations. Both should include strong environmental protections as well as a thorough analysis of all alternative methods of oil and gas exploration, production, and clean-up, including conservation alternatives such as a buy-out option and complete ban of oil and gas activities on fully federally owned Preserve land. We also support formal consultation under the ESA for the activities proposed by Burnett in Application G-169-14, as well as development of an EIS should Burnett submit a complete POP for same to NPS for review prior to the institution of updated oil and gas regulations and a new Preserve-wide Oil and Gas Plan.

We look forward to working with NPS to ensure the future preservation of BICY for all of its uses and values, and to provide constructive and positive feedback throughout the POP and NEPA processes for all oil and gas activities taking place, or proposed to take place, in BICY. Please feel free to contact the undersigned with any questions or for additional information.

Sincerely,

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H2O GeoSolutions LLC

May 16, 2014

Ms. Jennifer Hecker
Director of Natural Resource Policy
Conservancy of Southwest Florida
1450 Merrihue Drive
Naples, Florida 34102

Subject: Opinion and Recommendation: Noble Grade 3-D Seismic Survey Application for geophysical Exploration in the Big Cypress National Preserve, #11-0323836-001

Dear Ms. Hecker:

H2O GeoSolutions LLC (H2O) has reviewed the above referenced application to the Florida Department of Environmental Protection (FDEP) that proposes a series of deep penetrating seismic surveys using Vibroseis buggies. Based upon review of the permit application, history, use and regulation of this technology, there is a high potential for significant disturbance of the extremely sensitive shallow hydrology due to the proposed activities.

Water quality varies spatially across the region because of natural variations in geology, hydrology, and vegetation and because of differences in water management and land use[1]. The shallow geology and hydrology likely to be encountered within the boundary of the proposed project consist of variably sorted sand, silt, clay and shell in varying proportions, underlain by karsted limestone at shallow depths (refer to attached figure[2]). The acidic nature of surface waters that continuously flow through the shallow subsurface provides a chemical environment for a high degree of carbonate dissolution leading to karst development. Due to the extremely flat topography of the southern portion of the Everglades, disruption to surface elevations in the order of inches may permanently alter hydrology.

Proposed Vibroseis activities would include vibrating (and resonating) the surface sediments and shallow karsted limestone strata with large pneumatic pistons applying up to 60,000 pounds of theroretical peak force[3] upon mostly saturated soils (assuming dry-season conditions) to provide deep enough seismic reflection for hydrocarbon exploration in this area may:

1. Disruption soil lamination structure and resettling of effective close-packing of shallow sediments, particularly if the sediments are comprised of well-sorted grain sizes. Resettling, particular under saturated conditions would likely lead to loss of sediment pore-space as finer sediments fill in between larger well-sorted grain sized, and subsidence. Similar vibration methodology is utilized to closely-pack gravel fill typically used within trenches while installing utility pipe.

2. Crack and/or fracture shallow limestone strata and carbonate minerals. Limestone exhibits rock cleavage along preferential fracture planes. Calcite and other carbonate minerals also exhibit strong mineral cleavage.

3. Crack and/or fracture shallow, thinly veiled, karsted limestone strata leading to possible collapse and sinkhole formation and/or drainage of perched hydrologic environments.

These factors could lead to permanent disruption, alteration and degradation of the shallow hydrology within a significant portion of the Everglades and Big Cypress National Preserve.

The following are bullet point recommendations for comment to the FDEP application

- As with any project of this nature, size and scope, the cumulative impact of the Vibroseis buggy activities should be reviewed holistically to provide assurance that harm to the hydrology of this large and extremely sensitive, complex and untested wetland environment is avoided.

- The National Park Service (NPS) maintains hydrologic monitoring stations to measure water levels (stage) and water quality. Data collected at two stations (BICY and EVER provide a historical baseline, beginning as early as 1959, for assessing hydrologic conditions and making a wide range of management decisions[4]. Utilization of the existing monitoring system and data should be embraced to assess potential impacts that may occur due to the proposed activities.

- Activities, if they occur, should only be limited to the dry season and to the driest areas and under the driest conditions possible. Saturated sediments are more susceptible to resettling of soils and loss of pore space, likely resulting in subsidence.

- Activities performed over karsted shallow limestone should be avoided at all cost to reduce the potential for weakening of karst structures, potentially leading to loss of perched wetland conditions and impact to wetland hydroperiods.

The potential for significant impact to the shallow hydrology of this extremely sensitive area warrants further cumulative impact assessment from neutral parties. Literature discovered in review does not provide adequate assessment to make sound determinations regarding the effects of such an operation upon the Everglades; there are no corollaries for comparison. There has yet to be a project of this size and scope in the Everglades. Although the proposed Vibroseis activities are likely less impactive than the alternatives, which include the use of high power explosives to create seismic and sonic waves, further investigation as to how to further avoid and minimize impacts should occur prior to approval of such a large-scale and generally proposed plan within one the world's most sensitive hydrologic areas is certainly warranted.

Respectfully,
Noah B. Kugler, P.G.
Principal

1. *U.S. Geological Survey Fact Sheet 097-03*
2. *Everybody loves rocks, Wordpress*
3. *Industrial Vehicles International, Inc.*
4. *U.S. Geological Survey Fact Sheet 097-03*