United States Department of the Interior

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Memorandum

To: Assistant Regional Director, Ecological Services, Region 2, Albuquerque, New Mexico

From: Field Supervisor, Ecological Services Field Office, Austin, Texas

Subject: Heart of Texas Wind Project Habitat Conservation Plan Biological Opinion – Permit TE-13632C-0 (Consultation # 02ETAU00-2017-F-0741)

The Heart of Texas Wind Project (Heart of Texas, HoT) Habitat Conservation Plan (HCP) biological opinion is attached. The biological opinion describes the actions Heart of Texas Wind, LLC (Applicant) proposes to avoid, minimize and mitigate adverse effects to the federally-endangered black-capped vireo (*Vireo atricapilla)* (BCVI) over a 30 year period. We appreciate your staff's assistance throughout this consultation. If you have any questions regarding this biological opinion, please contact Tanya Sommer at 512-490-0057, extension 222.

The biological opinion is based on the Heart of Texas HCP dated June 2017 and the associated Environmental Assessment dated June 2017 pursuant to the National Environmental Policy Act of 1969; U.S. Fish and Wildlife Service (Service) files; discussions with species experts; published and un-published literature on the species of concern and related impacts; and other sources of information available to the Service. A complete administrative record of this consultation is on file at the Austin Ecological Services Field Office.

Attachment

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BIOLOGICAL OPINION

This document transmits our biological opinion for the issuance of a U.S. Fish and Wildlife Service (Service) 10(a)(1)(B) permit (Permit) for the Heart of Texas Wind Project (Heart of Texas, HoT) Habitat Conservation Plan (HCP) to Heart of Texas Wind, LLC (Applicant).

The HoT HCP will minimize and mitigate, to the maximum extent practicable, adverse effects from covered activities to the endangered black-capped vireo (*Vireo atricapilla)* (BCVI) pursuant to the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). The issuance of a Service permit to authorize incidental take associated with the HCP is pursuant to 10(a)(1)(B) of the Act and is the action for this intra-Service consultation pursuant to section 7 of the Act. Critical habitat for the BCVI has not been designated; therefore, none will be affected.

Other species listed as threatened or endangered pursuant to the Act in McCulloch County, specifically the Whooping Crane (*Grus americana*) have not been detected within the action area. One candidate species is listed for McCulloch County, the Texas fatmucket (*Lampsilis bracteata*), however the project area lacks aquatic habitat for this species. Therefore, these species will not be discussed further in this biological opinion.

Consultation History

March 27, 2017	The Service published in the *Federal Register* a Notice of Availability of a draft Environmental Assessment (dEA) and application for an Incidental Take Permit (ITP) for the Heart of Texas Wind Project with a 30-day public comment period, and a request for comments in the *Federal Register* (78 FR 23780).
April 26, 2017	Public comment period for the dEA closed.
June 2, 2017	The Applicant submitted a final HCP to the Service.

Proposed action

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that Federal actions authorized, funded, or carried out by such agencies do not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of designated critical habitat.

The Federal action requiring consultation is issuance of a section 10(a)(1)(B) permit for the incidental take of listed species resulting from the Applicants' otherwise lawful non-Federal

activities to build the Heart of Texas wind project including clearing for construction of 63 wind turbine pads, installation of 63 wind turbines, access roads adjacent to the 63 wind turbines, underground medium voltage collection cables (MV collection cables), a substation, overhead high voltage transmission line, and other necessary infrastructure; ongoing operations and maintenance of 63 wind turbines within the proposed Project; and activities necessary to manage potential habitat for the covered species within the plan area (covered activities).

The Applicant moved forward with work on seven wind turbines prior to the close of the public comment period for the HCP and EA. The Applicant cleared and excavated seven pad sites and improved the access roads to these wind turbine pad sites. The Service was made aware of this activity as a result of letters received during the public comment period. Figure 3 in the EA shows the seven wind turbine sites and associated improved access roads. These seven wind turbines have been removed from the incidental take permit.

The HoT HCP submitted by the Applicants as part of the incidental take permit application and the EA analyzing the potential environmental consequences of approving the application are hereby incorporated by reference.

The HoT HCP describes a conservation program intended to avoid, or minimize and mitigate to the maximum extent practicable, the adverse effects of authorized take of BCVI (covered species) in the plan area. The plan area is defined as approximately 10,808 acres in central McCulloch County, Texas. The plan area includes the 10,762 acre wind power project area and an additional 46 acres associated with the generation tie line (Gen-tie Line) outside and approximately 2.5 miles to the west of the wind power project area (please see Figure 1 in the HCP).

The Service's Final Environmental Assessment (FEA) describes covered activities; including:

1. Installation of up to 63 wind turbine generators capable of generating 2.0 to 3.5 megawatts each. Each turbine will have a 110- to 130-meter rotor width, an 80- to 100-meter hub height, and operate at 60 to 80 decibels at the base. The turbines will be constructed on a concrete spread foot foundation that is approximately 64 feet in diameter by approximately 9 feet in depth. The foundation area will be excavated, the rebar cage will be assembled in the excavation, concrete poured and after curing the area around the foundation will be backfilled, returning the landscape to near native grade, and subsequently hydro-seeded for revegetation. The vast majority of the foundation will be underground with a concrete pedestal approximately 20 feet in diameter remaining above grade, to which the steel tower sections supporting the turbine attach. Turbine construction requires temporary workspaces, with a radius of approximately 200 feet centered on each turbine, to facilitate construction. These temporary workspaces will be cleared in a manner that minimizes grubbing and grading to encourage rapid

revegetation. Upon completion of construction, all cleared areas where the topsoil has been disturbed will be hydro-seeded for revegetation.

2. Construction of MV collection cables to collect power generated by the 63 turbines. Collecting line rights-of-way (ROWs) will be cleared to a width of approximately 30 feet during construction and the maintained ROWs will be reduced to 20 feet or less after construction to allow for continued access. Where possible MV collection cables will be placed along access roads so that workspaces overlap.

3. Upgrading existing roads and construction of new roads to provide sufficient access to 63 wind turbines within the project area. Approximately 20 miles of improved or new access roads within the project area will be needed Access road ROWs will be cleared up to 76 feet wide and ROWs will be reduced to 16 feet wide after construction to allow for continued access. Constructed roads will typically be 40 feet in width during construction to allow for movement of the main erection crane. When construction is complete, the shoulders of the road are typically folded in for a permanent road of 16 feet in width with 3 feet to 4 feet of drainage ditches on either side. Where possible, all clearing will be done to existing grade, with minimal grubbing, and grading only where necessary. Upon completion of construction, all disturbed areas (including drainage ditches) will be hydro-seeded with native grasses for revegetation.

4. Construction of a fenced substation of no more than 5 acres. The fenced area will be permanently cleared of vegetation and will contain a medium voltage electrical bus, electrical protection equipment, metering, communication equipment, and a main power transformer.

5. Construction of 3.8 miles of an approximately 8-mile-long, 345-kilovolt overhead transmission, Gen-tie Line to transport power from the project area. The Gen-tie Line will connect to a switching station outside of the project area to deliver power to the Electric Reliability Council of Texas (ERCOT) transmission system. Only approximately 3.8 miles of the proposed Gen-tie Line occurs within the project area. The remainder of the Gen-tie Line occurs on adjacent lands. A ROW of 100 feet will be cleared to construct the overhead Gen-tie Line and that ROW will be maintained clear to facilitate access during operations (please see Figure 2 in the HCP).

6. Operations and maintenance of 63 wind turbines within the plan area for a period of 30 years.

Additionally, the Applicant will develop and implement a Bird and Bat Conservation Strategy (BBCS) to document its actions to avoid, minimize, and compensate for potential impacts to birds and bats during the design and operation of the Project. The BBCS will be prepared within

one year of ITP issuance and will describe how the Applicant will adhere to the USFWS 2012 voluntary Land-based Wind Energy Guidelines. The Applicant will coordinate with the USFWS in the development of the BBCS and to share findings from monitoring activities.

Proposed conservation measures

The HoT HCP also describes measures intended to minimize and mitigate impacts; and those intended to contribute to the recovery of Covered Species. Proposed conservation measures in the HoT HCP (section 6.0) include:

1. Micrositing the placement of each proposed turbine and other project-related infrastructure to minimize take of the BCVI (section 6.2.1 of the HCP).
2. Observing seasonal clearing restrictions, except in emergency situations, in areas of suitable BCVI habitat so that habitat is only removed during the non-breeding season between September 1 and March 14 (section 6.2.2 and 6.2.4 of the HCP).
3. Initiating all clearing between September 1 and March 1 to minimize potential harassment of BCVI that may return early.
4. Observing speed limits of 20 miles per hour (mph) in areas of suitable BCVI habitat during the BCVI breeding season between March 15 and August 31.
5. Allowing approximately 91.86 acres of BCVI habitat removed during construction to regrow where further vegetation or ground disturbance during operation of the facility is not necessary (section 6.2.3 of the HCP).
6. Treating Red Imported Fire Ant (RIFA) mounds within the BCVI habitat restoration areas on a quarterly basis for one year following construction. The Applicant will treat individual RIFA mounds with a selective fire ant bait insecticide that is labeled for use in agricultural sites (section 6.2.3 of the HCP).
7. Using best practices for restoring disturbed vegetation and soils, including (section 6.2.3 of the HCP):
    a. removing temporary structures and materials, such as site trailers, pad base, and underground cables;
    b. ripping soils compacted by vehicles and equipment with a grader and tractor;
    c. replacing stored top soils onto de-compacted areas;
    d. broadcast seeding, hydromulching, or drill seeding (as appropriate based on soil type) grasses over restoration areas;
    e. using follow up inspections to confirm compliance with restoration specifications, that typically include 70% seed growth after 2 weeks; and
    f. utilizing a punch-list rework to address any areas that do not meet specification.
8. Restricting non-emergency maintenance and repair activities that involve heavy equipment or large vehicles within 300 feet of BCVI habitat to the non-breeding season between September 1 and March 14 (section 6.2.4 of the HCP).

9. Training project-related personnel prior to their start of work in the plan area to be aware of and properly implement HCP-required restrictions and other conservation measures (section 6.2.5 of the HCP).
10. Providing approximately 564.45 acres of permanent BCVI conservation prior to the initiation of covered activities (section 6.3 of the HCP).
11. Monitoring and Adaptive Management (section 6.4 of the HCP):
    a. The Applicant will monitor the amount of BCVI habitat that is impacted during construction and include the amount in the annual report to the Service.
    b. The Applicant will evaluate BCVI habitat conditions during the fifth year following implementation of the post-construction habitat restoration measures. The habitat evaluation will determine whether or not restored conditions meet the definition of suitable BCVI habitat described in Campbell (2003). Results of the habitat evaluation will be included in the annual report to the Service.
    c. The mitigation site will be monitored and adaptively managed in accordance with the management plan (required for permittee-responsible mitigation describing the detailed activities for mitigation site management and must be reviewed and approved by the Service) for the site either by the Applicant or by a third party depending on the mitigation option chosen.
12. Reporting (section 7.0 of the HCP):
    a. The Applicant will submit an annual report on February 28 of each calendar year to the Austin Ecological Services Field Office (Austin ESFO). The annual report will document the implementation of covered activities, the outcome of monitoring activities, and any measures taken in response to changed circumstances during the preceding calendar year.
    b. The Applicant will notify the Austin ESFO of the initiation of covered activities at least 10 business days prior to the start of work. The notification will include confirmation that:
        i. final construction plans are consistent with the take assessment in Section 5 of the HCP;
        ii. the Applicant has implemented the required contractor training;
        iii. the Applicant has secured permanent conservation for the BCVI in the amount specified in Section 6.3of the HCP; and
        iv. the Applicant remains committed to implement all other avoidance and minimization measures specified in the HCP.

Description of the Action Area

Area Affected

Section 7(a)(2) of the Act's implementing regulations defines the action area as all areas affected directly or indirectly by the Federal action and not merely the immediate area affected by the

project (50 CFR § 402.02). For the purposes of this biological opinion, the action area includes the entirety of the Habitat Conservation Plan area, approximately 10,808 acres in central McCulloch County, Texas. The property included in the action area has been leased by the Applicant for the proposed Heart of Texas wind project from private landowners (please see Figure 1 of the HCP). The action area coincides with the study area described in the EA, and is illustrated in EA Figure 3.

Status of the species

For more specific information regarding the BCVI, please refer to the Species Status Assessment Report for the Black-capped Vireo (*Vireo atricapilla*) (Service 2016)2016 and Endangered and Threatened Wildlife and Plants; Removing the Black-Capped Vireo from the Federal List of Endangered and Threatened Wildlife (81 FR 90762) available at https://www.fws.gov/southwest/es/arlingtontexas/bcvi.htm..

Species Description and Life History

The BCVI was federally listed as endangered on October 6, 1987 (52 FR 37420-37423). No critical habitat was designated for this species. On December 15, 2016 the Service proposed to remove the BCVI from the list Endangered and Threatened Wildlife due to recovery (81 FR 90762). The BCVI is a 4.5-inch long, insectivorous songbird. Mature males are olive green above and white below with faint greenish-yellow flanks. The crown and upper half of the head are black with a conspicuous white eye-ring. The iris is brownish-red and the bill is black. Mature females are generally duller in color than males, and have a dark slate gray head (Service 20162016).

Although BCVI habitat throughout Texas is quite variable with respect to plant species, soils, and rainfall, habitat types generally have a similar overall appearance. The BCVI typically inhabits shrublands and open woodlands with a distinctive patchy structure. The shrub vegetation generally extends from the ground to about 1010 feet above ground and covers about 30 to 60 percent of the total area. In the Edwards Plateau, common plants in BCVI habitat include Texas oak (*Quercus texana*), shin oak (*Q. sinuata*), live oak (*Q. virginiana* & *Q. fusiformis*), mountain laurel (*Sophora secundiflora*), sumac (*Rhus*. sp), redbud (*Cercis canadensis* var. *texana*), Texas persimmon (*Diospyros texana*), mesquite (*Prosopis glandulosa*), and agarita (*Mahonia trifoliata*). In the Edwards Plateau, suitable habitat for the BCVI is early successional scrub/shrub created by fire or woodland clearing. BCVI are opportunistic foragers; however, they prefer insect larvae and seeds (Grzybowski 1995).

Male BCVI arrive in central Texas in late March and begin to establish breeding territories, which they defend against other males by singing. Females arrive a few days later, but are more difficult to detect in the dense brushy habitat. Three to four eggs are generally incubated in

April, and unless there is a second nesting attempt, nestlings fledge in May to early June. By mid-September, BCVIs have generally migrated south, beginning with females and young and followed by adult males (Graber 1957, Oberholser 1974). The BCVI breeds from Oklahoma south through central Texas to the Edwards Plateau, then south and west to central Coahuila, Nuevo Leon, and southwestern Tamaulipas, Mexico and they winter on the Pacific slope of Mexico.

Historical and Current Distribution

The historical breeding distribution of the BCVI included an area stretching from Kansas southward through central Oklahoma and through west-central Texas, with a southern limit in central Coahuila, Mexico. In 1987, the known breeding population was distributed across 21 counties in Texas, four counties in Oklahoma and in Coahuila, Mexico. From 1990 to 1996, the vireo was confirmed present in three Oklahoma counties and 40 Texas counties. From 2000 to 2005, Wilkins *et al.* (2006) confirmed vireo records from three Oklahoma counties and 38 Texas counties. It was suggested that the vireo no longer occurs in Kansas (Wilkins *et al.* 2006). From 2009 to 2014, the vireo has been confirmed in five Oklahoma counties and 40 counties in Texas (Service 2016). Prior to 2003, the BCVI'sBCVI southern-most confirmed breeding range was in central Coahuila, Mexico (Wilkins *et al.* 2006). Since then, confirmed breeding has been documented in Nuevo León and Tamaulipas, extending the known breeding range 520 km (323 mi) southeast from the previous southernmost record near Ocampo, Coahuila (González-Rojas *et al.* 2014).

According to survey data from 2009 to 20142014, approximately 4040% of the known population in the breeding range occurred on four well-surveyed areas: Fort Hood Military Reservation (Texas), Kerr Wildlife Management Area (Texas), Wichita Mountains Wildlife Refuge (Oklahoma), and Fort Sill Military Reservation (Oklahoma) (Service 2016). Together, these facilities cover approximately 400,000 acres, an area representing only one percent of the total area of rangeland in the Texas/Oklahoma range of the species (Wilkins et al. 2006).

The current BCVI breeding range no longer appears to extend northward past central Oklahoma, and the species has not been documented in Kansas since the 1950s. The current U.S. breeding range documented from 2009 to 2014 includes five counties in Oklahoma and 40 counties in Texas (Service 2016).). The discovery of breeding populations of the BCVI in southern Coahuila, Nuevo Leon, and Tamaulipas significantly extends their breeding range farther south than was known at the time of listing.

Reasons for Decline and Threats to Survival

At the time of listing, the identified major threats to the BCVI included habitat loss through land use conversion, grazing and browsing by domestic and wild herbivores, and brood parasitism by

brown-headed cowbirds. The threat of vegetative succession, originally considered minor, appears to have been underestimated at the time of listing, although the extent of the effects on the BCVI is not fully known. Historically, naturally occurring wildfires probably maintained a mosaic of suitable habitat throughout the BCVI's range. The threat of predation, also originally considered minor, appears to be of more importance than originally anticipated. Depredation rates of monitored nests at Fort Hood rose steadily between 1997 and 2005 then stabilized slightly above 50% afterward (Cimprich and Comolli 2009). At Fort Hood, brown-headed cowbird removal shows a strong negative correlation with overall parasitism rate. In 2010, Fort Hood had an overall parasitism rate of approximately 12%, up from a low of two percent in 2003 (Cimprich and Comolli 2010). Following the cessation of cowbird trapping on the west range of Fort Hood in 2006, parasitism has increased by more than four times the original rate (Cimprich and Comolli 2009), but then decreased to less than three times the original rate in 2010 (Cimprich and Comolli 2010). During this same time, parasitism on the east range, where trapping still occurs, has remained stable. On average, cattle densities throughout the BCVI's U.S. range have shown moderate decreases since 1997;; average goat densities throughout the BCVI's Texas range have been steadily decreasing since the BCVI was listed in 1987 (Service 20162016).

Range-wide Survival and Recovery Needs

The Black-capped Vireo Recovery Plan (Service 1991) provides preliminary criteria that would meet the interim objective of downlisting the species to threatened status. One of these criteria requires at least one viable BCVI population in each of four Texas regions and one each in Oklahoma and Mexico (Service 1991, Service 2013). The Service's 5-year status review of the BCVI found the Recovery Plan to be in need of revision and recommended the species be downlisted to threatened status (Service 2007). On December 15, 2016, the Service proposed to remove the BCVI from the list of Endangered and Threatened Wildlife due to recovery (81 FR 90762) and published a supporting Species Status Assessment for the BCVI (Service 2016).

Continued vegetation and cowbird management within known populations is needed for persistence in portions of the species' breeding range. There are 40BCVI populations under some form of management in Oklahoma and Texas, varying in size from a single adult male to an estimated 7,478 adult males. Of these, 9 are considered likely resilient populations and another 10 are considered manageable populations. The proposal recommends the continuation of brown-headed cowbird trapping on Federal and private properties and the expansion of this practice to other properties to improve BCVI breeding success.

Environmental Baseline

The Applicant cleared and excavated seven pad sites and improved the access roads to these wind turbine pad sites within the action area prior to public comment on the HCP. The Service

was made aware of this activity as a result of letters received during the public comment period. Figure 3 in the EA shows the seven wind turbine sites and associated improved access roads. The cleared and excavated pad sites and improved access roads are considered part of the environmental baseline and are not addressed in this biological opinion.

Status within the Action Area- BCVI

The proposed action occurs within the BCVI's Central Texas Recovery Unit (Service 2013). Based on survey data collected between 2009 to 2014, the Central Recovery Unit had a known population of 520 adult male BCVI. This does not include the population occurring on HoT, which was identified in 2016.

A presence/absence survey for the BCVI, following USFWS protocols (USFWS 2010), was conducted across approximately 1,840 acres of the plan area during the 2016 breeding season (Bio-West, 2016b). The survey area covered most areas of suitable BCVI habitat within 900 feet of the proposed project layout. The survey recorded 1,126 detections of BCVIs within the survey area associated with approximately 146 individual BCVI territories. A habitat assessment completed in 2015-2016 determined approximately 3,843 acres of the plan area to be suitable BCVI habitat with the remaining 6,919 acres lacking the under and mid-story vegetation needed to support BCVI (Bio-West, 2015 and 2016a). Areas of suitable BCVI habitat within the plan area not covered by the presence/absence survey are considered occupied for the purposes of this opinion (please see Figure 5 in the HCP).

Prior consultations completed

One formal section 7 consultation has been completed for BCVI that included McCulloch County. The consultation addressed Natural Resource Conservation Service's brush management actions within a 54 county area in Texas and authorized the disturbance of 23,752 acres of BCVI habitat annually for three years within BCVI Recovery Unit 2 where McCulloch County is located (2005-F-021). No previous HCPs have been completed for BCVI within McCulloch County.

Effects of the Proposed Action

Under section 7(a)(2) "effects of the action" refers to the direct and indirect effects of an action on a species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action. The effects of the proposed action are added to the environmental baseline to determine the future baseline that serves as the basis for the determination in this biological opinion. The impacts discussed below are the Service's evaluation of the direct and indirect effects of the proposed action. Indirect effects are those caused by the proposed action that occur later in time, but are still reasonably certain to occur (50 CFR 402.02).

. The actions proposed in the HoT HCP have the potential to adversely affect BCVI by directly injuring or harassing birds found within the action area. Actions that are expected to cause incidental take can be categorized as either recurrent actions or discrete and finite actions. Recurrent actions occur multiple times over the duration of the permit and may occur multiple times each year. Recurrent actions included in the HoT HCP include routine or emergency maintenance, repair, and operation of the HoT wind project and habitat management activities within a permittee-responsible mitigation site should the applicant select this mitigation option. Finite actions include the removal of BCVI habitat for initial construction of the proposed project and habitat restoration of disturbed areas post-construction.

Removal of habitat for construction and habitat restoration

Direct and indirect effects are likely to occur to the BCVI as a result of the covered activities primarily due to the alteration of occupied BCVI habitat outside of the breeding season for construction of the proposed 63 wind turbines and associated infrastructure. The covered activities will directly remove approximately 122.39 acres of suitable, occupied BCVI habitat and indirectly affect an additional 602.62 acres of suitable, occupied BCVI habitat, within 300 feet of the construction zone. The total amount of BCVI habitat that will be directly and indirectly affected is 725.01 acres. This calculation is based on a map of impact zones by type of covered activity that was overlaid on a map of suitable BCVI habitat throughout the plan area (please see section 5.1.3 and Figure 6 in the HCP).

Of the 122.39 acres of habitat that will be directly affected, approximately 30.53 acres of BCVI habitat will be permanently cleared, thus creating a long-term impact. The remainder, approximately 91.86 acres of the cleared habitat, will be restored following initial construction activities and suitable BCVI habitat will be allowed to regrow. Due to the dry climate and relatively slow growth of BCVI habitat in the area, restoration is anticipated to take 5 or more years post-construction creating a short-term impact in these areas.

Permanent and temporary removal of BCVI habitat within the plan area results in a reduced amount of breeding habitat available to the species upon return in the subsequent breeding season and would result in take in the form of harm. Indirect effects would include short-term changes in prey abundance as a result of vegetation alteration as well as fragmentation of BCVI habitat within the plan area.

Routine or emergency maintenance, repair, and operation of the wind project

The introduction and operation of a new wind power site into and adjacent to occupied BCVI habitat will subject individual BCVI to noise, vibration, and shadow flicker as a result of operation of the facility. Routine maintenance and potential emergency maintenance activities, such as replacing a portion of a turbine, or routine inspection of the turbines and associated infrastructure will require human activity within the plan area on a regular and recurring basis and may impair certain aspects of BCVI breeding, feeding, or sheltering behaviors. The development of the property as a wind project presents stressors not previously present that may result in nest abandonment, increase in cowbird presence, changes in territory size, and changes in foraging behavior that may rise to the level of take through harassment. Additionally, there is the possibility that direct impacts may occur in the form of 'killing' or 'wounding' if an individual BCVI collides with a spinning turbine during flight or with a vehicle on the ground while traveling between two areas of suitable habitat across a roadway. The Service recommended that the Applicant pursue take coverage for BCVI collision with a wind turbine. The Applicant chose not to request take coverage for collision of a BCVI with a spinning turbine and therefore take coverage for wind turbine collision is not covered under this biological opinion or the associated ITP. The Applicant has chosen to address this issue as a changed circumstance under Section 8.1.4 in the HCP and discusses their rationale for not seeking take coverage in Appendix A to the HCP. BCVI turbine collision fatality at a wind power facility (either reported in the Applicant's BBCS on this project or at another wind project), would require an amendment to the ITP and trigger reinitiating this biological opinion and.

Habitat management activities

If the Applicant chooses to pursue a permittee-responsible mitigation option, any area permanently preserved for BCVI would require habitat management outside of the breeding season to maintain BCVI habitat in the optimal condition for occupancy by the species. BCVI habitat is maintained in a rotational manner to ensure a majority of the mitigation property remains suitable for BCVI while newly treated areas recover. Unlike habitat removal or trimming for a proposed project the configuration of treatment within a mitigation site is typically not linear. A block of the site is treated on a rotational basis with the remainder of the site left untreated.

Maintenance of BCVI habitat within the mitigation site would require prescribed fire and/or mechanical manipulation across 25% of the BCVI habitat every 3 to 5 years resulting in a short-term effect. The remaining 75% of the original area delineated as BCVI habitat within the mitigation site would be maintained in nesting condition for occupancy by the species. Areas that have been maintained may become temporarily unsuitable for the species due to the direct and indirect effects of the treatment. The treatment of a portion of the BCVI habitat within a mitigation area results in a reduced amount of breeding habitat available to the species upon return in the subsequent breeding season and may result in take in the form of harm. Indirect effects would include short-term changes in prey abundance as a result of vegetation alteration

and changes in territory size. Although habitat management will have short-term detrimental effects to BCVIs while habitat is being treated, the long-term effect to the BCVI will be beneficial. Habitat management restores a disturbance regime to the mitigation site and maintains the majority of the site as suitable BCVI habitat.

Conservation measures included in the HoT HCP include siting turbines and infrastructure outside of BCVI habitat, completing clearing and construction outside of the BCVI breeding season, restoration of up to 91.86 acres of BCVI habitat post-construction, and permanent protection of 564.45 acres of occupied BCVI habitat within a mitigation site prior to the initiation of the project.

The temporal extent of the HoT HCP is 30 years representing roughly 3-4 generations for the BCVI. There is the potential that BCVI present within habitat areas within and adjacent to the proposed project may be harassed once, multiple times, or not at all as a result of covered activities within the action area. A total of approximately 1,289.46 acres (725.01 acres construction + 564.45 acres management of mitigation area) of BCVI habitat may be directly and indirectly affected as a result of the covered activities. The Applicant has included conservation measures for each activity to avoid and minimize the effect to the covered species. They have also committed to provide a permanent offset of 564.45 acres to help mitigate for the potential loss and/or harassment of BCVI due to construction, operation, and maintenance of the HoT wind project.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

An undetermined number of future land use conversions and habitat conversions that are not subject to Federal authorization or funding and may alter the habitat or increase incidental take of species covered by this opinion and are, therefore, cumulative to the proposed project. These additional cumulative effects include: (1) potential additional wind turbine construction; (2) additional energy development (oil and gas, pipelines, transmission); (3) recreational activities; (44) rural residential development ; (5) road maintenance and construction activity not related to the HoT Project; and, (6) habitat alteration by invasive exotic / non-native species. Land cover in the project area changed minimally from 2001 to 2011 as a result on ongoing land uses and that trend is expected to continue:

1) Potential for additional wind turbine construction in the area is ongoing and is expected in the foreseeable future. For example, constructing an adjacent wind project (Rattlesnake Wind

Project) is estimated to remove 562 acres of vegetation immediately adjacent to, but outside of, the action area. This project is within approximately 12,000 acres of private land that is composed almost entirely of rangeland. Cumulative effects that would occur as a result of this project include additional habitat fragmentation as well as additional noise, vibration, and shadow flicker from the adjacent turbines.

2) In the foreseeable future we anticipate that additional energy development (oil, gas, and wind) will continue to occur in the action area. We cannot determine when or where energy development will occur, but it is reasonable to assume that increased demand for energy could drive additional development. Additional development of energy resources in the area would presumably have an associated increase in infrastructure (i.e. transmission lines, pipelines). Cumulative effects that would occur from future energy development could include habitat loss and fragmentation.

3) Recreational activities occurring in the action area will not be impacted by this development and are likely to continue into the future. We anticipate the level of recreation and its impact to be similar to that currently being experienced in the area.

4) The Project Area lies within a sparsely populated part of McCulloch County having a population density of approximately 2.0 people per square mile. The total population for McCulloch County is 8,220 (U.S. Census Bureau 2010). According to the Texas Water Development Board (TWDB), the population of McCulloch County is expected to increase by approximately 9% over the next 25 years (TWDB 2015). However, population estimates for 2014 actually show a slight (1%) decrease in total population since 2010 (U.S. Census Bureau 2016). As a result, we do not expect the cumulative effects of rural residential development to significantly change the land cover.

5) Foreseeable road maintenance and construction not related to the project is expected to occur if additional lands are developed for energy or residential use. As described above, cumulative effects of road maintenance and construction could lead to additional habitat loss and fragmentation, but would be at a level to support the expected economic activities and the population increases that are likely to occur in the action area.

6) It is likely that an increase in future development will be accompanied by an increase in habitat alteration by invasive exotic / non-native species. The introduction of vehicles, equipment, and construction or maintenance crews to the action area could introduce exotic or invasive species to construction sites and surrounding areas. This could result in future habitat loss and fragmentation but would be at a level to support the expected economic activities and the population increases that are likely to occur in action area.

Conclusion

After reviewing the current status of the BCVI, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the BCVI No critical habitat has been designated for the BCVI; therefore, none will be affected.

The HoT HCP would allow for incidental take of BCVI from construction, operations and maintenance of 63 wind turbines, and habitat restoration and management activities within the plan area in McCulloch County, Texas. The majority of the authorized take will be non-lethal harassment of BCVIs from removal of occupied habitat outside of the breeding season and the introduction of a wind facility within occupied BCVI habitat. In addition to providing permanent protection for 564.45 acres of occupied BCVI habitat, areas that are not required post-construction will be monitored and restored to BCVI habitat. Approximately 725 acres of occupied BCVI habitat would be removed or degraded by construction within the plan area. An additional 564.45 acres of BCVI habitat would be actively managed within a permanent preserve. The total estimated potential BCVI habitat within the plan area is 3,843 acres (please see section 3.2.2 in the HCP). The total amount of BCVI habitat to be removed, modified, or actively managed comprises approximately 34% of the estimated BCVI habitat within the plan area.

The anticipated incidental take from the proposed action would not affect the recovery of the BCVI as described in the Service's proposed rule to delist the species. The 2016 Species Status Assessment analyzed survey data collected from 2009 to 2014 as the most complete information available. This information only documented 25 adult male vireos from McCulloch County and did not include the HoT population (identified in 2016). The identification of the BCVI population occurring within the HoT HCP area represents additional information unknown at the time of the Species Status Assessment analysis that potentially increases the known population in the U.S. breeding range. The HoT HCP population, with mitigation, represents additional redundancy within the BCVI's Central Texas Recovery Unit.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined by the Service as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is further defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding and sheltering (50 CFR §17.3). Harm is also further defined by the Service to include significant habitat modification or degradation that results in death or

injury to listed species by impairing behavioral patterns, including breeding, feeding, and sheltering. Incidental take is defined by the Service as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with this Incidental Take Statement.

The HoT HCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize these impacts. All conservation measures described in the proposed HCP, together with the terms and conditions described in any associated Implementing Agreement and any Section 10(a)(1)(B) permit or permits issued with respect to the HCP are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittees fail to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the HoT HCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the HCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

The Service anticipates incidental take of black-capped vireo will occur as a result of the proposed action. Individual black-capped vireo are difficult to detect unless they are observed, undisturbed, in their environment. The amount of BCVI habitat affected by the proposed action is used as a surrogate for the take of the species because BCVI surveys are limited in their effectiveness for detecting and quantifying the number of birds in an area. Male BCVIs are more easily detected than females or fledglings during surveys due to their frequent vocalizations. However, because the area of BCVI habitat that supports breeding, feeding, and sheltering of the species is known in the action area, the maximum amount of incidental take may be estimated in terms of habitat area consistent with 50 CFR 402. The area of habitat affected by a particular action is a relatively stable metric of take, compared to the number, size, and location of individual birds or bird territories in the area, which may vary from year-to-year.

The Service anticipates that the proposed action would result in the incidental take of BCVIs. Take would be in the form of harm, harassment, wounding, and/or killing. Take, in the form of harm and/or harassment, is difficult to quantify and usually cannot be estimated in terms of numbers of individuals. Surveys for BCVI provide valuable information for determining the extent of occupation of a given area; however, they do not provide a precise mechanism for predicting the number of individuals that may actually be "taken" by the proposed action. The

effectiveness of bird surveys in quantifying the number of birds in an area is somewhat limited. For example, due to their frequent vocalizations, males of these species are more easily detected than females or fledglings during surveys.

In addition, the area of habitat affected by a particular action is a relatively stable metric of take, compared to the number, size, and location of individual birds or bird territories in the area, which may vary from year-to-year. Further, the effects of a given activity may not be fully realized in a single season but rather spread over several seasons or even many years, during which the species' utilization of a given area may vary quite significantly for reasons unrelated to the action itself. Variability is influenced by species preferences or environmental factors that may include natural year-to-year variations in the precise habitat utilized by individual birds, variations in individual bird behavior that influence detectability, variations in the ability of surveyors to detect and accurately map individual birds, survey methodology, and other factors. For these reasons, it is not possible to predict the precise number of BCVI that may be "taken" over time as a result of the proposed actions covered in this opinion. Therefore, incidental take is provided as loss of habitat in acres under this opinion

For black-capped vireo, incidental take, from covered activities are expected to occur in the form of harm and harassment through direct loss of habitat and other adverse effects resulting from the operation of the Heart of Texas wind energy project.

The following amount of incidental take will be authorized by the permit:

1. No more than 1,289.46 acres of black-capped vireo habitat:
    a. 725.01 acres for construction, maintenance, and operations of the wind project, and;
    b. 564.45 acres for management of black capped vireo habitat within the mitigation area.

Effect of the Take

In the accompanying biological/conference opinion, the Service has determined that this level of anticipated take is not likely to result in jeopardy of the black-capped vireo due to the limited effects associated with the proposed actions and the commitment to offset incidental take of black-capped vireo by permanently protecting, managing, and monitoring occupied black-capped vireo habitat within the plan area.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of covered species. The Service shall:

1. Require the Applicant to fully implement the Heart of Texas HCP and comply with all terms and conditions of the issued section 10(a)(1)(B) incidental take permit; and,
2. Require the Applicant to avoid and minimize harassment and harm of black-capped vireos during covered activities within the plan area.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Service must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting and monitoring requirements. The Applicant shall be responsible for complying with these terms and conditions, which are non-discretionary.

The following terms and conditions implement the first reasonable and prudent measure:

1. The authorization granted by the permit is subject to compliance with all terms and conditions contained in the permit.
2. Ensure that Heart of Texas Wind, LLC avoid and minimize incidental take of black-capped vireos, in the form of death, harm, or harassment, by fully implementing the *Heart of Texas Wind Project Habitat Conservation Plan* dated June 2017; and
3. Ensure that the Heart of Texas Wind, LLC fully mitigate the effects of the taking of black-capped vireos from Covered Activities, as described in the *Heart of Texas Wind Project Habitat Conservation Plan* dated June 2017.

The following term and condition implements the second reasonable and prudent measure:

1. Require the Heart of Texas Wind, LLC to limit clearing and construction in areas of suitable BCVI habitat so that habitat is only removed during the non-breeding season between September 1 and March 14 and,

Permit terms and conditions:

A. Acceptance of the permit serves as evidence that the Permittee (Heart of Texas Wind, LLC) agrees to abide by all conditions stated. Terms and conditions of the permit are inclusive. Any activity not specifically permitted is prohibited. Please read through these conditions carefully as violations of permit terms and conditions could result in your permit being suspended or revoked. Violations of your permit terms and conditions that contribute to a violation of the Endangered Species Act (ESA or Act) could also subject the Permittee to criminal or civil penalties.

B. The authorization granted by the Permit will be subject to full and complete compliance with, and implementation of, the Heart of Texas Wind Project Habitat Conservation Plan,

and all specific conditions contained herein. The Permit terms and conditions shall supersede and take precedence over any inconsistent provisions in the Habitat Conservation Plan or other program documents.

C. The permit only authorizes incidental take of the following species (covered species):

Common Name	**Scientific Name**	**ESA Status**
black-capped vireo	*Vireo atricapilla*	Endangered, proposed for delisting

D. Incidental take authorized by the permit for a 30 year period:

1. No more than 1,289.46 acres of black-capped vireo habitat

E. The permit only authorizes incidental take of covered species within 10,808 acres in central McCulloch County, Texas. (Plan Area).

F. The permit does not include the seven wind turbine sites and associated access roads that were constructed by the Applicant prior to permit issuance (turbines 36, 37, 38, 39, 40, 54, and 55).

G. Incidental Take Authorization

1. Heart of Texas Wind, LLC – Covered activities for which incidental take is authorized:

    a. Installation of up to 63 wind turbine generators.

    b. Construction of MV collection cables to collect power generated by the turbines.

    c. Construction or upgrading of approximately 20 miles of improved or new access roads to provide sufficient access to 63 wind turbines within the project area.

    d. Construction of a fenced substation of no more than 5 acres.

    e. Construction of 3.8 miles of an approximately 8-mile-long, 345-kilovolt overhead transmission, Gen-tie Line to transport power from the project area.

f. Ongoing operations and maintenance of 63 wind turbines within the Heart of Texas wind power facility.

g. Habitat management of 564.45 acres of occupied BCVI habitat within a permanently protected preserve.

H. Upon locating a dead, injured, or sick individual of the covered species, or any other endangered or threatened species, the Permittee is required to contact the Service's Law Enforcement Office in San Antonio, Texas, (210) 681-8419 for care and disposition instructions. Extreme care should be taken in handling sick or injured individuals to ensure effective and proper treatment. Care should also be taken in handling dead specimens to preserve biological materials in the best possible state for analysis of cause of death. In conjunction with the care of sick or injured endangered/threatened species, or preservation of biological materials from a dead specimen, the Permittee has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

I. Conditions of the permit shall be binding on, and for the benefit of, the Permittee and any successors and/or assignees. If the permit requires an amendment because of change of ownership, the Service will process in accordance with regulations (50 CFR 13.23). The new Permittee must meet issuance criteria per regulations at 50 CFR 13.25. The covered activities proposed or in progress under the original permit may not be interrupted provided the conditions of the permit are being followed.

J. If, during the tenure of the permit, the project design and/or the extent of the habitat impacts is altered, such that there may be an increase in the anticipated take of the covered species, the Permittee is required to contact the Service's Austin Ecological Services Office (ESFO) and obtain an amendment to this permit before commencing any construction or other activities that might result in take beyond that authorized by the permit. If authorized take is exceeded, all activities that are shown to cause take must immediately cease and any take above that authorized shall be reported to the Austin Ecological Services Field Office (512-490-0057) within 48 hours.

K. If actions associated with implementation of the Heart of Texas Wind Project Habitat Conservation Plan are shown to result in incidental take of listed species not covered by the permit, those activities that are shown to cause take must immediately cease and any take that has occurred shall be reported to the Austin Ecological Services Field Office (512-490-0057) within 48 hours.

L. The Heart of Texas, LLC shall monitor the covered activities and ensure appropriate and relevant information (as specified below) on the covered activities is provided in a timely manner to the Service.

M. Changed Circumstances:

The Heart of Texas Wind Project HCP provides measures for the following changed circumstances (Section 8.1 of the HCP):

1. New species listings.
2. Change in project design.
3. Habitat restoration measures prove ineffective.
4. Collision fatality.
5. Emergency responses.

N. Monitoring Requirements:

1. The Permittee will monitor compliance with the HCP and provide an annual report as described below.
2. The Permittee will develop a monitoring program to determine if progress is being made toward meeting the long-term biological goals and objectives.

O. Annual Reporting:

a. The Heart of Texas, LLC will provide an annual report, due on February 1 of each year, to:

U.S. Fish and Wildlife Service
Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, Texas 78758

U.S. Fish and Wildlife Service, Region 2
Habitat Conservation Plans and Research Permits
P.O. Box 1306, Room 6034
Albuquerque, New Mexico 87103

2. The report will document the activities and Heart of Texas, LLC's permit compliance for the previous year, thus documenting progress toward the goals and objectives of the HCP and demonstrating compliance with the terms and conditions of the incidental take permit. The annual report will include (Section 7.3 in the Heart of Texas HCP):

a. Implementation of covered activities.
b. Amount of BCVI habitat impacted in acres.
c. Implementation, outcome, and evaluation of BCVI habitat restoration activities.
d. Reporting required for the permittee-responsible mitigation site in the management plan (if this mitigation option is chosen).
e. Adaptive management activities undertaken during the year
f. Status of implementation of minimization and mitigation measures and their effectiveness
g. Emergency maintenance or repair actions
h. Any changes to the objectives for the monitoring program
i. Any recommendations regarding actions to be taken.

3. Information provided in the annual report will be used to determine what, if any, adaptive management strategies should be implemented to most effectively implement the conservation program outlined in the Heart of Texas HCP and to ensure that management changes in response to new, appropriate data are implemented in a timely fashion.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of an action on listed species or critical habitat, to help implement recovery plans, or to develop information. We provide the following conservation recommendations:

1. Assist with efforts to monitor known BCVI populations
2. Assist with efforts to control brown-headed cowbird throughout the range of the BCVI.

We request notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

Review Requirements

The reasonable and prudent measures, with their implementing terms and conditions, are designed to avoid, minimize, and mitigate effects of incidental take that might otherwise result from the issuance of the permit and implementation of the associated Heart of Texas HCP. If, during the course of the authorized activities, this level of incidental take is exceeded prior to the

annual review, such incidental take represents new information requiring review of the reasonable and prudent measure provided. The Austin Ecological Services Field Office must immediately provide an explanation of the causes of the taking and review the need for possible modification of the reasonable and prudent measures with the Chief of Endangered Species, Southwest Regional Office. This biological opinion will expire at the expiration of the incidental take permit issued to implement the Heart of Texas HCP.

Reinitiation Notice

This concludes formal consultation on the issuance of a Service 10(a)(1)(B) permit for the Heart of Texas Habitat Conservation Plan that minimizes and mitigates, to the maximum extent practicable, adverse effects to the endangered black-capped vireo from covered activities described in this biological opinion over a period of 30 years. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any activities causing such take must cease pending reinitiation.

If you have any questions regarding this biological opinion, please contact Tanya Sommer at 512/490-0057, extension 222.

Approved:

Adam Zerrenner, Field Supervisor
Austin Ecological Services Field Office

June 16, 2017
Date

Concur:

Edward D. Koch

Assistant Regional Director
Ecological Services, Region 2

6/19/17
Date

Non-concur:

Assistant Regional Director
Ecological Services, Region 2

Date

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