NRR-PMDAPEm Resource

From: Grange, Briana
Sent: Tuesday, June 17, 2014 1:49 PM
To: Finfera, Jennifer
Subject: RE: Davis Besse operating license renewal
Attachments: Davis-Besse Assessment of Impacts to Additional Species 6-17-14.pdf

Hi Jenny,

Thanks for the update. For the original 1972-1979 bird mortality monitoring reports, I do not have copies of these reports. I am checking to see if the applicant (FirstEnergy) can locate a copy of these for your review.

I pulled the information I included in my assessment from the Generic Environmental Impact Statement for License Renewal (p. 4-72 and 4-73). I was also able to locate more information from the NRC's 1975 Final Environmental Statement. See Section 5.4.1 (p. 5-4), Section 6.4 (p. 6-4), and Table 6.3 (p. 6-7). This only includes information from 1972-1974, but the red knot was not one of the bird collected during collision mortality monitoring.

For the Kirtland's warbler, I updated the previous supplemental assessment I emailed you on May 6 to include this species. I also added the additional information on bird mortality in the 1975 Final Environmental Statement. The updated version is attached.

Briana

Briana A. Grange
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From: Finfera, Jennifer [mailto:jennifer_finfera@fws.gov]
Sent: Monday, June 16, 2014 9:53 AM
To: Grange, Briana
Subject: Re: Davis Besse operating license renewal

Briana,

Sorry I have not gotten anything to you yet. I have been discussing the project with one of our Biologists who specializes in birds and we are surprised by the information that increased lighting led to reduced bird collisions.

Could we get a copy of the mortality monitoring reports?

Also could you provide a determination for the Kirtland's warbler? If you can follow the vegetation removal dates that would avoid impacts to migratory habitat and then the only aspect to consider would be the potential impact from collisions with the tower. I believe that Kirtland's warbler populations have continued to increase so I don't think that continued operations will have a negative impact on this species.

Thank you,

Jenny

On Thu, Jun 12, 2014 at 1:54 PM, Grange, Briana <Briana.Grange@nrc.gov> wrote:

Hi Jenny,

Any further update on the timeframe for the evaluation of the red knot?

My understanding is that the FWS has to determine within 12 months of publishing a proposed rule whether it will issue a final rule. For the red knot, that would be a decision by May 14, 2015.

For your information, the NRC's review schedule for the Davis-Besse license renewal is on our website here. The NRC doesn't have a clear date when it will make a decision on issuing the renewed license due to some complications with the ongoing safety review. However, we do plan to wrap up the NEPA process and issue the final EIS in September 2014. I don't think I included those dates in the letter we sent your office, so maybe these will be helpful in determining how to address the red knot in this consultation.

Do you need any other info from me or the applicant (FENOC, the owner and operator of Davis-Besse) for your review? Do you foresee the possibility of a conference opinion for the red knot?

Thanks,

Briana

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From: Finfera, Jennifer [mailto:jennifer_finfera@fws.gov]
Sent: Tuesday, May 27, 2014 11:48 AM

To: Grange, Briana
Subject: Re: Davis Besse operating license renewal

Briana,

For the tower lights if it possible these should either be eliminated or set so that if they blink they are off more than on. The longest time off possible would be the most beneficial. For lights within the complex they should be down-shielded or set on motion detectors so they are not on continuously. I am going to check and see if there is any sort of timeframe for the evaluation of the red knot and that will help us determine how to proceed.

Jenny

On Tue, May 6, 2014 at 1:44 PM, Grange, Briana <Briana.Grange@nrc.gov> wrote:

Okay. Sounds good. Thanks for the update!

From: Finfera, Jennifer [mailto:jennifer_finfera@fws.gov]
Sent: Tuesday, May 06, 2014 1:43 PM

To: Grange, Briana
Subject: Re: Davis Besse operating license renewal

Briana,

I need to talk with one of our biologist who does most of the bird work. I know that having the lights on continuous instead of flashing does help reduce bird collisions and by the information you included these collisions have been reduced. After I find out if there are any other avoidance or minimization measures I will give you a call so we can discuss this further. It will probably be next week. As I will be in the field most of the rest of this week.

Jenny

Jenny

On Tue, May 6, 2014 at 11:37 AM, Grange, Briana <Briana.Grange@nrc.gov> wrote:

Hi Jenny,

Per your request, I have attached an assessment for the proposed long-eared bat. In the course of considering the bat, I also identified another proposed species—the red knot—that occurs in the action area. Both species are considered in the attached assessment.

As you will see, I concluded “not likely to adversely affect” for the long-eared bat, but “may affect” for the red knot due to the potential for collision with plant structures. Given the “may affect” conclusion and the fact that the red knot is a proposed species at this time, I am not sure what the appropriate path forward will be. Maybe we can talk after you read the assessment? Thanks,

Briana

Briana A. Grange

Biologist

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Assessment of Impacts to Kirtland's Warbler (Setophaga kirtlandii), Northern Long-Eared Bat (*Myotis septentrionalis*), and Red Knot (*Calidris canutus rufa*)

Davis-Besse Nuclear Power Station
Proposed License Renewal

May 2014

Updated June 2014

Docket No. 50-346

U.S. Nuclear Regulatory Commission
Rockville, Maryland

Prepared by:

Briana Grange
Division of License Renewal
Office of Nuclear Reactor Regulation

Assessment of Impacts to Kirtland's Warbler, Northern Long-Eared Bat, and Red Knot from the Proposed Davis Besse Nuclear Station, Unit 1, License Renewal

1.0 Introduction

In February 2014, the U.S. Nuclear Regulatory Commission (NRC) issued its draft Supplement 50 to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (SEIS), regarding the license renewal of Davis-Besse (NRC 2014a). Sections 2.2.8 and 4.8 of the SEIS included an assessment of whether the proposed license renewal of Davis-Besse Nuclear Station, Unit 1 (Davis-Besse) would adversely affect four Federally listed species: the Indiana bat (*Myotis sodalis*), piping plover (*Charadrius melodus*), eastern prairie fringed orchid (*Piatanthera leucophaea*), and lakeside daisy (*Hymenoxy acaulis* var. *glabra*). The NRC determined that the proposed license renewal may affect, but is not likely to adversely affect the Indiana bat and would have no effect on the piping plover, eastern prairie fringed orchid, and lakeside daisy. The NRC requested concurrence with its effect determinations for these species in a February 27, 2014, letter to the U.S. Fish and Wildlife Service (FWS) (NRC 2014b) as part of consultation under section 7 of the Endangered Species Act (ESA).

During consultation, the FWS identified an additional species—the northern long-eared bat (*Myotis septentrionalis*)—that may occur in the action area. NRC staff also identified the red knot (*Calidris canutus rufa*) as an additional species that may occur in the action area. Both species are proposed for Federal listing, and the FWS may publish final rules listing one or both species before NRC makes a license renewal decision. Thus, consideration of these species in the ongoing section 7 consultation for license renewal is appropriate. The NRC prepared an assessment that evaluated potential impacts to these species and sent that assessment to the FWS by e-mail on May 6, 2014 (NRC 2014c).

During consultation, the FWS also determined that the Kirtland's warbler (*Setophaga kirtlandii*), a Federally endangered species, may use the shore of Lake Erie on the Davis-Besse site as stopover habitat during migration. This assessment addresses the potential effects of the proposed Davis-Besse license renewal on the Kirtland's warbler and updates information on the northern long-eared bat and red knot contained in the previous assessment.

The information in this assessment supplements the NRC's SEIS and will be included in the final SEIS upon publication.

2.0 Description of the Proposed Action

The proposed action (whether to renew the Davis-Besse license for an additional 20 years) remains unchanged. Section 1.1 of the SEIS (NRC 2014a) describes the proposed action in detail.

3.0 Proposed Action Area

The proposed action area remains unchanged. Section 2.2.8.1 of the SEIS (NRC 2014a) describes the action area in detail.

4.0 Species Descriptions

Kirtland's Warbler

The FWS included the Kirtland's warbler in its first list of threatened and endangered species in 1970 (35 FR 8491). No critical habitat has been designated for the species. The primary threats to the continued existence of Kirtland's warblers are loss of breeding habitat and nest parasitism by the brown-headed cowbird (*Molothrus ater*) (FWS 2009).

The Kirtland's warbler is a relatively large (14 cm [5.5 in.] in length and 12 to 15 grams [0.42 to 0.53 ounces] to in weight) wood warbler with bluish-gray plumage on the head, back, and wings, and a yellow throat, belly, and breast (FWS 2012a). The wings and back also include black and white streaking. Males are more brightly colored than females. Kirtland's warblers nest in jack pine (*Pinus banksiana*) forest within Michigan, Wisconsin, and Ontario, Canada, and winter in the Bahamas archipelago. During migration, individuals travel a fairly direct route and enter and leave North America at the North and South Carolina Coast (FWS 1985). Stopover habitat typically includes shrub/scrub or forested habitat in Ohio, West Virginia, Virginia, the Carolinas, and Georgia (FWS 1985). However, Petrucha et al. (2013) indicates that the species has been reported across 24 states, the District of Columbia, Manitoba, Ontario, and Québec. Kirtland's warblers are insectivorous and forage in pine needles, leaves, and other ground cover for various types of larvae, moths, flies, beetles, grasshoppers, ants, aphids, spittlebugs, blueberries, pine needles, and pitch from twigs and jack pine (FWS 2012a).

Birds arrive at breeding grounds in early May (Petrucha et al. 2013). Breeding pairs form within a week of arrival, and pairs may be monogamous or polygynous (FWS 2012a). Females typically lay four to five eggs beginning in mid- to late May over a five- to six-day period (FWS 2012a). Females incubate the eggs, and eggs hatch in 13 to 15 days (FWS 2012a). Young fledge the nest about nine days after hatching (FWS 2012a). Individuals leave nesting grounds to migrate to wintering grounds in late August to mid-September (Petrucha et al. 2013).

Migration lasts from 13 to 23 days including stopovers (Ewert et al. 2012). Records of spring-migrant Kirtland's warblers are concentrated in southern Michigan, Ontario, northern Ohio, and Illinois, but records also span Wisconsin, Indiana, Ohio (south of Lake Erie), western Pennsylvania, and the Atlantic coasts of Florida, South Carolina, and Georgia (Petrucha et al. 2013). Fall migration is more widely scattered across the Midwest and eastern states (Petrucha et al. 2013). In a review of migration records, Petrucha et al. (2013) found that stopover habitat is typically shrub/scrub (82.4 percent of records). Other habitats included residential (10.7 percent), parks with widely scattered trees or shrubs (3.7 percent), woodlands with closed canopies (1.6 percent), orchards (1.1 percent), and open land with exposed soil and little vegetation (0.5 percent).

According to the FWS (2012b), migrating Kirtland's warblers can be expected to occur along the shore of Lake Erie between April 22 and June 1 during spring migration and between August 15 and October 15 during fall migration. The Western basin of Lake Erie has the highest concentration of migrating Kirtland's warbler observations of any place in the United States outside of Michigan, where it breeds (FWS 2012b). Petrucha et al. (2013) collected 112 records of spring-migrating Kirtland's warbler occurrences in Ohio dating between 1880 and 2011. Eight of the records were within Ottawa County, and one record from May 2000 was in shrub/scrub habitat within Navarre Marsh on the Davis-Besse site. Various birding websites and blogs have anecdotally reported observing the species in Magee Marsh, which lies west of the Davis-Besse site, in 2010, 2012, and 2013. The NRC was unable to locate any official confirmations of these sightings. However, the available information indicates that the Kirtland's warbler occurs in the action area.

Northern Long-Eared Bat

The FWS published a proposed rule to list the northern long-eared bat as endangered throughout its range on October 2, 2013 (78 FR 61046). The FWS did not propose to designate critical habitat for the species because it found that such habitat is “not determinable at this time.” White nose syndrome, wind energy development, and loss of habitat specifically linked to surface coal mining in prime summer habitat are factors that have contributed to this species’ decline. Unless otherwise cited, the information in this section is derived from the FWS’s listing document (78 FR 61046).

The northern long-eared bat is a medium-sized forest-dwelling bat that is distinguished from other *Myotis* species by its long ears, which average 0.7 in. (17 mm) in length. This bat inhabits 39 states in the eastern and north central United States and all Canadian provinces west to the southern Yukon Territory and eastern British Columbia. Populations tend to be patchily distributed across its range and are typically composed of small numbers. More than 780 winter hibernacula have been recorded in the United States (3 in Ohio), most of which contain only a few (1 to 3) individuals. Northern long-eared bats are infrequently found in winter hibernacula surveys across the Midwest. The largest population in Ohio includes over 300 individuals and occurs in the southwestern portion of the state in Preble County. In summer, northern long-eared bats are regularly collected as incidental catches during Ohio mist-net surveys for Indiana bats. The FWS recognizes four United States populations. Northern long-eared bats inhabiting Ohio are considered part of the Midwest population.

In summer, bats roost alone or in small colonies under the bark of live or dead trees; in caves or mines; or in man-made structures, such as barns, sheds, and other buildings. The species opportunistically roosts in a variety of trees, including several species of oaks, maples, beech, and pine. Several studies indicate that northern long-eared bats prefer intact, older forests (Cater and Fledhamer 2005; Lacki and Schwierjohann 2001). Henderson et al. (2008) found that the probability of the species being present increases by 1.60 for every increase of 100 ha (250 ac) of deciduous forest. Owen et al. (2003) and Krynak (2010) indicate that northern long-eared bats prefer large, intact upland forest tracts with a higher degree of vertical structure and canopy cover for roosting and foraging compared to other bat species.

Northern long-eared bats forage both in-flight and on the ground and eat a variety of moths, flies, leafhoppers, caddisflies, and beetles. The species breeds from late July to early October, after which time it will migrate to winter hibernacula. Northern long-eared bats are short-distance migrators and will travel 35 to 55 mi (56 to 89 km) from summer roosts to winter hibernacula. Northern long-eared bats will often compose a small number of the bats hibernating in a particular hibernaculum. Other species that commonly occupy the same habitat include the little brown bat (*Myotis lucifugus*), big brown bat (*Eptesicus fuscus*), eastern small-footed bat (*M. leibii*), tri-colored bat (*Perimyotis subflavus*), and Indiana bat.

Hibernating northern long-eared bat females that have mated prior to hibernation will store sperm until spring emergence and give birth to one pup approximately 60 days after fertilization in May or June. Females raise young in maternity colonies of 30 to 60 individuals.

The FWS (2014) indicates that northern long-eared bats’ seasonal habitat use in Ohio is as follows:

Season	Dates
Hibernating	Nov 15-Mar 15
Spring staging	Mar 16-May 14
Summer maternity	Apr 1-Sep 30
Fall swarming	Aug 16-Nov 15

The NRC staff did not identify any records or other studies that suggest the occurrence of northern long-eared bats in the action area. The Davis-Besse site (described in Section 2.2.7 of the SEIS) includes 221 ac (89 ha) of land developed for industrial use and 733 ac (297 ha) of freshwater marsh, swamp forest, wet meadows, and small areas of deciduous forest. Based on the northern long-eared bat's preference for larger, intact forest, it is unlikely to regularly inhabit the site. However, the site may provide marginal roosting or foraging habitat. Thus, the NRC staff conservatively assumes that the species may occur in the action area.

Red Knot

The FWS published a proposed rule to list the red knot as threatened throughout its range on September 30, 2013 (78 FR 60023). The proposed rule states that the FWS intends to publish a proposal to designate critical habitat for the species "in the near future." Loss of breeding and nonbreeding habitat, reduced prey availability, and increasing frequency and severity of asynchronies in the timing of the birds' annual migratory cycle relative to favorable food and weather conditions are factors that have contributed to this species' decline. Unless otherwise cited, the information in this section is derived from the FWS's listing document (78 FR 60023).

The red knot is a medium-sized (9 to 11 in. [23 to 28 cm] in length) shorebird. It migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeastern United States, Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego off the coast of the southern tip of South America. Between both its spring and fall migrations, the red knot uses key staging and stopover areas to rest and feed.

Red knots live up to 7 years (Niles et al. 2008) and likely begin breeding at 2 years (Harrington 2001). The species breeds in June in inland areas near arctic coasts and nests in dry, slightly elevated tundra areas. Breeding success can vary dramatically from year to year based on weather, food availability (insects and other terrestrial invertebrates), and predator (the arctic lemmings *Dicrostonyx torquatus* and *Lemmus sibericus*) abundance. Little information is available on mating fidelity, but the species is known to return to the same breeding grounds each year, and pairs seem to form monogamous bonds throughout the breeding season (Niles et al. 2008). Females lay one clutch of three to four eggs per season. Males and females participate in egg incubation, which lasts for approximately 22 days (Niles et al. 2008). Chicks are born in early July, and the fledgling period lasts 18 days (Niles et al. 2008).

Red knots migrate up to 19,000 mi (30,000 km)—one of the longest migrations known in the animal kingdom—each year, and individuals can undertake flights of several thousand miles without stopping. Stopover habitat most often includes muddy or sandy coastal areas near mouths of bays and estuaries (Niles et al. 2008). In the spring, stopover areas include the Atlantic coast of Argentina, eastern and northern Brazil, the Virginia barrier islands, and the Delaware Bay. Important fall stopover sites include southwest Hudson Bay, James Bay, the St. Lawrence River, the Mingan Archipelago, and the Bay of Fundy, the coasts of Massachusetts and New Jersey, the mouth of the Altamaha River in Georgia, the Caribbean, and the northern coast of South America from Brazil to Guyana. During both migrations, red knots may stopover along the coast of the Great Lakes. During migration, red knots eat bivalves, gastropods, amphipods, and occasionally polychaetes (Niles et al. 2008).

The Black Swamp Bird Observatory (BSBO), located just to the west of the Davis-Besse site, regularly records small numbers of red knots during both spring and fall shorebird migration surveys (see Table 1). BSBO conducts its spring migration survey from March through late November at sites within the Ottawa National Wildlife Refuge complex and surrounding Lake Erie wetlands. The total number of surveyed sites and sample days varies each year, but typically includes 6 to 11 sites and 50 to 250 trips (sample days/sites sampled) per season. Surveys are conducted by vehicle or foot, and shorebird observations are recorded using the

International Shorebird Survey protocol. The BSBO's surveys positively indicate that the red knot occurs in the action area.

Table 1. Red Knots Present in Lake Erie Shorebird Migration Surveys, 2003-2010

	Number of Individuals Observed	
Year	**Spring Migration**	**Fall Migration**
2003	9	90
2004	55	17
2005	2	28
2006	0	5
2007	1	7
2008	1	8
2009	1	26
2010	0	10

Sources: BSBO 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010

5.0 Effects of Proposed Action

Kirtland's Warbler

Within the action area, the Kirtland's warbler is most likely to use shrub/scrub or forested habitat near the Lake Erie shoreline. This habitat occurs within Navarre Marsh, which is leased to the FWS for management as part of the Ottawa National Wildlife Refuge and would continue to be leased to FWS during the proposed license renewal term. Continued protection of this habitat would result in beneficial effects to the species.

One potential impact of the proposed license renewal is direct mortality of individuals from collision with the cooling tower, other plant structures, or transmission lines. Although the NRC generically determined this impact to be small for birds at all nuclear plants during the license renewal term (NRC 2013b), this impact could uniquely affect the Kirtland's warbler due to its status as Federally endangered.

To assess this potential impact of station operation, bird mortality surveys were conducted on the Davis-Besse site in the 1970s, and NRC (2013b) describes the surveys as follows.

> At Davis-Besse, extensive surveys for dead birds were conducted from fall 1972 to fall 1979. Early morning surveys at the 152-m-tall (499-ft-tall) cooling tower were made almost daily from mid-April to mid-June and from the first of September to late October. After the tower began operating in the fall of 1976, some dead birds were lost through the water outlets of the tower basin. A total of 1,561 dead birds were found, an average of 195 per year. The dead birds included 1,229 at the cooling tower, 224 around Unit 1 structures, and 108 at the meteorological tower. Most were night-migrating songbirds, particularly wood-warblers (family Parulidae), vireos (*Vireo* spp.), and kinglets (*Regulus* spp.). Waterfowl that were abundant in nearby marshes and ponds suffered little collision mortality. Most collision mortalities at the cooling tower occurred during years when the cooling tower was not well illuminated (1974 to spring 1978). After the completion of Unit 1 structures and installation of many safety lights around the buildings in the fall of 1978, collision mortality was significantly reduced (average of 236 per year from 1974 through 1977, 135 in 1978, and 51 in 1979). This reduction was accomplished

> by installing low-intensity light sources (1.0 ft-candle or less) to illuminate the cooling tower, which allowed birds to see and avoid it. It appears that the lights at nuclear plants do not confuse birds to the extent that lights on radio or TV towers sometimes do.

The NRC's (1975) Final Environmental Statement for operation of Davis-Besse (FES-O) provides more detailed information on the first three years of these surveys (1972-1974). The FES-O states the following:

> The cooling tower is within [a] major flyway of migratory song birds and waterfowl and some hazard of bird mortality due to impaction on the tower exists. The staff assessment of this possibility in the [Final Environmental Statement for construction of Davis-Besse] concluded that birds were not likely to be killed in large numbers but that a few mortalities at varying intervals were likely. Since that assessment, the applicant has submitted data on impactions (Table 6.3). These results are consistent with the original assessment. A total of 157 birds, mostly warblers and kinglets, were killed on station structures during the migratory periods of 1972-1973. During the 9-week autumn migratory season in 1974, 342 dead birds were recovered. Eighty-two percent were recovered from the cooling tower, 15.5% from Unit 1 structures and 2.8% from the meteorological tower. Warblers and kinglets were again the most frequently affected. The increase in bird numbers may not be due to increased numbers of collisions since the applicant increased his frequency of collection in 1974. Studies based on small samples show that scavengers (raccoons, skunks, foxes, etc.) may take up to 88% of the fallen birds if they are not collected quickly after they fall. All counts to date are, therefore, probably underestimates of true collision frequency.

Table 2 (recreated from FES-O, Table 6.3) provides the results of the species recovered during the bird mortality surveys from 1972-1974. Although about 20 warbler species were collected during the surveys in these years, Kirtland's warbler was not among those collected. The FES-O does not indicate the dates, the duration, or effort involved in these surveys, and no surveys were completed during spring migrations. The NRC staff was unable to locate the results of the 1975-1979 bird mortality surveys, and no further surveys have been conducted since that time.

The NRC (1975) concluded that there would be no impact to the Kirtland's warbler resulting from Davis-Besse operation. However, this conclusion was based on the premises that the Kirtland's warbler does not "normally inhabit the area of the Davis-Besse site" and that the species had not been sighted in the Ottawa National Wildlife Refuge during the period 1969 through 1972. While it remains true that the species does not normally inhabit the site, known occurrences of the species in the Ottawa National Wildlife Refuge and along the shores of Lake Erie indicate that this species occasionally occurs in the action area for short periods of time during spring and fall migration. Therefore, the NRC's previous conclusion of "no effect" is no longer appropriate for this species because, as indicated by FWS (2003) guidance, "no effect means literally no effect, not a small effect or an effect that is unlikely to occur."

Based on the available information on bird mortality, the NRC staff finds that it is possible that Kirtland's warbler individuals could experience injury or mortality resulting from collisions with plant structures during the proposed license renewal term. If a Kirtland's warbler were to collide with plant structures or transmission lines during the proposed license renewal term, such a collision could result in a take as defined by the ESA. However, the NRC staff believes that the likelihood of this happening is discountable, or extremely unlikely to occur, because the Kirtland's warbler is relatively rare, is only in the action area for a short period of time each year, and is not likely to inhabit the developed portions of the site that contain collision hazards. Additionally, because the species has been listed under the ESA since Davis-Besse began operating in 1978, the ESA has obligated the NRC and the licensee to consult with the FWS if

new information reveals effects of the action that may affect listed species in a manner or to an extent not previously considered (50 CFR 402.16(b)). No such information has been identified for which the NRC has determined reinitiation of consultation appropriate. Because no such collisions are known to have occurred to date, the NRC staff finds it reasonable to assume that the likelihood of collision would be extremely low in the future.

In addition to collision hazards, the NRC staff also considered the likelihood of direct mortality, loss of habitat or food resources, or behavioral changes resulting from construction or refurbishment activities, regular site maintenance, and infrastructure repairs during the proposed license renewal term. Applicable infrastructure includes roadways, piping installations, onsite transmission lines, fencing, and other security infrastructure.

Construction and refurbishment activities would not result in any impacts to the Kirtland's warbler because the applicant (FirstEnergy Nuclear Operating Company [FENOC]) does not plan to perform any construction, ground-disturbing activities, or changes to existing land uses in either natural or developed areas. The refurbishment activities discussed in Chapter 3 of the draft SEIS (NRC 2014a) were completed in the spring of 2014, and will, therefore, not be a factor during the proposed license renewal term.

As indicated in Section 4.7.3 of the draft SEIS (NRC 2014a), maintenance and infrastructure repairs would be confined to previously disturbed areas of the site, and Navarre Marsh and the shores of Lake Erie would be unaffected by such activities. Some maintenance activities, such as refueling outages, would require additional workers, which would create additional traffic and noise on the site for short periods of time. The NRC staff does not believe that these would result in measurable or detectable effects on the Kirtland's warbler because the Kirtland's warbler is in the action area for short durations of time each year and the species is not likely to occur in the developed portions of the site. Additionally, such maintenance activities have been ongoing since the plant began operating in 1978, and Kirtland's warblers continue to use the adjacent marsh and lake shore as stopover habitat, which indicates that these activities are not affecting the species' habitat use, food resources, or behavior.

Northern Long-Eared Bat

Within the action area, the northern long-eared bat is most likely to use the small forested tracts of land for roosting or foraging, although these areas would only provide marginal habitat as the species prefers larger, intact forests. Nonetheless, this habitat would continue to be available to the northern long-eared bat during the proposed license renewal term, and continued preservation of this habitat would result in beneficial effects to the species.

The proposed license renewal could affect the northern long-eared bat by causing direct mortality through collision with plant structures. License renewal activities could also result in direct mortality, loss of habitat or food resources, or behavioral changes resulting from construction or refurbishment activities, regular site maintenance, and infrastructure repairs during the proposed license renewal term.

During the 1972-1979 bird mortality surveys conducted at Davis-Besse and discussed previously in this assessment, information from the available years (1972-1974) indicates that four dead bats were collected that had collided with plant structures (see Table 2). Two red bats (*Lasiurus borealis*) were collected at the cooling tower in 1974, and one big brown bat and one tri-colored bat were collected near other plant structures in 1973 and 1974, respectively. No northern long-eared bats were collected. Given the marginal habitat that the Davis-Besse site provides and the small number of bats collected in the 1972-1974 bird mortality surveys, the NRC staff considers it to be extremely unlikely that northern long-eared bats would collide with

plant structures during the license renewal term. Therefore, the NRC staff finds this potential impact to be discountable.

As part of regular site maintenance, FENOC may need to remove trees that pose a safety concern. Although it is unlikely that FENOC would need to remove trees in the small forested tracts on the site where northern long-eared bats may roost, the NRC conservatively assumes that any tree removal could potentially affect the species if the trees have not been assessed for bat presence or use. FENOC maintains Environmental Best Management Practices that include measures to ensure that FENOC staff consider and appropriately mitigate impacts to the Indiana bat prior to tree removal. These measures are discussed in Section 4.8.1.3 of the SEIS (NRC 2014a). Due to their similar life history, the NRC staff assumes that these measures would also be protective of the northern long-eared bat. Accordingly, the potential adverse impact created by future tree removals during the proposed license renewal term would be insignificant because it is unlikely to result in a take.

Red Knot

Within the action area, the red knot is most likely to use Lake Erie shoreline habitat within Navarre Marsh. This habitat is leased to the FWS for management as part of the Ottawa National Wildlife Refuge and would continue to be leased to FWS during the proposed license renewal term. Continued protection of this habitat would result in beneficial effects to the species.

As with the Kirtland's warbler, it is possible that the red knot could collide with plant structures or transmission lines. This impact and a summary of previous bird mortality surveys conducted at Davis-Besse are discussed above in the assessment of effects on the Kirtland's warbler. The red knot was not collected in mortality surveys during the available years (1972-1974). The occurrence of this species in the 1975-1979 surveys is unknown because these survey results are unavailable. However, because the red knot is relatively rare in the action area, the likelihood of red knot individuals colliding with plant structures or transmission lines is also likely low. Nonetheless, if the FWS publishes a final rule to list the red knot under the ESA and an individual were to collide with plant structures or transmission lines during the proposed license renewal term, such a collision could result in a take as defined by the ESA. Such an effect could be considered discountable if, based on best judgment, the effect is not expected to occur (FWS and NMFS 1998). Unlike the Kirtland's warbler, this species is proposed for Federal listing, and the ESA does not yet afford the species protection. Accordingly, the ESA would not have necessitated the NRC and the licensee to consult with FWS if this species was found injured or dead in the past as a result of collision with Davis-Besse plant structures. Although the NRC has no records indicating that such an event happened, the NRC staff cannot rely on the absence of records to predict the likelihood of future collisions. Thus, the NRC staff conservatively assumes that there is a potential for red knots to collide with plant structures or transmission lines during the proposed license renewal term, and such collisions could result in a take.

In addition to collision hazards, the NRC staff also considered the likelihood of direct mortality, loss of habitat or food resources, or behavioral changes resulting from construction or refurbishment activities, regular site maintenance, and infrastructure repairs during the proposed license renewal term. The nature of these effects is discussed above in the assessment of effects on the Kirtland's warbler. Impacts from construction would not occur because no construction is planned. The NRC staff finds no information that would indicate that regular site maintenance or infrastructure repairs during the proposed license renewal term would result in measurable or detectable effects on red knots.

All ESA-Protected Species

If an ESA-protected species is observed on the Davis-Besse site by plant personnel, the NRC has measures in place to ensure that it would be notified so that the NRC staff could determine the appropriate course of action, such as possibly reinitiating section 7 consultation under the ESA with the FWS at that time. The NRC's regulations containing notification requirements that necessitate operating nuclear power reactors to report to the NRC within 4 hours "any event or situation, related to…protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made" (10 CFR 50.72(b)(2)(xi)). Such notifications include reports regarding Federally listed species, as described in Section 3.2.12 of NUREG-1022, Event Reporting Guidelines for 10 CFR 50.72 and 50.73 (NRC 2013a). This reporting requirement applies to Kirtland's warblers would apply to observations of northern long-eared bats and red knots if these species are Federally listed in the future.

6.0 Conclusion and Determination of Effects

Kirtland's Warbler

The NRC staff concludes that the proposed license renewal **may affect, but is not likely to adversely affect** the Kirtland's warbler. This determination assumes that collision of Kirtland's warbler individuals with plant structures or transmission lines during the proposed license renewal term is possible, but discountable because it is extremely unlikely to occur.

Northern Long-Eared Bat

The NRC staff concludes that the proposed license renewal **may affect, but is not likely to adversely affect**, the northern long-eared bat. This determination is the result of the potential for tree removal to affect northern long-eared bat roost. However, FENOC's continued adherence to its Environmental Best Management Practices during the proposed license renewal term would ensure that tree removal does not result in a take of this species.

Red Knot

The NRC staff concludes that the proposed license renewal **may affect** the red knot. This determination is the result of the unlikely, but possible, collision of red knot individuals with plant structures or transmission lines during the proposed license renewal term.

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Table 2. Davis-Besse Bird Mortality Survey Results During Three Consecutive Fall Seasons, 1972-1974

		Individuals Collected[3]												
		Fall 1972				Fall 1973				Fall 1974				Total
Species[1]	**Common Name[2]**	**CT**	**ST**	**MT**	**Total**	**CT**	**ST**	**MT**	**Total**	**CT**	**ST**	**MT**	**Total**	
Cardellina canadensis	Canada warbler	-	-	-	-	-	-	-	-	2	-	-	2	**2**
Cardellina pusilla	Wilson's warbler	-	-	-	-	1	-	-	1	5	-	-	5	**6**
Catharus fuscescens	veery	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Catharus guttatus	hermit thrush	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Certhia americana	brown creeper	-	-	-	-	1	-	-	1	1	1	-	2	**3**
Cistothorus palustris	marsh wren[3]	-	1	-	1	-	1	-	1	-	-	-	-	**2**
Columba livia domestica	domestic pigeon	-	-	-	-	-	-	-	-	1	-	1	2	**2**
Dumetella carolinensis	gray catbird	-	-	-	-	-	1	-	1	-	-	-	-	**1**
Empidonax flaviventris	yellow-bellied flycatcher	-	-	-	-	-	1	-	1	5	2	-	7	**8**
Empidonax minimus	least flycatcher	-	-	-	-	-	-	-	-	2	-	-	2	**2**
Empidonax virescens	Acadian flycatcher	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Gallinula galeata	common gallinule	-	-	-	-	-	-	-	-	-	1	-	1	**1**
Geothlypis formosa	Kentucky warbler	-	-	-	-	-	-	-	-	2	-	-	2	**2**
Geothlypis spp.	yellowthroat[4]	1	1	-	2	2	1	-	3	18	5	-	23	**28**
Larus delawarensis	ring-billed gull	-	-	-	-	-	1	-	1	-	-	-	-	**1**
Melospiza melodia	song sparrow	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Mniotilta varia	black-and-white warbler	-	-	-	-	-	-	-	-	3	-	-	3	**3**
Parulidae spp.	redstart[5]	-	-	-	-	-	4	-	4	5	-	-	5	**9**
Oporornis agilis	Connecticut warbler	-	-	-	-	1	-	-	1	1	1	-	2	**3**
Oreothlypis peregrina	Tennessee warbler	-	-	-	-	-	2	-	2	3	-	-	3	**5**
Oreothlypis ruficapilla	Nashville warbler	-	-	-	-	-	3	-	3	7	2	-	9	**12**
Parulidae spp.	unidentified warbler	1	-	-	1	1	-	-	1	-	-	-	-	**2**
Passer domesticus	house sparrow	-	-	-	-	-	-	-	-	-	-	2	2	**2**
Passerculus sandwichensis	Savannah sparrow	-	-	-	-	-	-	-	-	1	-	1	2	**2**
Porzana carolina	sora rail	-	-	-	-	-	1	-	1	-	-	-	-	**1**
Rallus limicola	Virginia rail	-	-	-	-	-	-	-	-	1	-	-	1	**1**

Regulus calendula	ruby-crowned kinglet	1	-	-	1	16	7	-	23	36	2	-	38	**62**
Regulus satrapa	golden-crowned kinglet	-	-	-	-	15	2	-	17	44	9	-	53	**70**
Seiurus aurocapilla	ovenbird	-	-	-	-	1	1	-	2	6	1	1	8	**10**
Setophaga americana	northern parula[6]	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Setophaga caerulescens	black-throated blue warbler	-	-	-	-	-	-	-	-	5	3	-	8	**8**
Setophaga castanea	bay-breasted warbler	-	-	-	-	-	-	-	-	10	1	1	12	**12**
Setophaga coronata coronata	myrtle warbler	-	1	-	1	-	1	-	1	2	1	-	3	**5**
Setophaga fusca	blackburnian warbler	-	-	-	-	-	1	-	1	11	1	-	12	**13**
Setophaga magnolia	magnolia warbler	-	-	-	-	3	7	-	10	31	7	1	39	**49**
Setophaga pensylvanica	chestnut-sided warbler	-	-	-	-	1	-	-	1	8	-	-	8	**9**
Setophaga petechia	yellow warbler	1	-	1	2	-	-	-	-	1	-	-	1	**3**
Setophaga pinus	pine warbler	-	-	-	-	1	3	-	4	3	-	-	3	**7**
Setophaga striata	blackpoll warbler	-	-	-	-	-	2	-	2	5	3	1	9	**11**
Setophaga tigrina	Cape May warbler	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Setophaga virens	black-throated green warbler	-	1	-	1	1	1	-	2	16	3	-	19	**22**
Sitta canadensis	red-breasted nuthatch	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Thryothorus ludovicianus	Carolina wren	-	-	-	-	-	-	-	-	2	-	-	2	**2**
Troglodytes aedon	house wren	-	-	-	-	-	-	-	-	1	-	-	1	**1**
Troglodytes hiemalis	winter wren	-	-	-	-	-	-	-	-	2	-	-	2	**2**
unidentified bird	unidentified bird	-	-	-	-	10	6	-	16	13*	-	-	13	**29**
Vireo gilvus	warbling vireo	-	-	-	-	-	1	-	1	-	-	-	-	**1**
Vireo griseus	white-eyed vireo	-	-	-	-	-	-	-	-	-	1	-	1	**1**
Vireo olivaceus	red-eyed vireo	-	-	-	-	-	-	-	-	15	4	-	19	**19**
Vireo philadelphicus	Philadelphia vireo	-	1	-	1	-	-	-	-	2	1	-	3	**4**
Vireo spp.	solitary vireo[7]	-	-	-	-	-	-	-	-	-	1	-	1	**1**
Zonotrichia albicollis	white-throated sparrow	-	-	-	-	-	-	-	-	1	2	-	3	**3**
Zonotrichia leucophrys	white-crowned sparrow	-	-	-	-	1	-	-	1	1	-	-	1	**2**
Total Birds		**4**	**5**	**1**	**10**	**55**	**47**	**-**	**102**	**279**	**52**	**8**	**339**	**451**
Eptesicus fuscus	big brown bat	-	-	-	-	-	1	-	1	-	-	-	-	**1**
Lasiurus borealis	red bat	-	-	-	-	-	-	-	-	2	-	-	2	**2**
Perimyotis subflavus	tri-colored bat[8]	-	-	-	-	-	-	-	-	-	1	-	1	**1**

Total Bats	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**1**	**2**	**1**	**-**	**3**	**4**
Total Birds and Bats	**4**	**5**	**1**	**10**	**55**	**48**	**-**	**103**	**281**	**53**	**8**	**342**	**455**

[1]The source table does not provide Latin species names. Species names are provided for those that can clearly be distinguished by the common name. Ambiguities are noted in the succeeding footnotes.

[2]Common names have been updated, as appropriate, from those listed in the source table to reflect the most widely accepted name.

[3]CT = cooling tower; ST = Unit 1 structures (including shield, turbine, and auxiliary buildings); MT = meteorological tower

[3]The source table refers to this species as "long-billed marsh wren."

[4]The source table does not specify which species of yellowthroat, which may refer a number of species in the genus *Geothlypis*.

[5]"Redstart" may refer to any of the species in the New World warbler family (Parulidae) in either of the genera Setophaga or Myioborus.

[6]The source table refers to this species as parula warbler.

[7]It is unclear what species was collected during the surveys as "solitary vireo" may refer to one of three species: Cassin's vireo (Vireo cassinii), plumbeous vireo (Vireo plumbeus), or blue-headed Vireo (Vireo solitarius).

[8]The source table refers to this species as eastern pipistrelle. The species has since been reclassified and named the tri-colored bat.

[*]The source table indicates the following: "12 remains were found at CT Oct 15 after a major kill on Oct 13; access to CT was denied on Oct 13-14, and an unknown number of specimens was lost to scavengers."

Source: table recreated from FES-O (NRC 1975) Table 6.3.