



United States Department of the Interior

FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407



U.S. Fish and Wildlife Service Clearance Letter For Potential or Proposed Solar Power Generation Projects

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The U.S. Fish and Wildlife Service (Service) is one of two lead Federal Agencies mandated with the protection and conservation of Federal trust resources, including threatened and endangered (T&E) species and designated critical habitat as listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (ESA). Development of lands in South Carolina have the potential to impact federally protected species. Accordingly, obligations under the ESA, National Environmental Policy Act (NEPA), Clean Water Act (CWA), Federal Power Act (FPA), and other laws, require project proponents to perform an environmental impact review prior to performing work on the site. These projects may include a wide variety of activities including, but not limited to, residential or commercial developments, energy production, power transmission, transportation, infrastructure repair, maintenance, or reconstruction of existing facilities on previously developed land.

Project applicants, or their designated representatives, may perform initial species assessments in advance of specific development proposals to determine the presence of T&E species and designated critical habitat that are protected under the ESA. These reviews are purposely speculative and do not include specific project or site development plans. Many of these speculative proposals are for previously developed or disturbed lands such as pasture lands, agricultural fields, or abandoned industrial facilities. Due to historical uses and existing conditions, these sites often do not contain suitable habitat to support T&E species. Therefore, an assessment may conclude that any future development of the site would have no effect to T&E species or adversely modify designated critical habitat. If the applicant, or their designee, determines there is no effect or impact to federally protected species or designated critical habitat, no further action is required under the ESA.

If suitable habitat for T&E species or designated critical habitat occurs on, or nearby, the project site, a determination of no effect/impact may not be appropriate. In these cases, direct consultation requests with the Service should be initiated. Additional coordination with the Service may also be required if the potential project requires an evaluation under another resource law such as, but not limited to, NEPA, CWA, FPA, and the Coastal Zone Management Act.

Clean Water Act – If there are wetlands, streams, and drainages on the project area, the Service recommends that the U.S. Army Corps of Engineers be contacted prior to performing any construction work. Particularly if the project involves a discharge of dredged or fill material into waters of the United States.

Migratory Bird Treaty Act - The Service recommends that migratory birds be considered when assessing potential effects of solar facilities include all found within the area. These include individuals that are resident, breeding, overwintering, migrating, staging, roosting, feeding,

resting, and otherwise transiting through potential project areas. Particularly close attention should be paid to avian species listed in the Birds of Conservation Concern (BCC), a set of lists generated by the Service identifying migratory birds of high conservation priorities at a variety of spatial scales.

The Service believes it is prudent to identify preliminary concerns regarding potential impacts to migratory birds if a solar farm is constructed. We are concerned that reflective glare from a photovoltaic solar panel array may adversely affect migratory birds. While a single panel may not pose a significant threat, a collection of panels may create a reflective glare that could be mistaken as a body of water by birds in flight and their insect prey, a phenomenon referred to as the “lake effect.” Injury or direct mortality may result if birds attempt to land on the solar panel array. In order to avoid or minimize migratory bird impacts, we encourage the use of glare reducing coatings on any potential solar panel array proposed for the tract.

Bald and Golden Eagle Protection Act - Potential bald eagle nesting habitat includes large trees, often near river systems, reservoirs, lakes, bays, and other fish-bearing bodies of water. Nests are usually located near the tops of the tallest trees and are added to and reused year after year. The project areas should be thoroughly surveyed immediately prior to land clearing to determine if this federally protected species or its nests may occur in the impact areas.

Invasive Exotic Species – The Service is concerned with the introduction and spread of invasive exotic species in association with the proposed project. Without active management, including the re-vegetation of disturbed areas with native species, the project area will likely be a source for the movement of invasive exotic plant species. Exotic species are a major contributor to species depletion and extinction, second only to habitat loss. Exotics are a factor contributing to the endangered or threatened status of more than 40 percent of the animals and plants on the *Federal List of Endangered and Threatened Wildlife and Plants*¹. It is estimated that at least 4,000 exotic plant species and 2,300 exotic animal species are now established in the United States, costing more than \$130 billion a year to control². Additionally, the U.S. Government has many programs and laws in place to combat invasive species and thus cannot spend money to counter these efforts. Specifically, Section 2(a)(3) of Executive Order 13112 Invasive Species (February 3, 1999) directs Federal agencies to “not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere”. Despite their short-term erosion control benefits, many exotic species used in soil stabilization seed mixes are persistent once they are established, thereby preventing the reestablishment of native vegetation. Many of these exotics plants³ are also aggressive invaders of nearby natural areas, where they are capable of displacing already established native species. Therefore, we strongly recommend that only native plant species be used in association with all aspects of this project.

Pollinator Recommendations – Although solar energy production is a fast-growing renewable energy source that can lessen overall impacts to natural resources when compared to conventional energy sources (coal, oil, gas, etc.), the Service believes solar farms can adversely affect valuable natural resources if they are not properly planned and constructed. Impacts to natural resources from the construction, operation, and maintenance of solar farms include: the

removal of forests and riparian buffers; creation of monotypic habitat; introduction of invasive species; use of herbicides; creation of large, clear open spaces; and barriers created from fencing.

Recent evidence indicates that pollinators, especially native bees, and monarch butterflies, are in serious decline. Loss of habitat and diminished native food sources has decreased the populations and diversity of pollinators throughout the country. For these reasons, we recommend that solar facilities be sited in areas that are previously disturbed (fallow fields, closed industrial sites, etc.) or sites that do not impact mature forests, streams, or wetlands. To off-set the overall impacts of solar facilities and/or to increase the habitat and species diversity within the solar facility area, we further recommend the following measures be implemented into project design:

- Sow native seed mixes with plant species that are beneficial to pollinators throughout the site. Taller growing pollinator plant species should be planted around the periphery of the site and anywhere on the site where mowing can be restricted during the summer months. Taller plants, left un-mowed during the summer, would provide benefits to pollinators, habitat to ground nesting/feeding birds, and cover for small mammals. Low growing/groundcover native species should be planted under the solar panels and between the rows of solar panels. This would provide benefits to pollinators while also minimizing the amount of maintenance such as mowing and herbicide treatment. Using a seed mix that includes milkweed species (milkweed is an important host plant for monarch butterflies) is especially beneficial. Additional information regarding plant species, warm season grasses, seed mixes, and pollinator habitat requirements can be provided upon request.
- Create openings in fencing to allow passage issues for small mammals and turtles.
- If possible, the solar field should be designed with open areas spread throughout the project site and planted and maintained with taller/pollinator friendly plant species. This practice would benefit pollinators, create diversity throughout the site, and provide much needed shelter islands to aid in the movement of small mammals and birds.
- Mitigate for the loss of forested habitat. Though the loss of forested habitat cannot be fully mitigated when cleared for solar facilities, the Service believes measures should be implemented into the design plans to offset the impacts of the project to the greatest extent practicable. We recommend the construction and placement of bat and bird boxes throughout the site along with perch poles that are large enough to be used by raptors.
- Provide nesting sites for pollinator species. Different pollinators have different needs for nesting sites. Therefore, the Service recommends designing the solar facility to maintain a diverse array of habitats to accommodate varied pollinators from hummingbirds to butterflies to bees. Hummingbirds typically nest in trees or shrubs while many butterflies lay eggs on specific host plants. Most bees nest in the ground and in wood or dry plant stems.

The Service recommends that applicants and landowners consider potential impacts to species that are collectively referred to as “At-Risk Species” (ARS). Although there are no Federal

protections afforded to ARS, we recommend including them early into Solar project planning efforts. Incorporating proactive measures to avoid or minimize harm to ARS may improve their status and assist with precluding the need to list these species.

Clearance to Proceed

For all sites with potential projects that have no effect or impact upon federally protected species or designated critical habitat, no further coordination with the Service is necessary at this time. This letter may be downloaded and serve as the Service's concurrence or agreement to the conclusions regarding species and habitat assessments for the potential solar farm. Any protected species survey or assessment conducted for the property should be included with this letter when submitting the project to Federal permitting agencies. Due to obligations under the ESA potential impacts must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not considered in this assessment; or (3) a new species is listed, or critical habitat is designated that may be affected by the identified action.

Please note this Clearance Letter applies only to assessments in South Carolina and may not be used to satisfy requirements of the ESA for projects that have already been completed or currently under construction.

Please contact the South Carolina Department of Natural Resources regarding potential impacts to State protected species.

Sincerely,



Thomas D. McCoy
Field Supervisor

¹Wilcove, D. S., D. Rothstein, J. Dubow, A. Phillips, and E. Losos. 1998. Quantifying threats to imperiled species in the United States. *BioScience* 48:607615.

²Pimentel, D., L. Lach, R. Zuniga, and D. Morrison. 2000. Environmental and economic costs of nonindigenous species in the United States. *BioScience* 50:5365.

³Lists of invasive exotic plants can be found at <http://www.tneppc.org/> and <http://www.invasive.org/eastern/srs/> on the Internet.