MOUNTAIN PLOVER (*CHARADRIUS MONTANUS*)

Background and Identification of Interaction with Wind Development

The mountain plover is an upland shorebird found in sparsely vegetated areas of short- or mid-grass prairie – including xeric shrublands, prairie dog colonies, and agricultural fields – of the western Great Plains of the United States, southern Canada, and northern Mexico. The mountain plover is considered a bird species of conservation concern by the U.S. Fish and Wildlife Service and a highly imperiled species in the U.S. Shorebird Conservation Plan. In 1999, the mountain plover was proposed for listing under the federal Endangered Species Act, but the application was withdrawn in 2003.[1] The population size is estimated at about 15,000 to 20,000 individuals.[2] Approximately 89% of the breeding population occurs in Colorado, Montana, Wyoming, and Nebraska, while fewer plovers breed in Arizona, Kansas, New Mexico, Oklahoma, and Utah. More than 60% of the population is believed to breed in Colorado. Nest site characteristics for the plover are bare ground ($\geq$30%), short vegetation (<7.5 centimeters), and a flat topography (slope <5 degrees).[1,2]

Placing wind turbines in sites where mountain plover are nesting may increase the risk of direct mortality. Prairie dog colonies, barren grassland, and agricultural fields provide breeding habitat for the mountain plover, as well as habitat for post-breeding flocks of mountain plover.[2] If wind turbines are placed close to sites occupied or used by the mountain plover, the birds may be struck as they fly in to feed; nesting birds also may be at risk. Though results from a study at a wind farm in Wyoming did not document any mortalities,[3] another wind monitoring study in Wyoming suggested a potential risk of collision with rotors that extend downward sufficiently close to the ground to overlap with the heights of mountain plover aerial display flights.[4] Aerial displays of mountain plover can reach heights of 60 feet (18.3 m) above ground.

Construction of gravel or dirt roads to support wind energy development might result in vehicle collision-caused mortality of adult and juvenile mountain plovers.[2] Although such roads are known to increase nesting sites, nests are at risk of being destroyed by vehicles.

Wind development on or near mountain plover breeding areas or sites occupied by post-breeding flocks could directly or indirectly impact important habitat. Construction of roads, turbine pads, and substations could result in permanent or long-term direct habitat loss or disturbances.[2] Operational wind turbines could reduce use or displace mountain plovers.[4,5,6]

Because of the current lack of understanding of how large-scale landscape changes brought about by wind and other energy development will affect mountain plover and their habitat, all habitat potentially occupied by breeding plovers and post-breeding flocks in areas known as continental concentration areas for mountain plover and in large complexes of prairie dog colonies, agricultural fields, and shortgrass prairie, should be surveyed.[2,7] Mountain plovers may be limited in their ability to occupy new breeding areas of seemingly suitable habitat that are not in a stronghold or habitat complex. Thus, habitat conservation should be focused in areas that contribute the most number of birds to the population. This strategy helps ensure that the breeding population will continue to be well distributed within the range of the species, minimizing the risk of large-scale mortality caused by stochastic, regional events (such as severe weather and plague outbreaks in prairie dogs) and to buffer against climate change.[2]

State of the Science

We have low certainty in our assessment that placing wind turbines in mountain plover breeding sites will result in collision mortality. The mountain plover response to wind turbine rotors has not been well studied. Despite our lack of certainty of the details of mountain plover response, numerous scientific publications have documented collision mortality of other ground-nesting birds. Based on several scientific publications documenting the disruption and displacement of breeding mountain plovers and shorebirds, we have high certainty that mountain plovers are at risk of displacement from wind turbines.[2,4,5,6,8]

We have high certainty of the risk of increased mortality of nests and chicks due to construction of roads and increased traffic.[1] Mountain plover adults and chicks are attracted to areas with a high percentage of bare ground for foraging.

More research that specifically addresses the response of mountain plover to wind turbines is needed. Scientific studies with proper controls that document indirect and direct effects of wind turbines on mountain plovers will help identify and clarify appropriate mitigation measures.

Best Management Practices

1. The Federal Advisory Committee Draft Recommendations for wind energy development discuss surveys for other bird species potentially impacted by wind energy development: "To the extent practicable, the site visit(s) should identify landscape features or habitats that could be important to…other birds that may be at risk of adverse impacts … including nesting and brood-rearing habitats, areas of high prey density, movement corridors…" (Chapter 3, page 24; Draft Recommendations 3/2010)[9]
2. Conduct surveys during the appropriate season[10] in suitable nesting habitat on the proposed development site and within a 1-mile radius to determine the presence of mountain plovers. Please refer to the survey guidelines below.[10]
3. Determine the presence of mountain plover post-breeding flocks on the proposed development site and within a 2-mile radius during a minimum of two late summer/fall migration seasons (July 15 to September 30).

Avoid

The following will help maintain known concentration areas of breeding mountain plover and large habitat complexes:

1. Avoid development in prairie dog colonies, agricultural fields, and grassland sites with known occurrence of breeding mountain plover or post-breeding flocks.[2,7]
2. Unoccupied sites with suitable nesting habitat that are located in or near known breeding areas (e.g., within the survey area) should be avoided when possible to provide alternate nest sites in the event that previously occupied habitat becomes unsuitable.

Minimize

If placement of a wind farm in a site occupied by breeding mountain plovers or in a currently unoccupied site with suitable breeding habitat in or near known breeding areas is unavoidable, then an effort should be made to reduce the likelihood of collision-related mortalities and direct and indirect impacts to habitat. This can be accomplished through the following:

1. Using a set-back for turbines from the edge of a prairie dog colony, agricultural fields, or grassland known to host mountain plover will reduce the potential interaction between mountain plovers and wind turbines.
2. Placing turbines to avoid surrounding a block of habitat in which mountain plovers are known to breed will reduce potential direct (collisions) and indirect (habitat abandonment) impacts.
3. The Federal Advisory Committee Draft Recommendations for wind energy development discuss construction disturbance: "Minimize, to the extent practicable, the area disturbed by pre-construction site monitoring and testing activities and installations." (Chapter 3, page 44; Draft Recommendations 3/2010)[10]
    - Avoiding construction during the breeding season or routing roads outside occupied breeding sites will prevent nest destruction and chick mortality by vehicles accessing the construction site.

Conservation Offsets (Mitigation)

True Offsets (actions that increase habitat quantity):

Create additional nesting habitat for mountain plovers through partnership or a conservation easement with producers located in the stronghold and habitat complex.[2,11,12]

Mitigation and Other Offset Options:

1. Conserve existing nesting habitat for mountain plovers through partnership or a conservation easement with producers located in the stronghold and habitat complex.[2,11,12]
2. Maintain crop stubble and residue on agricultural fields that will discourage creation of nesting habitat near wind turbines.

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