

## Shepherds Flat Wind Farm

### Draft Proposed Order Comments and Department Responses

On April 7, 2008, the Department issued the Draft Proposed Order for the Shepherds Flat Wind Farm. The Department issued public notice and requested comment on the completed application at a public hearing scheduled for May 8, 2008, or in writing by the close of the public hearing. The Department received comments from the persons and agencies listed below. The Hearing Officer closed the public comment period on May 8 but held the record open, allowing the Department to present follow-up questions on issues that were raised before the close of the comment period. The applicant, Leslie Nelson (The Nature Conservancy) and Carla McLane (Morrow County Planning Director) responded to the Department’s questions before the deadline of May 28. In the table that follows, the Department has summarized the issues raised in the comments and has provided a response.

Public Comments

- Dawn Stover (White Salmon, Washington)
- Daniel Dancer (Mosier, Oregon)
- Christina Welch, Bureau of Land Management
- G.K. David, Naval Air Station Whidbey Island, Washington
- Leslie Nelson, The Nature Conservancy
- Loren & Della Heideman (Ione, Oregon)
- Susie Anderson, Gilliam County Planning Director
- Carla McLane, Morrow County Planning Director
- Rich Melaas, Naval Air Station Whidbey Island, Washington
- Dana Heideman (Ione, Oregon)

Comment	Response
<b><u>Public Comments</u></b>	
<b>Dawn Stover (email)</b>	
<p>“Also, the Draft Proposed Order states that operational noise generated by the turbines is not expected to disturb long-billed curlews or other nesting avian species. However, no noise measurements or calculations are provided to support this “expectation,” and wind projects in other locations have exceeded predicted noise levels. More important, the Order neglects to address the most serious impacts that the proposed wind project is likely to have on curlews and other sensitive and vulnerable species, namely the threats of displacement and turbine collisions.”</p>	<p>The DPO discusses operational noise impacts on nesting long-billed curlews in the context of the discussion of the Horn Butte Wildlife Area (a protected area) on page 62. The DPO discusses operational noise in Section V.1.a starting at page 130. Figure RA1#3 X1c (App Supp, Exhibit X) shows noise contours based on a configuration of the facility that demonstrates that it could be built to comply with the DEQ noise standards. The noise contours do not represent facility noise expected under ordinary operating conditions. Instead, the contours represent modeling data using a sound power level 2 dBA higher than the maximum overall sound power level warranted by the turbine manufacturer. Maximum sound power levels would occur in very high wind conditions.</p> <p>The Horn Butte Wildlife Area consists of several separate parcels of BLM land along the eastern boundary of the SFWF site. Substantially all of the Horn Butte Wildlife Area parcels are beyond the 50 dBA contour line shown on Figure RA1#3 X1c. A noise level of 50 dBA has been described as a level of sound below the level of conversational speech (Rogers et al., <i>Wind Turbine Acoustic Noise</i>, Renewable Energy Research Laboratory, University of Massachusetts, Amended January 2006, page 6). Under ordinary operating conditions, typical facility noise levels in the Horn Butte Wildlife Area are likely to be lower than 50 dBA due to lower wind speeds.</p> <p>Proposed Condition 97 would require the certificate holder to demonstrate, prior to construction, that the final</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>design configuration would comply with the noise standards. The final configuration would have to comply with a 36-dBA standard at the homes that are located along Highway 74 east of the Horn Butte Wildlife Area parcels.</p> <p>The DPO discusses the potential for turbine collisions and displacement of curlews and other avian species at pages 107-108. Proposed Condition 83 incorporates the proposed Wildlife Monitoring and Mitigation Plan. The Plan would require post-construction monitoring to determine whether operation of the facility causes significant fatalities of curlews and other avian species. The Plan allows for additional mitigation, if determined appropriate by the Council. Proposed Condition 85 would require protection and enhancement of a mitigation area, which, in part, would address any potential displacement impacts.</p>
<p>“The Willow Creek Wildlife Area is an important bird area located about a mile from the proposed wind project. ...the Order fails to address the most serious impacts that the proposed wind project will have on avian species at Willow Creek, namely displacement and blade strikes.”</p>	<p>The Willow Creek Wildlife Area (WCWA) is more than a mile east of the site boundary. WCWA is adjacent to I-84 and the Union Pacific railroad tracks. Highway 74 is located between the SFWF site and the WCWA. Considering the other sources of potential disturbance of the avian species at Willow Creek, the SFWF is not likely to cause any displacement disturbance at the WCWA.</p> <p>Proposed Condition 83 incorporates the proposed Wildlife Monitoring and Mitigation Plan. The Plan would require post-construction monitoring to determine whether operation of the facility causes significant fatalities of avian species. The Plan allows for additional mitigation, if determined appropriate by the Council.</p>
<p>“...the WEST methodology predicts the impacts of a project by comparing pre-construction avian point counts with post-construction fatality monitoring.”</p>	<p>The methodology used by WEST does not “compare” fatality monitoring data with pre-construction avian point counts. The methodology is based on a standardized fatality monitoring protocol that was developed for the Stateline Wind Project. The protocol is described in the DPO, Attachment A. This methodology underlies the WEST data that support the regional fatality rates discussed at pages 79-84 of the DPO in the context of the cumulative impacts analysis.</p>
<p>“Post-construction monitoring is even less standardized. The methods have varied from site to site....”</p>	<p>The standardized fatality monitoring protocols for all of the wind facilities under Council jurisdiction are substantially the same. The WEST cumulative impacts analysis (App Supp, Exhibit P, Attachment P-6) describes the six wind energy projects used to calculate mean fatality rates for the region as having “comparable data collection methods.”</p>
<p>“The birds typically killed by turbines are not rock doves, are not previously frozen, and are not killed all at once, so scavenger efficiency trials overestimate the time that a carcass is likely to remain in the landscape (and thus underestimate the number that will be missed by searchers).”</p>	<p>The protocols for the removal trials require the use of legally available avian carcasses that are similar in coloration and size as the species found within the site. Trial carcasses have not been limited to rock doves. See, for example, the discussion of the 24 different species of carcasses used for the Nine Canyon project (<i>Nine Canyon Wind Power Project Avian and Bat Monitoring Report</i> (2003), p. 4) referenced in the cumulative impacts analysis (App Supp, Exhibit P, Attachment P-6).</p>
<p>“In the most comprehensive post-construction monitoring study done in the Columbia Gorge region, at PPM’s Big Horn wind project in Klickitat County (where 100% of all turbines were searched during each search period, and</p>	<p>The final report on the Big Horn wind project in Klickitat County has not been issued as of the date of the SFWF public hearing. The report was not available for inclusion in the WEST cumulative impacts analysis that is included</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>the analyses were customized by season), actual fatalities of birds have been far in excess of the predictions made by statistical models such as the one upon which Caithness relies. For example, the first year of monitoring at Big Horn reported 2.54 bird fatalities per MW per year (39% higher than the WEST estimate) and 0.15 raptor fatalities per MW per year (a whopping 300% higher than the WEST estimate). These findings were not included in the WEST study.”</p>	<p>in the SFWF application (App Supp, Exhibit P, Attachment P-6).</p> <p>The comment cites an all-bird rate of 2.54 per MW at Big Horn. The Department cannot confirm this number, because the final report has not been issued. Nevertheless, an all-bird rate of 2.54 per MW is consistent with the mean rate calculated in the WEST cumulative impacts study (1.9 per MW) because it falls within the range of individual project rates (from 0.9 to 2.9 per MW) used by WEST to calculate the mean rate.</p> <p>The comment cites a raptor fatality rate (0.15 per MW) that is not significantly higher than the highest rate for an individual project (0.14 per MW) as reported in the WEST study. In any assessment of cumulative impacts, the data from individual projects is likely to vary from the mean rate.</p>
<p>“The fact that most of the birds killed will be of the most common species, such as horned larks and kestrels, does not relieve the applicant of the responsibility to evaluate cumulative impacts on sensitive species such as ferruginous hawks and Swainson’s hawks. Within such species, the deaths of just a few breeding birds can have significant population impacts.”</p>	<p>There is no information offered in the comment or otherwise in the record from which the Council can conclude that “significant population impacts” could result from the deaths of “just a few breeding birds.” The WEST cumulative impacts analysis (App Supp, Exhibit P, Attachment P-6) reports the cumulative fatalities found at seven wind projects in the region (Table 3, page10). The cumulative list of 363 fatalities includes only one ferruginous hawk and one Swainson’s hawk.</p> <p>The applicant responded to this comment by addressing the significance of potential turbine-related fatalities of ferruginous hawks and Swainson’s hawks (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008). Using the WEST method for analyzing cumulative impacts, the applicant calculated that the fatalities of Swainson’s hawks and ferruginous hawks each represent 3.8 percent of estimated raptor fatalities at the seven regional wind projects for which fatality data are available. The applicant estimated that the development of an additional 4,060 MW of wind energy generation in the region could result in eight fatalities of Swainson’s hawks and eight fatalities of ferruginous hawks annually. Assuming the fatalities occur evenly throughout the year, two fatalities of each species would be expected to be breeding birds. The applicant used the Columbia Basin Breeding Bird Survey data to estimate regional breeding populations of 2,250 Swainson’s hawks and 482 ferruginous hawks. The estimated breeding season fatalities of Swainson’s hawks represent 0.09% of the regional Swainson’s hawk breeding population. The estimated breeding season fatalities of ferruginous hawks represent 0.4% of the regional ferruginous hawk breeding population.</p>
<p>“Comparisons of turbine-caused mortality with avian mortality caused by other types of collisions (buildings, towers, automobiles) are irrelevant. Fatalities are additive.”</p>	<p>The issue of concern is whether the operation of wind facilities in the region has had or will have a significant cumulative impact on the populations of avian species. In deciding whether the fatalities attributed to wind facilities are significant, the comparative fatalities caused by other structures are relevant.</p>
<p>“Because post-construction fatality monitoring searches are typically conducted every two weeks at most, it is easy to miss many bat fatalities in these searches.”</p>	<p>Under the protocol, searchers collect a sample of data using a standardized methodology. The use of comparable data collection at different wind projects in the region provides a basis for determining whether the</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	fatality rates for bats at any individual project fall outside the norm.
<p>“At Big Horn, actual fatalities of bats have been significantly higher than predicted by statistical models such as the one upon which Caithness relies. The first year of monitoring at Big Horn reported 1.9 bat fatalities per MW per year (33% higher than the WEST estimate).”</p>	<p>The final report on the Big Horn wind project in Klickitat County has not been issued as of the date of the SFWF public hearing. The report was not available for inclusion in the WEST cumulative impacts analysis (App Supp, Exhibit P, Attachment P-6).</p> <p>The comment cites a bat fatality rate of 1.9 per MW at Big Horn. The Department cannot confirm this number, because the final report is not available. Nevertheless, a bat fatality rate of 1.9 per MW is consistent with the mean bat fatality rate calculated in the WEST cumulative impacts study (1.43 per MW) because it falls within the range of individual project rates (from 0.77 to 2.46 per MW) used by WEST to calculate the mean rate.</p>
<p>“The applicant failed to determine what level of fatalities, for each species of bat and bird, would be likely to have significant adverse population impacts. Without those “threshold” calculations, mean fatality rates have limited usefulness.”</p>	<p>The applicable standard (OAR 345-024-0015) asks whether the applicant “can design and construct the facility to reduce cumulative adverse environmental effects in the vicinity by practicable measures.” The DPO, at pages 79-84, discusses the “significance” of estimated fatality rates at wind energy facilities in the Columbia Plateau region. The analysis is based on available data from the region as of the date the analysis was conducted.</p> <p>Biological studies for region-wide populations of “each species of bat and bird” are beyond the scope of appropriate investigation for the SFWF site. The Department has been meeting with the Oregon Department of Fish and Wildlife, the US Fish and Wildlife Service, industry representatives and others to address the issue of cumulative impacts within the region.</p> <p>The applicant responded to this comment as follows: “Applicant is aware of only one study examining population-level impacts to avian species from wind facilities.<sup>1</sup> The research was performed in California in and around the Altamont Wind Resource Area where most of the wind facilities consist of second-generation turbines. This study provides a golden eagle mortality number that did <i>not</i> cause an adverse impact to the population. Unfortunately, the data produced are not applicable to SFWF due to the type of turbines studied and the methods by which cause of mortality was determined.... Applicant is not aware of any studies that have determined the level of fatalities which would cause significant adverse population impacts, either in the Columbia Plateau or in other wind resource areas. A search of the literature reveals none. The golden eagle study, however, provides an example of the types of methods (radio-tagging and forensics), funding sources (state agency) and investigator qualifications (university predatory bird research group) appropriate for such work.” (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p>

<sup>1</sup> Hunt G (2002). *Golden Eagles in a Perilous Landscape: Predicting the Effects of Mitigation for Wind Turbine Blade-strike Mortality*, Public Interest Energy Research, California Energy Commission, Sacramento, CA. [http://www.energy.ca.gov/reports/2002-11-04\\_500-02-043F.PDF](http://www.energy.ca.gov/reports/2002-11-04_500-02-043F.PDF)

Draft Proposed Order Comments and Department Responses

Comment	Response
<b>Daniel Dancer (email)</b>	
<p>"In the case of Shepherds Flat, it does not appear that the developer has steered development toward lands that have lower habitat value—such as croplands and industrial lands. It is inaccurate to call the project site "mostly...farm land" (as your cover letter did), or "grazing and farming land" (as the applicant did). In fact, much of the 32,100 acres proposed for development is shrub-steppe habitat in excellent condition. Also, the site is in close proximity to Willow Creek, an important riparian area that is highly attractive to wildlife."</p>	<p>The area within the site boundary contains about 21,919 acres. Within the site boundary, the area that is currently devoted to farm use contains about 21,498 acres (95 percent of the area within the site boundary). Farm use land includes land that is currently cultivated or grazed, that previously was cultivated or that potentially could be used for grazing (excluding land occupied by roads, farmhouses and other buildings). See discussion of lands "devoted to farm use" in the DPO at page 30.</p> <p>Assuming that the commenter's reference to "shrub-steppe habitat in excellent condition" means Category 1 or Category 2 grassland or shrub-steppe habitat, the total area of such habitat within the site boundary amounts to approximately 87 acres (less than one-half of one percent of the area within the site boundary). Proposed Condition 86 would require the certificate holder to avoid all of this Category 1 and Category 2 habitat. Category 3 habitat within the site boundary (most of which is shrub-steppe habitat) amounts to approximately 7,467 acres (34 percent of the area within the site boundary). Based on the "worst-case" layout, the proposed facility would have a temporary or permanent impact on up to 239 acres of Category 3 habitat. This represents only three percent of the Category 3 habitat within the site boundary and only one percent of the total area within the site boundary.</p> <p>Willow Creek lies entirely outside the site boundary.</p>
<p>"I urge the siting council and local permitting officials to guide development to lands that do not contain shrub-steppe habitat, and to specific turbine locations that are as far away from the Columbia River and Willow Creek as possible; not located in areas of high bird and/or bat use or breeding activity; and a minimum of 300 feet from any cliff edges and saddles."</p>	<p>Willow Creek and the Columbia River are outside the proposed site boundary. Proposed Condition 87 would require the certificate holder to follow the recommendations of a qualified wildlife biologist in determining the final turbine locations. The proposed condition specifically requires avoidance of areas of increased risk to avian species due to constricted flight paths, such as narrow ridge saddles and gaps between hilltops. The proposed condition requires a 250-foot minimum setback from bluff edges along the northern boundary of the site (the boundary closest to the Columbia River) and bluff edges along the eastern boundary above Willow Creek.</p>
<p>"The U.S. Fish and Wildlife Service (USFWS) has published a set of guidelines to assist wind developers and permitting agencies with siting. For example, the USFWS recommends that developers "avoid placing turbines in areas that attract raptors; specifically, consider setbacks from cliff/rim edges, and avoid dips or passes along ridges." The agency also recommends that developers avoid "areas of high seasonal bird concentrations," and shut down turbines "during periods when birds are highly concentrated at those sites." I urge your department to consult these guidelines in evaluating this project."</p>	<p>The USFWS Interim Guidelines were developed in 2003 as guidance to the wind energy industry (USFWS, <i>Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines</i>, May 13, 2003). The Guidelines are not directed at "permitting agencies." The Guidelines were to be "evaluated over a 2-year period, and then modified as necessary based on their performance in the field and on the latest scientific and technical discoveries developed in coordination with industry, States, academic researchers, and other Federal agencies" (USFWS Memorandum, April 26, 2004, "Implementation of Service Voluntary Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines"). The USFWS has not updated the 2003 Guidelines. The 2004 memorandum states: "The Interim Guidelines are not to be construed as rigid requirements, which are applicable to every situation, nor should they be read literally."</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>The Interim Guidelines were developed for a different purpose and without consideration of the requirements of the site certificate process under Oregon law. The Guidelines propose “pre-development evaluations” – a type of site “pre-screening” – to be performed by wind industry developers before selecting a project site. In the context of Oregon’s energy facility siting law, once a developer has selected a proposed site, the Siting Council must consider whether that proposed site meets the Oregon standards. The Council cannot “pre-screen” or designate a different location; it must decide whether the proposed site meets the siting standards.</p> <p>The specific recommendations cited in the comment regarding placement of turbines in areas attractive to raptors are incorporated in proposed Condition 87. Based on the baseline wildlife surveys performed on the SFWF site, there do not appear to be any “areas of high seasonal bird concentrations” within the site boundary. Nevertheless, additional mitigation, beyond what the Department has already recommended in the DPO, may be proposed in the future, if results of avian monitoring indicate unexpected adverse effects from the facility.</p>
<p>“In particular, the guidelines call for a thorough pre-construction evaluation that recommends three years of study in areas with high seasonal bird use. Also, the guidelines specifically state that data from one site are not necessarily applicable to another. Furthermore, the USFWS guidelines specify that site evaluations done by teams that do not include federal and/or state agency wildlife professionals will not be considered valid.”</p>	<p>The applicant has performed adequate baseline wildlife surveys of the site. The surveys are described in the DPO at pages 91-92 and 98-99.</p> <p>The Interim Guidelines are voluntary guidelines for the wind energy industry. The recommendation for “three years of study in areas with high seasonal bird use” is taken out of context. In context, the recommendation relates to determining the presence and magnitude of bird and bat migration where there are high seasonal concentrations. The data from the surveys conducted for the proposed SFWF do not indicate high seasonal concentrations of migratory species, and therefore the “three-year” recommendation does not apply. The USFWS recommendation is “not intended to be a strict requirement for all areas, or if a shorter collection period can be expected to yield sufficient data” (USFWS Memorandum, April 26, 2004, “Implementation of Service Voluntary Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines”).</p> <p>The statement that “site evaluations done by teams that do not include federal and/or state agency wildlife professionals will not be considered valid” is taken out of context and omits the words “by the Service” that appears at the end of the sentence (Interim Guidelines, page 2). In context, the Interim Guidelines recommend participation by federal or state agency wildlife professionals for “pre-development evaluations of potential sites” before the developer selects a site for development. After a developer has selected a proposed site, the Siting Council must consider whether that proposed site meets the Oregon standards. The Department encourages applicants to consult with the Oregon Department of Fish and Wildlife regarding issues of concern before submitting the Preliminary Application (OAR 345-021-0010(1)(p)).</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>"... the avian survey analysis that is being done for this project relies heavily on data collected from other sites."</p>	<p>The consideration of data from other wind projects in the Columbia Plateau Region is used in the analysis of cumulative impacts (see DPO at page 79). The applicant has performed adequate baseline wildlife surveys of the site. The surveys are described in the DPO at pages 91-92 and 98-99.</p>
<p>"The WEST methodology predicts the impacts of a project by comparing pre-construction avian point counts with post-construction fatality monitoring."</p>	<p>See the Department's response above to the identical comment made by Dawn Stover.</p>
<p>"Post-construction monitoring is even less standardized. The methods have varied from site to site...."</p>	<p>See the Department's response above to the identical comment made by Dawn Stover.</p>
<p>"The birds typically killed by turbines are not rock doves, are not previously frozen, and are not killed all at once, so scavenger efficiency trials overestimate the time that a carcass is likely to remain in the landscape (and thus underestimate the number that will be missed by searchers)."</p>	<p>See the Department's response above to the identical comment made by Dawn Stover.</p>
<p>"...this type of monitoring fails to measure any impacts beyond dead birds found within a predetermined circle surrounding the turbine. Any birds that are struck by turbines, but do not drop within the search circle (for example, if they are flung farther away, or able to fly a short distance before dying) are not counted.</p>	<p>The question of the appropriate dimensions of search plots used for standardized fatality monitoring has been answered by previous survey results. See, for example, WEST, <i>Puget Sound Energy, Hopkins Ridge Wind Project Phase 1, Post-Construction Avian and Bat Monitoring, First Annual Report</i> (March 2007): "Studies at wind plants with other large turbines, Klondike in Sherman County, Oregon (Johnson <i>et al.</i> 2002), and Combine Hills, Umatilla County, Oregon (Young <i>et al.</i> 2005) indicate nearly all fatalities are found within the area that is roughly equivalent to the height of the turbine" (page 3). Although some fatalities might fall outside the search plots and be missed in the survey, the number is a "small percentage" based on the "distribution of fatalities as a function of distance from turbines" (page 11).</p>
<p>"there are literally thousands of turbines that will soon be lining both sides of the Columbia River and creating a "wall" of 400-foot-tall machines that may have unforeseen impacts, especially on migratory birds. This needs to be considered in the cumulative impacts analysis. Population impact studies are needed to determine what toll these projects, in aggregate, will take on our native wildlife."</p>	<p>As discussed in the DPO at pages 79-84, the Department estimates that approximately 3,600 wind turbines could be operating within the Columbia Plateau Region within the next five years (currently, there are less than half that number). The current and future turbine locations are scattered in project locations throughout the region, which contains thousands of square miles in Washington and Oregon. Within any single project area, wind turbine towers occupy a fraction of the land. The proposed 303 SFWF turbine towers occupy approximately 12 acres within a site that contains 21,919 acres (0.05 percent of the area within the site boundary).</p> <p>The applicable standard (OAR 345-024-0015) asks whether the applicant "can design and construct the facility to reduce cumulative adverse environmental effects in the vicinity by practicable measures." The DPO, at pages 79-84 discusses the significance of estimated fatality rates at wind energy facilities in the Columbia Plateau region. The analysis is based on the available data from the region. Biological studies for region-wide populations of "each species of bat and bird" are beyond the scope of appropriate investigation for the SFWF site. The Department has been meeting with the Oregon Department of Fish and Wildlife, the US Fish and Wildlife Service, industry representatives and others to address the issue of "cumulative impacts" within the</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>region.</p> <p>See Department's response above (page E-4) to a similar comment by Dawn Stover regarding avian and bat population impacts.</p>
<p>"One of the big unknowns: migratory patterns. Very little is known about the migratory corridors in the area of this project, and most of the migratory activity of neotropical birds takes place at night. The applicant has apparently made little effort to study migration in this area, or to conduct any nocturnal studies."</p>	<p>The Pacific Flyway, which is the north-south migration route for birds that winter in Central and South America, stretches over much of the area in Eastern Oregon and Washington (<a href="http://www.birdnature.com/pacific.html">http://www.birdnature.com/pacific.html</a>). Although wind energy facilities have been built in this region within the flyway, there have been relatively few fatalities of migratory "neotropical" species. Based on the available data, turbine-related fatalities of migratory birds have been low in the region.</p> <p>The WEST cumulative impacts analysis notes: "Results of marine radar surveys for proposed wind projects have indicated that the vast majority of nocturnal migrants fly at altitudes that do not put them at risk of collision with turbines" (App Supp, Exhibit P, Attachment P-6, p. 16).</p> <p>The applicant responded to this comment as follows: "Estimated impacts to populations of nocturnal migrants (whether neotropical or not) were discussed in the SFWF cumulative impacts analysis [App Supp, Exhibit P, Attachment P-6, p. 16], and the impacts were not considered significant. A meta-analysis of data from 30 studies in 15 wind resource areas concluded 'The level of nocturnal migrant mortality observed appears very low relative to nocturnal passage rates of birds at the wind plants where both mortality and nocturnal radar studies were conducted (San Geronio [CA], Buffalo Ridge [MN], and Stateline [OR/WA]).'<sup>2</sup> ...</p> <p>"Evaluating the risks and impacts to <i>neotropical</i> migrants only is difficult to do with existing data, as reports typically tabulate nocturnal migrants rather than neotropical migrants and the two categories are not identical. 'Neotropical migrant' has no fixed definition or authoritative species list, but in general refers to birds breeding in and north of the United States and wintering from Mexico south in tropical climates, although wintering and breeding ranges in the southern U.S. and northern Mexico may overlap. Some apply the term to songbirds only and others do not have that restriction. By comparing the species listed in the regional avian fatality table [App Supp, Exhibit P, Attachment P-6, Table 3, pp. 10-11] to range maps and breeding and wintering range descriptions,<sup>3</sup> several species that would be considered neotropical migrants are among carcasses found in searches of existing Columbia Plateau wind facilities: gray catbird (1 carcass), grasshopper sparrow (1 carcass), Savannah sparrow (2 carcasses), vesper sparrow (2 carcasses), American pipit (1 carcass), Swainson's thrush (1 carcass), MacGillivray's warbler (1 carcass), Townsend's warbler (1 carcass), house wren</p>

<sup>2</sup> Erickson W, G Johnson, D Young, D Strickland, R Good, M Bourassa, K Bay and K Sernka (2002). *Synthesis and Comparison of Baseline Avian and Bat Use, Raptor Nesting and Mortality from Proposed and Existing Wind Developments*, WEST, Inc., Cheyenne, WY, page 5.

<sup>3</sup> Peterson RT and VM Peterson (1990). *A Field Guide to Western Birds*, Houghton Mifflin Company, New York, NY.

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>(3 carcasses), Swainson's hawk (1 carcass), and northern harrier (1 carcass). Some may also consider the ruby-crowned kinglet (2 carcasses), golden-crowned kinglet (23 carcasses), yellow-rumped warbler (6 carcasses) and mallard (1 carcass) to be neotropical migrants. The carcass numbers, carcass distribution by species, and absence of large same-species and same-date carcass groupings suggests [multi-fatality] wind turbine collision incidents of nocturnally or diurnally migrating neotropical species have not occurred in existing wind facilities in the Columbia Plateau. Applicant has no reason to anticipate such collision incidents at SFWF." (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p>
<p>"The applicant has also apparently failed to do site-specific studies of bats or butterflies in the area. As with birds, data from other sites are simply extrapolated to this site. It is assumed that there won't be a problem, even though very little is known about bat or butterfly populations in the area."</p>	<p>As discussed in the DPO at page 91, no threatened or endangered bat species are known to occur in Gilliam County or Morrow County. The applicant identified and discussed six bat species of concern believed to be historically or currently present Gilliam County or Morrow County (App Supp, Amended Exhibit P, pp. 17-23).</p> <p>The applicant responded to the comment regarding butterflies as follows: "No threatened, endangered<sup>4</sup> or candidate<sup>5</sup> butterfly species and no rare or sensitive<sup>6,7</sup> butterfly species are known to occur in Gilliam<sup>8</sup> or Morrow<sup>9</sup> Counties. The Application explicitly listed insects as at risk of collision with turbines or towers.<sup>10</sup> Risk of collision with vehicles, dust exposure, water quality impairment and wildfire were described as applying to all wildlife species.<sup>11</sup> Insects are included in 'all wildlife species.'</p> <p>"During construction of the proposed facility, butterflies risk collision with construction vehicles. On-site construction vehicles do not travel at highway speeds, however, and collision risk will be lower on-site than on the adjacent interstate highway or on nearby state highways and county roads. During operation of the proposed facility, butterflies risk collision with service</p>

<sup>4</sup> U.S. Fish and Wildlife Service Threatened and Endangered Species System [http://ecos.fws.gov/tess\\_public/StateListingAndOccurrence.do?state=OR](http://ecos.fws.gov/tess_public/StateListingAndOccurrence.do?state=OR)

<sup>5</sup> U.S. Fish and Wildlife Service Threatened and Endangered Species System [http://ecos.fws.gov/tess\\_public/pub/stateListing.jsp?status=proposed&state=OR](http://ecos.fws.gov/tess_public/pub/stateListing.jsp?status=proposed&state=OR)

<sup>6</sup> Oregon Natural Heritage Information Center Institute for Natural Resources (2007), *Rare, Threatened and Endangered Species of Oregon*, Oregon State University, Portland, OR, page 28 [http://oregonstate.edu/ornhic/2007\\_t&e\\_book.pdf](http://oregonstate.edu/ornhic/2007_t&e_book.pdf)

<sup>7</sup> Oregon Natural Heritage Information Center Institute for Natural Resources, 2007 invertebrate data download <http://oregonstate.edu/ornhic/data/inverts2007.xls>

<sup>8</sup> U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office (2008a), *Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur Within Gilliam County, Oregon* <http://www.fws.gov/oregonfwo/Species/Lists/Documents/County/GILLIAM%20COUNTY.pdf>

<sup>9</sup> U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office (2008b), *Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur Within Morrow County, Oregon* <http://www.fws.gov/oregonfwo/Species/Lists/Documents/County/MORROW%20COUNTY.pdf>

<sup>10</sup> App Supp, Amended Exhibit P, p. 38.

<sup>11</sup> App Supp, Amended Exhibit P, p. 38.

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>vehicles. Facility speed limits [proposed Condition 92] will mitigate this risk. During operation of the proposed facility, butterflies may risk collision with the leading edges of the turbine's rotor blades when they are moving. ...</p> <p>"While eighty-three butterfly species have been identified in Gilliam and Morrow Counties,<sup>12</sup> "most species of butterflies are not expected to fly at the height of wind turbine blade sweep."<sup>13</sup> The exception is the migratory monarch butterfly. "However, as the monarchs would be passing through at heights well above the turbines, the risk of collision is expected to be low."<sup>14</sup> (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p>
<p>"Thinking in terms of "footprint" does not take into account the impacts of electrocution, for example, which kills huge numbers of birds every year. I urge you to think in terms of three-dimensional space rather than simply two-dimensional land use when evaluating this proposal."</p>	<p>Analysis of the two-dimensional "footprint" of the proposed facility is necessary so that the Council can make appropriate findings regarding Council standards, such as the Land Use Standard and the Fish and Wildlife Habitat Standard.</p> <p>The Council does, in fact, consider the vertical dimension of wind facilities. Proposed Condition 83 would require post-construction avian and bat fatality monitoring (one method to assess impacts in the vertical dimension). Proposed Conditions 86, 87, 89 and 91 all address aspects of vertical space. Proposed Condition 90 specifically addresses avian electrocution risk.</p>
<p><b>Christina Welch, Bureau of Land Management (email)</b></p>	
<p>"Soil disturbance from the proposed project could allow noxious weed spread on both private and public land, potentially degrading soil and thus wildlife habitat."</p>	<p>Proposed Condition 76 requires the certificate holder to limit soil disturbance as much as practicable (for example, by crushing rather than scraping temporary disturbance areas). Proposed Condition 84 requires the certificate holder to restore disturbed areas in accordance with the Revegetation Plan, which provides for weed control on an annual basis until the disturbed areas are successfully revegetated. Proposed Condition 38 requires the certificate holder to implement a plan to control the introduction and spread of noxious weeds during construction and operation of the facility, consistent with the Gilliam County and Morrow County Weed Control Programs.</p>
<p>"The Draft Proposed Order mentions 'tumbleweed' in several places; we suggest replacing this term with the actual plant name (probably Russian thistle). This is a noxious weed."</p>	<p>The term "tumbleweed" occurs twice in the DPO on pages 104 and 105. In response to this comment, the applicant has stated that "tumbleweed" refers to Russian thistle (<i>Salsola kali</i>), as identified in the application (App Supp, Amended Exhibit P, p.6). The Department has corrected the references to "tumbleweed" in the Proposed Order.</p>
<p>"The threatened lichen <i>Texasporium sancti-jacobi</i> occurs in the Horn Butte area. We see no specific mention of this threatened species in the Draft Proposed Order."</p>	<p>The applicant responded to this comment as follows: "According to the national U.S. Fish and Wildlife Threatened and Endangered Species System (TESS), the lichen is not listed as threatened or endangered in</p>

<sup>12</sup> Opler PA, H Pavulaan, RE Stanford and M Pogue, coordinators (2006), *Butterflies and Moths of North America*. Bozeman, MT: NBII Mountain Prairie Information Node. <http://www.butterfliesandmoths.org/> (Version 05212008)

<sup>13</sup> Santec Consulting Ltd. (2007), *Butterfly Report, Wolfe Island Wind Project Technical Appendix C8*, page 3.3. [http://www.canhydro.com/projects/wolfeislandwind/project\\_docs/Final\\_ERR/Appendices/AppendixC8\\_ButterflyReport.pdf](http://www.canhydro.com/projects/wolfeislandwind/project_docs/Final_ERR/Appendices/AppendixC8_ButterflyReport.pdf).

<sup>14</sup> Ibid, p. 3.4

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>Oregon or in any other state.<sup>15</sup> According to TESS, the lichen is not a candidate for listing in Oregon or in any other state.<sup>16</sup> According to the Oregon Fish and Wildlife Office of the U.S. Fish and Wildlife Service, the lichen is not a listed, proposed or candidate species nor is it a species of concern, in either Gilliam<sup>17</sup> or Morrow<sup>18</sup> County. The lichen does not appear in the Oregon threatened and endangered plant list maintained by the Oregon Natural Heritage Information Center (ORNHIC).<sup>19</sup> The lichen does appear in an ORNHIC publication,<sup>20</sup> where its status is shown as a federal 'Species of Concern,' no Oregon Department of Agriculture status, and a Heritage status of critically imperiled. The publication shows the lichen occurring only in Jefferson and Wasco Counties...." (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p>
<p>Ground disturbing activities would potentially allow sediment to enter the stream channel. ...Both Eightmile and Willow Creek within or near the project area and are listed as water quality limited by the State (303d). ...As a potential mitigation measure, the applicant could rehabilitate riparian vegetation in that channel, improving the currently minimal buffer of vegetation that catches sediment before it reaches the stream and floodplain. Another option would be to acquire instream flow leases for the hot summer season to reduce bacterial activity by flushing away the benthic sludge which is using oxygen."</p>	<p>Willow Creek is outside the site boundary. At the closest points, Willow Creek is approximately a quarter-mile from the site boundary (App Supp, Amended Exhibit C, Fig. C-2). A proposed 230-kV transmission line would cross over Eightmile Creek. The proposed site certificate conditions would mitigate the potential for stormwater run-off to carry sediment into the Eightmile or Willow Creek stream channels.</p> <p>Proposed Condition 72 prohibits road-building or construction of transmission line support poles within Eightmile Creek or within a 10-foot buffer from the ordinary high water line of the creek.</p> <p>Proposed Condition 73 requires the certificate holder to conduct all construction work in compliance with an Erosion and Sediment Control Plan (ESCP) satisfactory to the Oregon Department of Environmental Quality and as required under the National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge General Permit #1200-C.</p> <p>Proposed Condition 75 requires the use of best management practices to control any dust generated by construction activities. This condition addresses the potential for fugitive dust emissions, reducing the possibility for sediment to enter stream channels.</p> <p>It is unlikely that the use of water during construction would carry any sediment into the stream channels. The primary use of water during construction is for road watering (to reduce dust emissions) and for concrete mixing (which would occur off-site). There would be preliminary rinse-out of concrete trucks on-site, but the rinse water would be disposed of in excavation holes and</p>

<sup>15</sup> U.S. Fish and Wildlife Service Threatened and Endangered Species System [http://ecos.fws.gov/tess\\_public/StateListingAndOccurrence.do?state=OR](http://ecos.fws.gov/tess_public/StateListingAndOccurrence.do?state=OR)

<sup>16</sup> U.S. Fish and Wildlife Service Threatened and Endangered Species System [http://ecos.fws.gov/tess\\_public/pub/stateListing.jsp?status=proposed&state=OR](http://ecos.fws.gov/tess_public/pub/stateListing.jsp?status=proposed&state=OR)

<sup>17</sup> U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office (2008a). *Op. cit.*

<sup>18</sup> U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office (2008b). *Op. cit.*

<sup>19</sup> Oregon Natural Heritage Information Center. *Oregon Threatened or Endangered Plant Field Guide*. [http://oregonstate.edu/ornhic/plants/view\\_plants2.php](http://oregonstate.edu/ornhic/plants/view_plants2.php)

<sup>20</sup> Oregon Natural Heritage Information Center Institute for Natural Resources (2007). *Op. cit.* page 79

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>would not be allowed to run off the site (see discussion at page 129 of the DPO). The Department recommends a revision to proposed Condition 101, adding subsection (f) to incorporate this requirement, as follows:</p> <p>“(f) Discharging all concrete truck rinse water into foundation holes and completing truck wash-down off-site.”</p>
<p>“...there may be indirect impacts to one known cultural site located in the project area. That site is the nationally significant Fourmile Canyon segment of the Oregon Trail managed and interpreted by the BLM Prineville District. ...The main concern would be visual impacts to the Trail which would have a negative effect on the integrity of the location, the feeling, the setting and association (these are criteria for eligibility for the National Register of Historic Places). To mitigate the potential indirect effects, we recommended that no turbines be visible from the interpretive kiosk. It appears this may affect the placement of at least two turbines.”</p>	<p>The BLM has not fenced the Fourmile Canyon segment of visible Oregon Trail ruts, and free-ranging cattle are allowed to graze across the site. The paved county road and the BLM “kiosk” itself are elements of modern construction that to some extent detract from the “feeling” and “setting” of the historic trail ruts.</p> <p>Based on a review of the applicant’s visual impact analysis (App Supp, Exhibit R, response to RAI R2 (Follow-Up)), as many as 150 of the proposed SFWF turbines might be partially visible from the wayside. The applicant has stated that voluntary compliance with the BLM recommendation that “no turbines be visible” is unfeasible. Other wind turbines that are not part of the proposed SFWF might also be visible from the wayside in the future, including turbines from wind projects that are not within the Council’s jurisdiction. Existing wind turbines (located in Washington) are currently visible to the north of the BLM’s Fourmile Canyon Oregon Trail interpretive wayside.</p> <p>The Scenic Resource Standard is the applicable standard. The DPO addresses compliance with this standard at pages 64-76. “Visibility” is not the test under this standard. The standard does not require that a proposed facility be invisible. The standard requires a finding that the proposed facility would not be likely to have a “significant adverse impact” to “significant or important scenic resources and values” that are identified in applicable land use or land management plans for a particular area. The applicable land management plans for the Oregon National Historic Trail and the proposed facility’s compliance with the standard are discussed in the DPO at pages 71-74. For the reasons discussed there, the Department recommends that the Council find that the proposed SFWF would not have a significant impact on the scenic value identified for the BLM Fourmile Canyon wayside.</p>
<p><b>G.K. David, Naval Air Station Whidbey Island (email)</b></p>	
<p>“[There] is significant obstruction to the centerline and northern half of four low altitude military Training Routes (MTRs) that overlay the SFWF site west of the towns of Cecil and Morgan. The obstructions would force all low altitude flight operations to deviate south of centerline and over, or in close proximity to, the town of Morgan. Currently, Morgan is rarely overflown as we have had the entire MTR corridor available for maneuvering for many decades.... I recommend, as a condition of approval, that during the micrositing process the applicant mitigate to the extent practicable any potential health or safety impacts that may be caused by forcing more low altitude military jet aircraft overflights near, or over, the town of Morgan. ...Increased jet noise and overflights of the town of Morgan may be considered ‘adverse conditions’ or a</p>	<p>See related comment by Rich Melaas, Naval Air Station Whidbey Island, below.</p> <p>The Department notes that the comment does not address the proposed facility’s potential effect on aviation safety. The FAA must approve placement of wind turbines, as discussed at page 140 of the DPO and as required under proposed Condition 57.</p> <p>Rather, the comment addresses whether the proposed facility would cause a potential health or safety impact by “forcing” the Navy’s low altitude flight operations “over, or in close proximity to, the town of Morgan.” The Navy is concerned that “increased jet noise and overflights of the town of Morgan may be considered ‘adverse conditions’ or a ‘detrimental impact’ by the citizens of Morrow</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>'detrimental impact' by the citizens of Morrow County, Morgan and the surrounding area. The Council should impose as a condition of its approval that during the micro-siting process the applicant mitigate to the extent practicable any detrimental impacts to Morgan and the surrounding area that would result from the significant obstruction of the four MTRs."</p>	<p>County, Morgan and the surrounding area."</p> <p>Other than suggesting that there would be "increased jet noise" affecting the "town of Morgan," the comment gives no information regarding any "health and safety impacts" caused by overflights. If Navy jet overflights present a risk to public health and safety, then that risk now affects all residents within the MTR corridor. As the comment states, the Navy has "for decades" used the entire "MTR corridor" for military jet overflights. The corridor, with Instrument Route and Visual Route, is illustrated in App Supp, Exhibit BB, Figure RAI#2 BB2a, and in the map submitted by Rich Melaas at the public hearing. Construction of the proposed SFWF would not increase the risk, but it would limit the risk to a smaller segment of the residents within the corridor. Sufficient space is available within the established MTR corridor for the Navy to conduct its low altitude flights to the south of the proposed turbine locations. At the public hearing, Rich Melaas stated, "that could be done within the current air space." At the same time, any risk to public health and safety from overflights would be eliminated for residents in the northern portion of the corridor.</p> <p>In response to this comment, the applicant identified 34 occupied residences within the corridor (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008). Nineteen of the residences are located in the northern portion of the corridor, where future overflights would be avoided. Although the Navy's use of the southern part of the corridor would affect up to 15 residences, the potential "detrimental impact" would affect fewer homes than are currently affected. Some of the 15 "residences" that the applicant identified in the southern area may, in fact, be other types of structures, such as grain silos.</p> <p>Three local residents commented regarding the Navy's concern regarding overflights. See the comments of Loren and Della Heideman (joint letter) and Dana Heideman, below. These residents expressed opposition to relocation of proposed SFWF wind turbines to accommodate the Navy's request.</p> <p>In response to the Department's inquiry, Carla McLane, Morrow County Planning Director, described the "town" of Morgan (letter from Carla McLane, May 19, 2008). Although an old town plat exists (originally established as the town of "Douglas"), the Planning Director states: "The old town plat, complete with streets, had disputed ownership and in 1999 a judicial order conveyed ownership to the parties in such a way that two streets were effectively vacated and the remaining two are land-locked. Morrow County looks at a judicial order, when it splits property, as creating illegal parcels as they have not been reviewed under the partitioning laws of the State of Oregon (ORS Chapter 92). Currently the tax lots owned by Sullivan and Griffith are not eligible for development as the County views them as having been created illegally." The Planning Director noted that "Morgan" is not recognized as an unincorporated community. The land is zoned EFU and "none of the parcels in or near Morgan meets the minimum acreage</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>for a dwelling.” Based on the Planning Director’s letter, the Department recommends that the Council find that the Navy’s concern for the “town of Morgan” is misplaced because there is no “town.” According to the Planning Director, the only buildings in “Morgan” are one home, one illegally sited manufactured home and some grain elevators.</p>
<p><b>Leslie Nelson, The Nature Conservancy (email and hand delivery)</b></p>	
<p>“We believe that the proposed placement of this wind project will further fragment this valuable land and recommend that the cumulative effects to wildlife habitat can and should be addressed.”</p>	<p>Cumulative effects are addressed by OAR 345-014-0015, which requires reduction of cumulative adverse environmental effects in the vicinity by practicable measures. Compliance with this standard is discussed at pages 79-86 of the DPO.</p> <p>The permanent facility footprint would occupy less than 1 percent of all of the land within the site boundary. Section IV.4.b of the DPO describes the existing habitat quality and the anticipated impacts of the SFWF, beginning at page 96. The most valuable wildlife habitat (ODFW Categories 1 and 2) would be avoided by the proposed SFWF as required under proposed Condition 86. The proposed facility would not “fragment” any of this wildlife habitat or have any other direct impact during construction or operation.</p> <p>Based on a worst-case analysis, the proposed facility would have temporary or permanent impact on approximately 240 acres of Category 3 habitat (the next most valuable land for wildlife habitat after Categories 1 and 2). This amounts to about 3 percent of all Category 3 habitat within the site boundary and about 1 percent of all habitat within the site boundary. The permanent facilities would occupy approximately 124 acres of Category 3 habitat in the worst-case layout. This amounts to less than 2 percent of all Category 3 habitat within the site boundary and less than 0.6 percent of all habitat within the site boundary.</p> <p>The Department used the worst-case analysis to determine whether the applicant’s proposed mitigation parcel would be large enough to address the impacts of any possible configuration, as discussed in the DPO at pages 110-112. The actual final design configuration is likely to affect less Category 3 habitat. In the applicant’s “typical layout,” the permanent facilities would occupy approximately 49 acres of Category 3 habitat. This amounts to less than 1 percent of all Category 3 habitat within the site boundary.</p> <p>Proposed Condition 84 would require the certificate holder to restore all habitat temporarily affected by construction. Proposed Condition 85 would require mitigation for the proposed facility’s permanent footprint impacts, as well as for the temporal loss habitat quality during the restoration period for temporary impacts to Category 3 shrub-steppe habitat. Proposed Condition 86 would require the certificate to avoid identified high-value areas of Category 3 shrub-steppe habitat and would prohibit construction of field workshops and substations in any Category 3 habitat.</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>“As currently envisioned, the Shepherds Flat wind farm could further isolate the colonies located west of Shepherds Flat from the main population of Washington ground squirrels found at the Boardman Conservation Area and adjacent military lands.”</p>	<p>Based on the existence of colonies of WGS in the Leaning Juniper II area (Gilliam County), the SFWF area (Morrow County) and the Stateline area (Umatilla County) as reported in the site certificate applications for those projects, it appears that many separate Washington ground squirrel (WGS) colonies exist outside the Boardman Conservation Area (BCA).</p> <p>The WGS colonies west of Shepherds Flat, as shown on the map attached to the comment letter, are colonies within the Leaning Juniper I and Leaning Juniper II project areas. These colonies are already “isolated” from the BCA by Highway 19 and Highway 74. As described above, the permanent facility footprint of the proposed SFWF occupies less than 1 percent of the land within the site boundary. The proposed SFWF, therefore, does not create a barrier that would “isolate” the Leaning Juniper area WGS colonies any more than they are already isolated by existing highways and other development.</p> <p>The comment cites Quinn (2004) as support for the statement: “Habitat isolation and fragmentation affects species such as the Washington ground squirrel by increasing their vulnerability to a variety of natural and anthropogenic factors.” The Department has reviewed the cited report. The Quinn study does not address or even mention “habitat isolation” or “fragmentation” effects on WGS. Rather, the Quinn study addressed “fragments” of shrub-steppe habitat in corners of crop irrigation circles and studied the effects of crop disturbance on diversity and abundance of “arthropods” (insects such as ants, grasshoppers, beetles, wasps, flies, etc.).</p>
<p>“To summarize our point; as currently proposed we believe the SFWF will further fragment native habitats. We do not believe the applicant has demonstrated that the level of fragmentation caused by this proposed project has been minimized, or that this fragmentation of native habitats will not have a negative effect on Washington ground squirrels. We recommend the EFSC require further study of how this project affects fragmentation of Washington ground squirrel habitat, resulting in possible design modifications or additional mitigation.”</p>	<p>The proposed SFWF would avoid the WGS colony that is discussed at page 95 of the DPO and in the application (App Supp, Exhibit P, Attachment P-5a). The WGS colony is classified as Category 1 habitat. A buffer area of Category 2 habitat, suitable for use by WGS, separates the colony area from the rocky soil and cultivated wheat field areas where project components might be located. Proposed Condition 86 would require avoidance of all Category 1 and Category 2 habitat. The proposed facility would not “fragment” either the habitat that is currently used by WGS or bordering habitat that may be suitable for WGS use.</p> <p>Potential impacts of construction activity on the WGS would be avoided as required under proposed Condition 86, which requires an additional no-entry buffer of 1,000 feet outside the Category 2 area during the period when WGS are active.</p> <p>Under proposed Condition 92, a speed limit of 5 miles per hour would be enforced during construction and operation at all times within 1,000 feet of the Category 2 buffer area.</p> <p>The comment cites data reported by Klein (2005) regarding dispersal of juvenile male WGS, noting a median dispersal distance of “approximately 2,900 feet.” Although the applicant proposes to locate wind turbines within the median dispersal distance reported by Klein, the research did not address the location of wind turbines on the landscape or whether the presence of a</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>wind turbine would create a barrier to WGS dispersal or otherwise “fragment” habitat used by the WGS. The Klein study, however, reported that vegetation type, soil texture and proximity to conspecifics (animals of the same species) were factors affecting selection of settlement location for dispersing WGS. Settlement sites were characterized as areas of annual grass or sagebrush vegetation in Warden silt soil. No WGS settled in agricultural areas. Klein found that rarely-traveled, primitive roads do not act as a barrier to dispersal.</p> <p>Based on the information in the Klein study, the locations for the closest proposed wind turbines are not within habitat likely to be used for settlement by dispersing WGS (one proposed location is in a wheat field and two locations are in rocky soil with sparse vegetation).</p> <p>The applicant described the proposed wind turbine locations as follows: “There are only three wind turbines proposed in any proximity to the Washington ground squirrel colony. One of these turbines, as is apparent in Aerial Photo 1, is within a wheat field. Cultivated land will not support Washington ground squirrels.<sup>21</sup> The other two turbines (shown on Aerial Photo 1) are sited on Graveney very gravelly loam.<sup>22</sup> This soil is described by the U.S. Department of Agriculture (USDA) as high in rock fragments with a cemented pan at 10 to 20 inches.<sup>23</sup> The expected depth of the cemented pan (the “restrictive layer”) is 36 cm (14 inches) as shown in the attached USDA report. This depth of soil is unsuitable for Washington ground squirrel burrows, as the burrows are generally deeper than 1 meter.<sup>24</sup>” (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p>
<p>“In our January 10, 2008 letter to your department, we requested that the applicant remove the three proposed towers located adjacent to an active Washington ground squirrel colony from further consideration. Based upon information obtained during our recent tour of the property, for the following reasons we wish to reiterate our request to remove these three towers from the project. ...The proposed access road is presently an unimproved farm road, perhaps 12 feet wide, and is located on the narrow spine of a small ridge that bisects the Washington ground squirrel site. Specifications in the proposal for roads used during construction call for the road to be improved and widened to 18 feet; if the road through the squirrel colony were to be widened as specified, a large volume of fill will encroach on the colony on both sides of the ridge. Specifications also call for an additional 10 foot temporary crane path adjacent to all roads; this would make the effective width of the road a total of 28 feet, which would place the crane path on top of the squirrel colony.”</p>	<p>The comment requests the removal of three proposed turbine locations. In support of this request, the comment states that an access road would “encroach on” the WGS colony area.</p> <p>The existing farm road curves around the outside edge of the Category 2 buffer area. As shown on Figure 3 of the WGS survey report (App Supp, Exhibit P, Attachment P-5a), the portion of the road inside the site boundary does not “bisect” the WGS colony area.</p> <p>The applicant described the segment of the existing farm road that lies off-site and explained that it would not be used for facility access, as follows: “This existing ranch road branches off of a county road in a relatively level area that is used for livestock truck washout and ranch equipment storage. A Washington ground squirrel colony has historically used the area to the south of the road. After truck washout began, the colony began to use the north side of the road as well. While the road existed before the colony moved to the north side, it is fair to say</p>

<sup>21</sup> U.S. Fish and Wildlife Service Oregon Fish & Wildlife Office, *Species Fact Sheet: Washington Ground Squirrel* <http://www.fws.gov/oregonfwo/Species/Data/WashingtonGroundSquirrel/>

<sup>22</sup> Applicant’s response to RAI#2, Figure I-2 [App Supp, Exhibit I].

<sup>23</sup> Attachment P-5a, page 4 and Table 1 page 8 [App Supp, Exhibit P].

<sup>24</sup> Exhibit Q, page 11 [App, Exhibit Q].

Draft Proposed Order Comments and Department Responses

Comment	Response
	<p>that the road now bisects the colony.</p> <p>“This existing road is the only road in the vicinity that meets Ms Nelson’s description; however, it is outside of the site boundary and is not a proposed project access road. This road does not, therefore, appear on any of Applicant’s facility component maps. No project access roads are proposed from the Willow Creek Valley; no project access roads are proposed through private property that lies outside of the site boundary. This existing ranch road, on private property outside of the site boundary, will not be used during either the construction or operation of the proposed facility. Therefore, no impact to the “bisected” WGS colony will occur.” (Caithness Shepherds Flat Response to Questions Presented by the Department on May 15, 2008.)</p> <p>Proposed Condition 86 would require the certificate holder to avoid impacts to Category 1 and Category 2 habitat. Where the existing on-site road segment borders the Category 2 area, the crane path and any expansion of the existing road would be located on the opposite side of the road and not within the Category 2 area. No construction activity would encroach on the Category 1 WGS colony area or on the Category 2 buffer area.</p> <p>The potential risk of injury to WGS is the possibility that WGS would be struck by construction vehicles. This risk is limited to the period of the year when WGS are active above ground (approximately March through May). The risk is also limited to the possibility that individual WGS range beyond the Category 2 area. The distance across the Category 2 area is at least 300 feet, measured horizontally and not accounting for the change in elevation of 100 to 300 feet (App Supp, Exhibit P, Attachment P-5a, page 4). To avoid the risk of injury to WGS, proposed Condition 86 would require avoidance of construction activity in a buffer area of 1,000 feet from the Category 2 area during the time WGS are active.</p> <p>The three turbines in question are not within the WGS colony area or the Category 2 area. Two of the proposed turbines would be located in rocky soil, described on page 4 of the report as “Gravden very gravely loam” with a “cemented pan at 10 - 20 inches.” The third proposed turbine would be located within a cultivated wheat field. The habitat quality of the proposed location of these three turbines is unsuitable for WGS. Construction and operation of wind turbines in these locations, therefore, is not likely to present a significant risk to the species or to the identified colony.</p>
<p>“In addition, Delavan (2008) estimates that the required home range (the area occupied by the squirrels throughout their active season) for an individual Washington ground squirrel is between 3.7 and 7.2 acres, with average core activity area (area of most concentrated use within the home range) comprised of 12-13% of the home range. As I mentioned earlier in the letter, the median distance across all home ranges was 1,010 feet for males and 510 feet for females, a distance that would suggest that a 1,000 is an insufficient buffer to protect the ground squirrels from harm. Given this</p>	<p>The comment discusses the size of WGS “home range” as a further reason for requesting the removal of three proposed turbine locations.</p> <p>All three proposed turbine locations lie outside the Category 1 colony area identified by the applicant and outside the Category 2 buffer area around the colony. Under proposed Condition 86, the certificate holder would completely avoid disturbance to these Category 1 and Category 2 habitat areas and would avoid construction activity within an additional 1,000 feet outside the Category 2 area during the period when</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>information, we respectfully repeat our request that these three towers be removed from consideration in the final lay-out of the project.”</p>	<p>WGS are active. As discussed above, the proposed turbine locations are in unsuitable habitat for WGS.</p> <p>The comment cites the Delavan (2008) study for data on the distance across WGS home ranges. The Delavan study notes that the “dominant” soil types in the study area were Quincy-Koehler, Sagehill-Taunton and Warden soil. These soil types are characteristically deep loam or deep sandy loam soil types. Although the data on home range size studied by Delavan may be representative of range size within the area studied, Delavan does not suggest that WGS home ranges would extend into areas of unsuitable habitat. Two of the proposed turbine locations are in rocky soil that is unsuitable for WGS burrows. The third proposed location is within a cultivated field and is unsuitable for WGS.</p>
<p>“The protocol for monitoring the Habitat Mitigation Area (Section VI.1. Monitoring Procedures, page C-4 of the Habitat Mitigation Plan) are not adequately described. We request further clarification on how annual assessments will be conducted to determine the general quality of the vegetation cover (VI.1.1); if abundance of seed production is to be the indicator of recovery (VI.1.6), what methods will be used to measure that abundance? Thorough evaluation of wildlife use of the site (VI.1.4) will certainly require more than a one month avian survey effort between April 21 and May 21 (VI.1.7); what other wildlife species will be monitored, how, during what times of the year? We would also like to know what methods will be used during what times of the year to monitor special status plant and wildlife species (VI.1.8).”</p>	<p>The proposed Habitat Mitigation Plan (Attachment C) describes the success criteria and the methods for monitoring the site to determine whether the success criteria are met. Monitoring is to be performed by a qualified, independent botanist, wildlife biologist or revegetation specialist. The monitoring results will be reported to the Council on an annual basis and will include “an evaluation of mitigation success, based on the success criteria...and a description of the methods used to perform the evaluation.” The Department recommends that the Council approve the plan as written, which would allow the exercise of best professional judgment as to the details of the methodology to be used to perform the evaluation. If the Council finds, upon review of a monitoring report, that the methodology used was inappropriate, the Council can request correction of the methodology.</p>
<p><b>Loren &amp; Della Heideman (hand delivery and public hearing comments)</b></p>	
<p>“We have reviewed the Draft Proposed Order for the Shepherds Flat Wind Farm (SWF), We have also reviewed comments received from G.K. David, Captain, U. S. Navy Commanding Officer concerning the use of airspace over our farmland and the proposed footprint of the SFWF....</p> <p>“The impact to the town of Morgan would be negligible, if at all. Morgan is a map location that happens to have one rural residence, three grain storage silos and a junk yard of old trailers. The impact wouldn't be to a town, but to one house and its residents. More people live on our farm than in the town of Morgan....</p> <p>“Morgan has no post office, no school, no stores, no restaurants, and no service stations....</p> <p>“Considering the lack of population at Morgan we don't believe an adjustment to the military training routes would present a negative impact, let alone present a potential for adverse health or safety to persons on the ground....</p> <p>“There is not significant impact from the current military training operations, and there won't be if they deviate from their current route. There is no rational reason to believe there will be any impact requiring mitigation, relocation of towers, or any other action on the part of the Council as it relates to the issue of military training</p>	<p>This comment responds to the issues raised by the Navy. See the Department's response to the comments from G.K. David, Naval Air Station Whidbey Island, above.</p>

Draft Proposed Order Comments and Department Responses

Comment	Response
routes, low altitude overflights, or the town of Morgan.”	
<b>Susie Anderson, Gilliam County Planning Director (transcribed public hearing comments)</b>	
“I just wanted to thank John White in all of his efforts to incorporate the Gilliam County Wind Ordinance information that we have in our Comprehensive Plan and Zoning Ordinance into the Site Certificate.”	The Department is grateful for the assistance that the County provided in reviewing the application for compliance with the Land Use Standard and for the excellent working relationship the Department has with the County Planning Director.
<b>Carla McLane, Morrow County Planning Director (transcribed public hearing comments)</b>	
<p>“Morrow County has been working with Shepherds Flat when it was Shepherds Ridge. About six years now, we’ve been in process with them. They’ve been very accommodating to the requests of Morrow County.... Working with Oregon Department of Energy staff has been a long process. We’ve been at this with the Oregon Department of Energy for about three years now.... They’ve been very accommodating as well to Morrow County requests... All of our concerns were addressed, in most cases in greater detail and in more explicit conditions of approval at the State level than we would have done at the County level. I think Morrow County is safe to say that our concerns have been more than met.</p> <p>“If there are any questions that should arise around the letter from the Navy relative to buildability of Morgan, the town status – Della addressed it, I think, very appropriately, given population numbers and such -- but if there’s any questions about the current land use zoning of the community, and what that means to buildability and potential population outgrowth, I would be more than happy to answer those questions.”</p>	The Department is grateful for the assistance that the County provided in reviewing the application for compliance with the Land Use Standard and for the excellent working relationship the Department has with the County Planning Director.
<b>Rich Melaas, Naval Air Station Whidbey Island (transcribed public hearing comments)</b>	
<p>...I appreciate the fact that the staff included the fact that there are military training routes in the Draft Proposed Order...[Mr. Melaas handed a map to the hearing officer.] “and to bring a map to show what the issue is as far as we’re concerned of cutting off the northern half of our flight track....</p> <p>“...and to say our concern, obviously, is not only for our own training, but for the safety and health and welfare of people on the ground, and while the draft order did say that we would be required to move our flight tracks and that that could be done within the current air space – that’s true – but when you move flight tracks, you also move impacts. You move noise impacts. You move potential safety impacts, and none of that was discussed. So that’s – we’d really like to see the impacts of moving those flight tracks addressed, and if there’s no impacts to people on the ground and that’s the decision of the committee, then that’s the decision of the Council.</p>	See the Department’s response to the comments from G.K. David, Naval Air Station Whidbey Island, above.
<b>Dana Heideman (hand delivery and public hearing comments)</b>	
“My home, my brother’s home, the homes of my son, my grandchildren, my nephew and grand nieces and grand nephews as well as the homes of more than ten of my neighbors are within the Navy’s Military Training Routes referenced in this letter. Our homes have been overflowed for many decades....	This comment responds to the issues raised by the Navy. See the Department’s response to the comments from G.K. David, Naval Air Station Whidbey Island, above.

Draft Proposed Order Comments and Department Responses

Comment	Response
<p>“Jet noise and overflights are ‘adverse conditions.’ The Navy has never mitigated these detrimental impacts, nor compensated us for the use of our airspace.</p> <p>“The historic “town” of Morgan is inhabited by 2 people.</p> <p>“In order to protect the two residents of Morgan from the detrimental impacts of the overflights that my family and neighbors have endured for decades, the Navy is asking that my family and neighbors forgo the economic benefit of wind turbine installations on our land.</p> <p>“We object to any such “micrositing” condition.</p>	