

# Shepherds Flat South: Habitat Mitigation Plan

[REVISED DECEMBER 9, 2011]

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1 **I. Introduction**

2 This plan describes methods and standards for preservation and enhancement of an area  
3 of land near Shepherds Flat South (SFS) to mitigate for the impacts of the facility on wildlife  
4 habitat.<sup>1</sup> This plan addresses mitigation for both the permanent impacts of facility components  
5 and the temporal impacts of facility construction. The certificate holder shall protect and enhance  
6 the mitigation area as described in this plan. This plan specifies habitat enhancement actions and  
7 monitoring procedures to evaluate the success of those actions. This plan does not address  
8 additional mitigation that might be required under the SFS *Wildlife Monitoring and Mitigation*  
9 *Plan*.

10 **II. Description of the Impacts Addressed by the Plan**

11 The SFS footprint (area covered by permanent facility components) occupies areas of  
12 Category 3 grassland and shrub-steppe vegetation, Category 4 grassland, Category 5 habitat and  
13 Category 6 habitat. In compliance with Condition 86 of the site certificate, the certificate holder  
14 must avoid “all Category 1 habitat and those areas of Category 2 habitat shown on the “ODFW-  
15 2” Figures 1 through 12 in the Shepherds Flat Wind Farm Application.” The final design of the  
16 facility complied with this requirement.

17 In addition to the areas affected by the SFS footprint, construction may temporarily affect  
18 areas of Category 2, 3, 4, 5 and 6 habitat. Areas of Category 2 habitat temporarily affected by  
19 construction disturbance had been classified as Category 3 at the time of the Shepherds Flat  
20 Wind Farm application in 2007 but were reclassified in May 2010 during the pre-construction  
21 habitat survey. The habitat quality of these reclassified areas had improved due to the passage of  
22 time and the absence of wildfire. After disturbance, the recovery of temporarily disturbed  
23 Category 2, 3 and 4 grassland areas to a mature stage might take two to four years; recovery of  
24 shrub-steppe vegetation might take ten to 30 years to reach maximum height and vertical  
25 branching. During the period needed to achieve full recovery of these habitat subtypes, habitat  
26 quality is temporarily degraded until recovery is successful (temporal impact).

27 **III. Calculation of the Size of the Mitigation Area**

28 The habitat mitigation area (HMA) must be large enough to achieve, within a reasonable  
29 time, the habitat mitigation goals and standards of the Oregon Department of Fish and Wildlife  
30 (ODFW) described in OAR 635-415-0025. For the footprint impacts, the mitigation area must  
31 include two acres for every one acre of Category 2 habitat affected (a 2:1 ratio) and one acre for  
32 every acre of impact to Category 3 and 4 habitat (a 1:1 ratio). The 2:1 ratio for Category 2 is  
33 intended to meet the ODFW goals of “no net loss” of Category 2 habitat and “net benefit” of  
34 habitat quantity. The ODFW goals require mitigation to achieve “no net loss” of habitat in  
35 Categories 3 and 4 (acre-for-acre mitigation). For Category 5 impacts, mitigation is achieved by  
36 a “net benefit in habitat quantity or quality.” To mitigate for Category 5 impacts, ODFW  
37 recommends that “the applicant enhance at least ½ acre of Category 3, 4, or 5 habitat” for every

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<sup>1</sup> This plan is incorporated by reference in the site certificate for Shepherds Flat South and must be understood in that context. It is not a “stand-alone” document. This plan does not contain all mitigation required of the certificate holder.

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1 acre of impact on Category 5 habitat.<sup>2</sup> For Category 6, mitigation is achieved by actions that minimize direct habitat loss and avoid impacts to off-site habitat.

3 To address the temporal loss of habitat quality during the recovery of Category 2 or 3  
4 shrub-steppe-sage (SS-S) habitat temporarily disturbed during construction of SFS (outside the  
5 footprint), the HMA must include ½ acre for every acre of Category 2 or 3 SS-S habitat affected  
6 (a 0.5:1 ratio). If the revegetation success criteria are not met in the affected areas of temporarily  
7 disturbed SS-S habitat, as determined under the SFS Revegetation Plan, then the Council may  
8 require the certificate holder to provide additional mitigation.

9 Before beginning construction of the facility, the certificate holder provided to the  
10 Oregon Department of Energy (Department) and ODFW maps showing the final design  
11 configuration of the facility and a table showing the acres of permanent impacts and construction  
12 area impacts on habitat (by category, habitat types and habitat subtypes).<sup>3</sup> Based on the final  
13 design habitat assessment, SFS has had the following footprint impacts:

Habitat Category	Footprint Impact (acres)
Category 2	0
Category 3	8
Category 4	2.8
Category 5	1.9
Category 6	47.4
Total area	60.1

14 The overall minimum size of the HMA, the area of impact within each affected habitat  
15 category and the corresponding mitigation area requirements are shown below, based on the final  
16 design of SFS:

17 Category 2

18 Footprint impacts: 0 acres

19 Temporal impacts to SS-S: 0.8 acres

20 Mitigation area requirement: 0.8 acres x 0.5 = 0.4 acres

21 Category 3

22 Footprint impacts: 8.0 acres

23 Temporal impacts to SS-S: 13.4 acres

24 Mitigation area requirement: 8 acres + (13.4 acres x 0.5) = 14.7 acres

25 Category 4

26 Footprint impacts: 2.8 acres

27 Mitigation area requirement: 2.8 acres

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<sup>2</sup> Email from Jon Germond, ODFW, February 26, 2008.

<sup>3</sup> The pre-construction habitat survey is described in "SFS Disturbance.pdf" (email from Patricia Pilz, May 24, 2010).

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### Category 5

Footprint impacts: 1.9 acres

Mitigation area requirement: 1.9 acres x 0.5 = 0.95 acres of Category 3, 4 or 5 habitat<sup>4</sup>

### **Total mitigation area (rounded to nearest whole acre): 19 acres**

Before beginning construction, the certificate holder determined the final size and boundaries of the mitigation area in consultation with ODFW and the affected landowners and with the approval of the Department. The certificate holder acquired the legal right to create, maintain and protect the HMA for the life of the facility by means of a conservation easement and provided a copy of the documentation to the Department.<sup>5</sup>

## IV. Description of the Mitigation Area

The ODFW standards require mitigation for Category 2 and Category 3 impacts to be “in proximity” to SFS, and the HMA must be located where habitat protection and enhancement are feasible consistent with this plan.<sup>6</sup> The applicant for the Shepherds Flat Wind Farm identified a 435-acre parcel in proximity to SFS but outside the site boundary. The baseline habitat characteristics of the 435-acre parcel are described in Section IV.4(b)(F) of the *Final Order on the Application for the Shepherds Flat Wind Farm* (July 25, 2008). This parcel, however, was not available to the certificate holder when construction of SFS was ready to begin. The certificate holder identified a replacement parcel, and the Department approved the parcel. ODFW determined that the replacement parcel was suitable for mitigation.<sup>7</sup> The HMA for SFS is contiguous with the HMA for Shepherds Flat North and is bordered on the north by lands held by The Nature Conservancy.<sup>8</sup> It is located east of Highway 74 north of Cecil. The HMA for SFS consists of approximately 23 acres of grassland, sage steppe and one juniper tree.<sup>9</sup> There were no raptor nests observed in the HMA. The terrain consists of ridges separated by ravines perpendicular to and sloping down towards Willow Creek. The HMA includes approximately 8.8 acres of Category 2 grassland and SS-S habitat and 9.6 acres of Category 3 grassland and SS-S habitat. The landowner has used the area for cattle grazing.

## V. Habitat Enhancement Actions

The certificate holder shall implement the habitat enhancement actions described in this plan. The objectives of the plan are to protect the habitat within the HMA for the life of the facility and to enhance the baseline condition of the habitat to meet the ODFW mitigation goals.

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<sup>4</sup> ODFW has advised the Department that the Category 5 “net benefit” goal “recognizes that Category 5 habitats are generally in a ‘degraded’ state, but have high restoration potential” and that “fish and wildlife species would not benefit much from mitigation taking place on Category 5 habitat” (email from Jon Germond, ODFW, February 26, 2008).

<sup>5</sup> As used in this plan, “life of the facility” means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

<sup>6</sup> OAR 635-415-0005 defines “in-proximity habitat mitigation” as follows: “habitat mitigation measures undertaken within or in proximity to areas affected by a development action. For the purposes of this policy, ‘in proximity to’ means within the same home range, or watershed (depending on the species or population being considered) whichever will have the highest likelihood of benefiting fish and wildlife populations directly affected by the development.”

<sup>7</sup> Email from Steve Cherry, ODFW, May 5, 2010.

<sup>8</sup> A more detailed description of the HMA, including maps and photographs, may be found in “Habitat mitigation area.pdf” (email from Patricia Pilz, May 21, 2010).

<sup>9</sup> Revised acreage calculations (email from Patricia Pilz, November 4, 2011).

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1 To achieve “no net loss” of habitat quantity or quality to mitigate for the permanent  
2 impacts of SFS in Category 3 and 4 habitats and to achieve a “net benefit in habitat quantity or  
3 quality” to mitigate for the permanent impacts in Category 5 habitat, the certificate holder shall  
4 protect the habitat within the HMA for the life of the facility and shall implement the  
5 enhancement actions.<sup>10</sup> The certificate holder began the enhancement actions described in this  
6 section after the final design configuration of SFS was known and the location, size and  
7 boundaries of the HMA were determined and approved by the Department. Specific  
8 enhancement actions are described below.

- 9 1. Modification of Livestock Grazing Practices. The certificate holder shall restrict  
10 grazing within the habitat mitigation area. Limited livestock grazing in the mitigation  
11 area will enable recovery of native bunchgrass and sagebrush in areas where past  
12 grazing has occurred, resulting in better vegetative structure and complexity for  
13 wildlife. Reduced livestock grazing may be used as a vegetation management tool,  
14 limited to the period from November 15 to May 15.
- 15 2. Weed Control and Area Seeding. The certificate holder shall implement a weed  
16 control program. Under the weed control program, the certificate holder shall monitor  
17 the mitigation area to locate weed infestations. The certificate holder shall continue  
18 weed control monitoring, as needed, for the life of the facility. As needed, the  
19 certificate holder shall use appropriate methods to control weeds. Weed control on the  
20 mitigation site will reduce the spread of noxious weeds within the habitat mitigation  
21 area and on any nearby grassland, CRP or cultivated agricultural land. Weed control  
22 will promote the growth of desirable native vegetation. Where substantial areas of  
23 soil (greater than 100 ft<sup>2</sup>) are left bare from weed control activities, the certificate  
24 holder shall hand-seed the area in the appropriate time of year with a mixture  
25 containing native grass and shrub seeds. The certificate holder may consider weeds to  
26 be successfully controlled when weed clusters have been eradicated or reduced to a  
27 non-competing level. Weeds may be controlled with herbicides or hand-pulling. The  
28 certificate holder shall notify the landowner of the specific chemicals to be used on  
29 the site and when spraying will occur. To protect locations where young desirable  
30 forbs may be growing, spot-spraying may be used instead of total area spraying.
- 31 3. Fire Control. The certificate holder shall implement a fire control plan for wildfire  
32 suppression within the HMA. The certificate holder shall provide a copy of the fire  
33 control plan to the Department before starting habitat enhancement actions. The  
34 certificate holder shall include in the plan appropriate fire prevention measures,  
35 methods to detect fires that occur and a protocol for fire response and suppression.  
36 The certificate holder shall maintain fire control for the life of the facility. If wildfire  
37 damages any part of the HMA during the life of the facility, the certificate holder  
38 shall assess the extent of the damage and implement appropriate actions to restore  
39 habitat quality in the damaged area.
- 40 4. Erosion Control. The certificate holder shall monitor the HMA to locate sites at which  
41 past livestock grazing or vegetation loss has caused soil erosion. As needed, the

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<sup>10</sup> ODFW has advised the Department that protection of habitat alone (without enhancement activity) will not meet the intent of ODFW’s Fish and Wildlife Mitigation Policy (Letter from Rose Owens, November 9, 2006, in reference to the Leaning Juniper II Wind Power Facility).

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1 certificate holder shall control erosion by a combination of sediment barriers (such as  
2 hay bales, mulch or native rock) and seeding the affected area with a mixture  
3 containing native grasses and shrub seeds. The certificate holder may consider  
4 erosion control to be successful when eroded areas can support vegetation and no  
5 indications of new soil loss are evident.

6 5. Habitat Protection. For the life of the facility, the certificate holder shall restrict uses  
7 of the HMA that are inconsistent with achieving the habitat mitigation goals.

8 6. Litter Removal. To protect wildlife from wind-blown litter, the certificate holder shall  
9 monitor the Highway 74 Oregon Trail Wayside on a monthly basis and shall remove  
10 litter from the wayside area and areas within the HMA.

### 11 VI. Monitoring

#### 12 1. Monitoring Procedures

13 The certificate holder shall hire a qualified investigator (an independent botanist, wildlife  
14 biologist or revegetation specialist) to conduct a comprehensive monitoring program for the  
15 HMA. The purpose of monitoring is to evaluate the protection of habitat quality, the results of  
16 enhancement actions and the use of the area by avian and mammal species, especially during the  
17 wildlife breeding season. The investigator shall conduct HMA monitoring beginning in the first  
18 year after enhancement actions begin and continuing for the life of the facility. The investigator  
19 shall visit the site as necessary to carry out the following monitoring procedures:

20 1) Annually assess the general quality of vegetation cover (species, structural stage, etc).

21 2) Annually assess progress toward meeting the success criteria.

22 3) Annually record environmental factors (such as precipitation at the time of surveys  
23 and precipitation levels for the year).

24 4) Annually record any wildfire that occurs within the HMA and any remedial actions  
25 taken to restore habitat quality in the damaged area.

26 5) Annually assess the success of the weed control (including area seeding) and erosion  
27 control programs and recommend remedial action, if needed.

28 6) Assess the recovery of native bunchgrass and natural recruitment of sagebrush  
29 resulting from removal of livestock grazing pressure by comparing the quality of  
30 bunchgrass and sagebrush cover at the time of each monitoring visit with the quality  
31 observed in previous monitoring visits and as observed when the HMA was first  
32 established. The investigator shall establish photo plots of naturally recovering  
33 sagebrush and native bunchgrass during the first year following the beginning of  
34 enhancement actions. The investigator shall take comparison photos in the first year  
35 and every two years thereafter until desirable vegetation has achieved mature stature.  
36 The investigator shall determine the extent of successful recovery of native  
37 bunchgrass based on measurable indicators (such as signs of more abundant seed  
38 production) and shall report on the progress of recovery within in the monitoring  
39 plots. The investigator shall report on the timing and extent of any livestock grazing  
40 that has occurred within the mitigation area since the previous monitoring visit.

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- 1           7) Between April 21 and May 21 beginning in the first spring season after the beginning  
2 of construction of SFS, conduct an area search survey of avian species. An “area  
3 search” survey consists of recording all birds seen or heard in specific areas (for  
4 example, square or circular plots that are 5 to 10 acres in size). Area searches will be  
5 conducted during morning hours on days with low or no wind. The investigator shall  
6 determine the number searches and the number of search areas in consultation with  
7 ODFW. The investigator shall repeat the area search survey every five years during  
8 the life of the facility.
- 9           8) Beginning in the first year after the beginning of construction of SFS and repeating  
10 every five years during the life of the facility, the investigator shall record  
11 observations of special status plant and wildlife species (federal or State threatened or  
12 endangered species and State sensitive species) during appropriate seasons for  
13 detection of these species.

### 14 **2. Reporting**

15           The certificate holder shall report the investigator’s findings and recommendations  
16 regarding the monitoring of the mitigation area to the Department and to ODFW on an annual  
17 basis. The certificate holder shall describe all habitat mitigation actions carried out during the  
18 reporting year and all additional work performed based on recommendations of the qualified  
19 investigator. The report shall include an evaluation of mitigation success, based on the success  
20 criteria described below, and a description of the methods used to perform the evaluation. The  
21 report to the Department may be included as part of the annual report on SFS that is required  
22 under Condition 21 of the site certificate.

### 23 **3. Success Criteria**

24           Mitigation of the permanent and temporal habitat impacts of the facility may be  
25 considered successful if the certificate holder protects and enhances sufficient habitat within the  
26 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a  
27 “net benefit” for impacts to habitat in Categories 2 and 5. The certificate holder must protect the  
28 quantity and quality of habitat within the HMA for the life of the facility. The mitigation goals  
29 are successfully achieved when the HMA contains a sufficient quantity of habitat in each  
30 category to meet the mitigation area requirements calculated under Section III. The certificate  
31 holder may count habitat of higher value toward meeting the acreage requirements for Category  
32 3, 4 and 5 habitat.

33           The certificate holder may demonstrate enhancement of habitat quality based on evidence  
34 of indicators such as increased avian use by a diversity of species, more abundant seed  
35 production of desirable native bunchgrass, natural recruitment of sagebrush and successful weed  
36 control.

37           If the certificate holder cannot demonstrate that the HMA is trending toward meeting the  
38 success criteria within five years after the date construction of SFS begins, the certificate holder  
39 shall propose remedial action. The Department may require supplemental planting or other  
40 corrective measures, which may include increasing the size of the HMA.

### 41 **VII. Amendment of the Plan**

42           This Habitat Mitigation Plan may be amended from time to time by agreement of the  
43 certificate holder and the Oregon Energy Facility Siting Council (“Council”). Such amendments

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- 1 may be made without amendment of the site certificate. The Council authorizes the Department
- 2 to agree to amendments to this plan. The Department shall notify the Council of all amendments,
- 3 and the Council retains the authority to approve, reject or modify any amendment of this plan
- 4 agreed to by the Department.