

# Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

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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 and Category 4 grassland and shrub-steppe vegetation, Category 5 habitat and  
13 Category 6 habitat. In compliance with Condition 86 of the site certificate, the certificate holder  
14 must avoid any permanent or temporary impact on Category 1 and 2 habitat.

15 In addition to the areas affected by the SFS footprint, construction would temporarily  
16 affect areas of Category 3, 4, 5 and 6 habitat. After disturbance, the recovery of temporarily  
17 disturbed Category 3 and 4 grassland areas to a mature stage might take two to four years;  
18 recovery of shrub-steppe vegetation might take ten to 30 years to reach maximum height and  
19 vertical branching. During the period needed to achieve full recovery of these habitat subtypes,  
20 habitat quality is temporarily degraded until recovery is successful (temporal impact).

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

22 The habitat mitigation area (HMA) must be large enough to achieve, within a reasonable  
23 time, the habitat mitigation goals and standards of the Oregon Department of Fish and Wildlife  
24 (ODFW) described in OAR 635-415-0025. The ODFW goals require mitigation to achieve “no  
25 net loss” of habitat in Categories 3 and 4 (acre-for-acre mitigation). For Category 5 impacts,  
26 mitigation is achieved by a “net benefit in habitat quantity or quality.” To mitigate for Category  
27 5 impacts, ODFW recommends that “the applicant enhance at least ½ acre of Category 3, 4, or 5  
28 habitat” for every acre of impact on Category 5 habitat.<sup>2</sup> For Category 6, mitigation is achieved  
29 by actions that minimize direct habitat loss and avoid impacts to off-site habitat.

30 The actual SFS footprint and construction disturbance areas cannot be determined until  
31 the final design layout of the facility is known. Before beginning construction of the facility, the  
32 certificate holder must provide to the Oregon Department of Energy (Department) and ODFW a  
33 map showing the final design configuration of the facility and a table showing the acres of  
34 permanent impacts and construction area impacts on habitat (by category, habitat types and

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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.

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

## Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

1 habitat subtypes). The certificate holder shall calculate the size of the HMA, as illustrated below,  
2 based on the final design configuration of the facility.

3 For the footprint impacts, the HMA must include at least one acre for every acre of  
4 footprint impacts to Category 3 and Category 4 habitat (a 1:1 ratio). To mitigate for the impact to  
5 Category 5 habitat, the HMA must include ½ acre for every acre of impact (a 0.5:1 ratio).

6 To address the temporal loss of habitat quality during the recovery of Category 3 shrub-  
7 steppe-sage (SS-S) habitat temporarily disturbed during construction of SFS (outside the  
8 footprint), the HMA must include ½ acre for every acre of Category 3 SS-S habitat affected (a  
9 0.5:1 ratio). If the revegetation success criteria are not met in the affected areas of temporarily  
10 disturbed SS-S habitat, as determined under the SFS Revegetation Plan, then the Council may  
11 require the certificate holder to provide additional mitigation.

12 Based on worst-case estimates, SFS would have the following footprint impacts:<sup>3</sup>

Habitat Category	Footprint Impact (acres)
Category 3	1.163
Category 4	5.060
Category 5	8.375
Category 6	50.599
Total area	65.197

13 For the purpose of illustrating the calculation of the overall size of the HMA, the area of  
14 impact within each affected habitat category and the corresponding mitigation area requirements,  
15 sample calculations are shown below, based on the worst-case estimates in the table above:

16 Category 3

17 Footprint impacts: 1.163 acres

18 Temporal impacts to SS-S: 0.060 acres

19 Mitigation area requirement: 1.163 acres + (0.060 acres x 0.5) = 1.193 acres

20 Category 4

21 Footprint impacts: 5.060 acres

22 Mitigation area requirement: 5.060 acres

23 Category 5

24 Footprint impacts: 8.375 acres

25 Mitigation area requirement: 8.375 x 0.5 = 4.188 acres of Category 3, 4 or 5 habitat<sup>4</sup>

26 **Total mitigation area (rounded to nearest whole acre): 10 acres**

27 Based on the sample calculations shown above, the size of the HMA would be 10 acres.  
28 Before beginning construction, the certificate holder shall determine the final size and  
29 boundaries of the mitigation area in consultation with ODFW and the affected landowners and  
30 subject to the approval of the Department. Before beginning construction of the facility, the

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<sup>3</sup> Estimates of the area that the facility components would occupy (maximum habitat impacts) are shown in Table 12 of the *Final Order on Amendment #1* for the Shepherds Flat Wind Farm (SFWF).

<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).

## Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

1 certificate holder shall acquire the legal right to create, maintain and protect the HMA for the life  
2 of the facility by means of an outright purchase, conservation easement or similar conveyance  
3 and shall provide a copy of the documentation to the Department.<sup>5</sup>

#### 4 **IV. Description of the Mitigation Area**

5 The ODFW standards require mitigation for Category 3 impacts to be “in proximity” to  
6 SFS, and the HMA must be located where habitat protection and enhancement are feasible  
7 consistent with this plan.<sup>6</sup> The applicant for the Shepherds Flat Wind Farm identified a 435-acre  
8 parcel in proximity to SFS but outside the site boundary. The baseline habitat characteristics of  
9 the 435-acre parcel are described in Section IV.4(b)(F) of the *Final Order on the Application for*  
10 *the Shepherds Flat Wind Farm* (July 25, 2008). Based on the applicant’s preliminary assessment,  
11 the parcel includes 250 acres of Category 3 or better habitat, 135 acres of Category 4 habitat, 48  
12 acres of Category 5 habitat and 2 acres of Category 6 habitat. A portion of this parcel could be  
13 used as a mitigation area for SFS.

#### 14 **V. Habitat Enhancement Actions**

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

18 To achieve “no net loss” of habitat quantity or quality to mitigate for the permanent  
19 impacts of SFS in Category 3 and 4 habitats and to achieve a “net benefit in habitat quantity or  
20 quality” to mitigate for the permanent impacts in Category 5 habitat, the certificate holder shall  
21 protect the habitat within the HMA for the life of the facility and shall implement the  
22 enhancement actions.<sup>7</sup> The certificate holder shall, without unreasonable delay, begin the  
23 enhancement actions described in this section after the final design configuration of SFS is  
24 known and the location, size and boundaries of the HMA have been determined and approved by  
25 the Department. Specific enhancement actions are described below.

- 26 1. Elimination of Livestock Grazing. The certificate holder shall install and maintain  
27 fencing, as necessary, to eliminate grazing within the habitat mitigation area.  
28 Removing livestock from the mitigation area will enable recovery of native  
29 bunchgrass and sagebrush in areas where past grazing has occurred, resulting in better  
30 vegetative structure and complexity for wildlife.
- 31 2. Weed Control and Area Seeding. The certificate holder shall implement a weed  
32 control program. Under the weed control program, the certificate holder shall monitor  
33 the mitigation area to locate weed infestations. The certificate holder shall continue

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<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> 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).

## Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

weed control monitoring, as needed, for the life of the facility. As needed, the certificate holder shall use appropriate methods to control weeds. Weed control on the mitigation site will reduce the spread of noxious weeds within the habitat mitigation area and on any nearby grassland, CRP or cultivated agricultural land. Weed control will promote the growth of desirable native vegetation. Where substantial areas of soil (greater than 100 ft<sup>2</sup>) are left bare from weed control activities, the certificate holder shall hand-seed the area in the appropriate time of year with a mixture containing native grass and shrub seeds. The certificate holder may consider weeds to be successfully controlled when weed clusters have been eradicated or reduced to a non-competing level. Weeds may be controlled with herbicides or hand-pulling. The certificate holder shall notify the landowner of the specific chemicals to be used on the site and when spraying will occur. To protect locations where young desirable forbs may be growing, spot-spraying may be used instead of total area spraying.

3. Fire Control. The certificate holder shall implement a fire control plan for wildfire suppression within the HMA. The certificate holder shall provide a copy of the fire control plan to the Department before starting habitat enhancement actions. The certificate holder shall include in the plan appropriate fire prevention measures, methods to detect fires that occur and a protocol for fire response and suppression. The certificate holder shall maintain fire control for the life of the facility. If wildfire damages any part of the HMA during the life of the facility, the certificate holder shall assess the extent of the damage and implement appropriate actions to restore habitat quality in the damaged area.
4. Erosion Control. The certificate holder shall monitor the HMA to locate sites at which past livestock grazing or vegetation loss has caused soil erosion. As needed, the certificate holder shall control erosion by a combination of sediment barriers (such as hay bales, mulch or native rock) and seeding the affected area with a mixture containing native grasses and shrub seeds. The certificate holder may consider erosion control to be successful when eroded areas can support vegetation and no indications of new soil loss are evident.
5. Habitat Protection. For the life of the facility, the certificate holder shall restrict uses of the HMA that are inconsistent with achieving the habitat mitigation goals.

## VI. Monitoring

### 1. Monitoring Procedures

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

- 1) Annually assess the general quality of vegetation cover (species, structural stage, etc).
- 2) Annually assess progress toward meeting the success criteria.

## Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

- 1           3) Annually record environmental factors (such as precipitation at the time of surveys  
2           and precipitation levels for the year).
- 3           4) Annually record any wildfire that occurs within the HMA and any remedial actions  
4           taken to restore habitat quality in the damaged area.
- 5           5) Annually assess the success of the weed control (including area seeding) and erosion  
6           control programs and recommend remedial action, if needed.
- 7           6) Assess the recovery of native bunchgrass and natural recruitment of sagebrush  
8           resulting from removal of livestock grazing pressure by comparing the quality of  
9           bunchgrass and sagebrush cover at the time of each monitoring visit with the quality  
10          observed in previous monitoring visits and as observed when the HMA was first  
11          established. The investigator shall establish photo plots of naturally recovering  
12          sagebrush and native bunchgrass during the first year following the beginning of  
13          enhancement actions. The investigator shall take comparison photos in the first year  
14          and every two years thereafter until desirable vegetation has achieved mature stature.  
15          The investigator shall determine the extent of successful recovery of native  
16          bunchgrass based on measurable indicators (such as signs of more abundant seed  
17          production) and shall report on the progress of recovery within in the monitoring  
18          plots.
- 19          7) Between April 21 and May 21 beginning in the first spring season after the beginning  
20          of construction of SFS, conduct an area search survey of avian species. An “area  
21          search” survey consists of recording all birds seen or heard in specific areas (for  
22          example, square or circular plots that are 5 to 10 acres in size). Area searches will be  
23          conducted during morning hours on days with low or no wind. The investigator shall  
24          determine the number searches and the number of search areas in consultation with  
25          ODFW. The investigator shall repeat the area search survey every five years during  
26          the life of the facility.
- 27          8) Beginning in the first year after the beginning of construction of SFS and repeating  
28          every five years during the life of the facility, the investigator shall record  
29          observations of special status plant and wildlife species (federal or State threatened or  
30          endangered species and State sensitive species) during appropriate seasons for  
31          detection of these species.

### 32   **2. Reporting**

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

## Shepherds Flat South: Habitat Mitigation Plan

[SEPTEMBER 11, 2009]

### 1 3. Success Criteria

2 Mitigation of the permanent and temporal habitat impacts of the facility may be  
3 considered successful if the certificate holder protects and enhances sufficient habitat within the  
4 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 3 and 4 and a “net  
5 benefit” for impacts to habitat in Category 5. The certificate holder must protect the quantity and  
6 quality of habitat within the HMA for the life of the facility. The mitigation goals are  
7 successfully achieved when the HMA contains a sufficient quantity of habitat in each category to  
8 meet the mitigation area requirements calculated under Section III. The certificate holder may  
9 count habitat of higher value toward meeting the acreage requirements for Category 3, 4 and 5  
10 habitat. The certificate holder shall determine the actual mitigation area requirements, subject to  
11 Department approval, before beginning construction of SFS.

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

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

### 20 VII. Amendment of the Plan

21 This Habitat Mitigation Plan may be amended from time to time by agreement of the  
22 certificate holder and the Oregon Energy Facility Siting Council (“Council”). Such amendments  
23 may be made without amendment of the site certificate. The Council authorizes the Department  
24 to agree to amendments to this plan. The Department shall notify the Council of all amendments,  
25 and the Council retains the authority to approve, reject or modify any amendment of this plan  
26 agreed to by the Department.