

Shepherds Flat South: Habitat Mitigation Plan

[REVISED DECEMBER 9, 2011]

I. Introduction

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

II. Description of the Impacts Addressed by the Plan

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

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

III. Calculation of the Size of the Mitigation Area

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

¹ 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.² For Category 6, mitigation is achieved by actions that
2 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).³ 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: $0.8 \text{ acres} \times 0.5 = 0.4 \text{ acres}$

21 Category 3

22 Footprint impacts: 8.0 acres
23 Temporal impacts to SS-S: 13.4 acres
24 Mitigation area requirement: $8 \text{ acres} + (13.4 \text{ acres} \times 0.5) = 14.7 \text{ acres}$

25 Category 4

26 Footprint impacts: 2.8 acres
27 Mitigation area requirement: 2.8 acres

² Email from Jon Germond, ODFW, February 26, 2008.

³ The pre-construction habitat survey is described in “SFS Disturbance.pdf” (email from Patricia Pilz, May 24, 2010).

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1 **Category 5**

2 Footprint impacts: 1.9 acres

3 Mitigation area requirement: $1.9 \text{ acres} \times 0.5 = 0.95 \text{ acres}$ of Category 3, 4 or 5 habitat⁴

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

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

10 **IV. Description of the Mitigation Area**

11 The ODFW standards require mitigation for Category 2 and Category 3 impacts to be “in
12 proximity” to SFS, and the HMA must be located where habitat protection and enhancement are
13 feasible consistent with this plan.⁶ The applicant for the Shepherds Flat Wind Farm identified a
14 435-acre parcel in proximity to SFS but outside the site boundary. The baseline habitat
15 characteristics of the 435-acre parcel are described in Section IV.4(b)(F) of the *Final Order on*
16 *the Application for the Shepherds Flat Wind Farm* (July 25, 2008). This parcel, however, was
17 not available to the certificate holder when construction of SFS was ready to begin. The
18 certificate holder identified a replacement parcel, and the Department approved the parcel.
19 ODFW determined that the replacement parcel was suitable for mitigation.⁷ The HMA for SFS is
20 contiguous with the HMA for Shepherds Flat North and is bordered on the north by lands held
21 by The Nature Conservancy.⁸ It is located east of Highway 74 north of Cecil. The HMA for SFS
22 consists of approximately 23 acres of grassland, sage steppe and one juniper tree.⁹ There were no
23 raptor nests observed in the HMA. The terrain consists of ridges separated by ravines
24 perpendicular to and sloping down towards Willow Creek. The HMA includes approximately 8.8
25 acres of Category 2 grassland and SS-S habitat and 9.6 acres of Category 3 grassland and SS-S
26 habitat. The landowner has used the area for cattle grazing.

27 **V. Habitat Enhancement Actions**

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

⁴ 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).

⁵ 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.

⁶ 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.”

⁷ Email from Steve Cherry, ODFW, May 5, 2010.

⁸ 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).

⁹ 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.¹⁰ 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 ft²) 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

¹⁰ 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.

VI. Monitoring

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.