

Shepherds Flat Central: 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 Central (SFC) 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 SFC *Wildlife Monitoring and Mitigation Plan*.

II. Description of the Impacts Addressed by the Plan

The SFC footprint (area covered by permanent facility components) occupies areas of Category 2 grassland, Category 3 grassland and shrub-steppe vegetation, and other habitat subtypes in Categories 3, 4, 5 and 6. 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. Affected areas of Category 2 habitat had been classified as Category 3 or 4 habitat at the time of the Shepherds Flat Wind Farm application in 2007 but were reclassified as Category 2 in April 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.

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

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

Habitat Category	Footprint Impact (acres)
Category 2	4.7
Category 3	23.2
Category 4	16.1
Category 5	0.8
Category 6	23.2
Total area	68.0

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

20 Category 2

21 Footprint impacts: 4.7 acres

22 Temporal impacts to SS-S: 0.8 acres

23 Mitigation area: $(4.7 \text{ acres} \times 2) + (0.8 \text{ acres} \times 0.5) = 9.8 \text{ acres}$

24 Category 3

25 Footprint impacts: 23.2 acres

26 Temporal impacts to SS-S and SS-P: 18.2 acres

27 Mitigation area requirement: $23.2 \text{ acres} + (18.2 \text{ acres} \times 0.5) = 32.3 \text{ acres}$

28 Category 4

29 Footprint impacts: 16.1 acres

30 Mitigation area requirement: 16.1 acres

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

³ The pre-construction habitat survey was described in "Habitat classification SF Central.doc" (email from Patricia Pilz, April 14, 2010). Habitat maps were provided in attachments to an email from Patricia Pilz, April 14, 2010. The habitat impacts table was provided in "SFC habitat impact table.pdf" (email from Patricia Pilz, April 15, 2010).

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Category 5

Footprint impacts: 0.8 acres

Mitigation area requirement: 0.8 acres x 0.5 = 0.4 acres of Category 3, 4 or 5 habitat⁴

Total mitigation area (rounded to nearest whole acre): 59 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.⁵

IV. Description of the Mitigation Area

The ODFW standards require mitigation for Category 2 and Category 3 impacts to be “in proximity” to SFC, and the HMA must be located where habitat protection and enhancement are feasible consistent with this plan.⁶ The applicant for the Shepherds Flat Wind Farm identified a 435-acre parcel in proximity to SFC 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 SFC 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.⁷ The HMA for SFC is contiguous with the HMA for Shepherds Flat North and is bordered on the north by lands held by The Nature Conservancy.⁸ It is located east of Highway 74 north of Cecil. The HMA for SFC consists of approximately 70 acres containing grasslands, sage steppe, dry wash and ranch roads.⁹ There are no trees and no observed raptor nests within the HMA. The terrain consists of ridges separated by ravines perpendicular to and sloping down towards Schoolhouse Canyon, which runs through the center of the HMA. The HMA includes approximately 18 acres of Category 2 grassland and SS-S habitat and 25 acres of Category 3 grassland and SS-S habitat. The landowner has used the area for cattle grazing.

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 email from Carol Weisskopf, May 5, 2010, and in “Habitat mitigation area.pdf” (email from Patricia Pilz, May 18, 2010).

⁹ Revised acreage calculations (email from Patricia Pilz, November 4, 2011).

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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.

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

1. Modification of Livestock Grazing Practices. The certificate holder shall restrict grazing within the habitat mitigation area. Limited livestock grazing in the mitigation area will enable recovery of native bunchgrass and sagebrush in areas where past grazing has occurred, resulting in better vegetative structure and complexity for wildlife. Reduced livestock grazing may be used as a vegetation management tool, limited to the period from November 15 to May 15.
2. Weed Control and Area Seeding. The certificate holder shall implement a weed control program. Under the weed control program, the certificate holder shall monitor the mitigation area to locate weed infestations. The certificate holder shall continue 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 ft²) 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

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 shall assess the extent of the damage and implement appropriate actions to restore
2 habitat quality in the damaged area.

- 3 4. Erosion Control. The certificate holder shall monitor the HMA to locate sites at which
4 past livestock grazing or vegetation loss has caused soil erosion. As needed, the
5 certificate holder shall control erosion by a combination of sediment barriers (such as
6 hay bales, mulch or native rock) and seeding the affected area with a mixture
7 containing native grasses and shrub seeds. The certificate holder may consider
8 erosion control to be successful when eroded areas can support vegetation and no
9 indications of new soil loss are evident.
- 10 5. Habitat Protection. For the life of the facility, the certificate holder shall restrict uses
11 of the HMA that are inconsistent with achieving the habitat mitigation goals.
- 12 6. Litter Removal. To protect wildlife from wind-blown litter, the certificate holder shall
13 monitor the Highway 74 Oregon Trail Wayside on a monthly basis and shall remove
14 litter from the wayside area and areas within the HMA.

15 VI. Monitoring

16 1. Monitoring Procedures

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

- 24 1) Annually assess the general quality of vegetation cover (species, structural stage, etc).
25 2) Annually assess progress toward meeting the success criteria.
26 3) Annually record environmental factors (such as precipitation at the time of surveys
27 and precipitation levels for the year).
28 4) Annually record any wildfire that occurs within the HMA and any remedial actions
29 taken to restore habitat quality in the damaged area.
30 5) Annually assess the success of the weed control (including area seeding) and erosion
31 control programs and recommend remedial action, if needed.
32 6) Assess the recovery of native bunchgrass and natural recruitment of sagebrush
33 resulting from removal of livestock grazing pressure by comparing the quality of
34 bunchgrass and sagebrush cover at the time of each monitoring visit with the quality
35 observed in previous monitoring visits and as observed when the HMA was first
36 established. The investigator shall establish photo plots of naturally recovering
37 sagebrush and native bunchgrass during the first year following the beginning of
38 enhancement actions. The investigator shall take comparison photos in the first year
39 and every two years thereafter until desirable vegetation has achieved mature stature.
40 The investigator shall determine the extent of successful recovery of native
41 bunchgrass based on measurable indicators (such as signs of more abundant seed

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1 production) and shall report on the progress of recovery within in the monitoring
2 plots. The investigator shall report on the timing and extent of any livestock grazing
3 that has occurred within the mitigation area since the previous monitoring visit.

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

17 2. Reporting

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

26 3. Success Criteria

27 Mitigation of the permanent and temporal habitat impacts of the facility may be
28 considered successful if the certificate holder protects and enhances sufficient habitat within the
29 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a
30 “net benefit” for impacts to habitat in Categories 2 and 5. The certificate holder must protect the
31 quantity and quality of habitat within the HMA for the life of the facility. The mitigation goals
32 are successfully achieved when the HMA contains a sufficient quantity of habitat in each
33 category to meet the mitigation area requirements calculated under Section III. The certificate
34 holder may count habitat of higher value toward meeting the acreage requirements for Category
35 3, 4 and 5 habitat.

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

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

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1 VII. Amendment of the Plan

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