

Leaning Juniper II Wind Project: Habitat Mitigation Plan

[SEPTEMBER 21, 2007 DATE]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Leaning Juniper II Wind Power Facility (LJF) 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. Remedial action may be necessary if progress toward habitat enhancement success is not demonstrated in any part of the mitigation area.

II. Description of the Impacts Addressed by the Plan

The estimated land area that ~~would~~ could be occupied by permanent facility components (the “footprint”) is approximately ~~64111~~ acres, based on ~~the final design configuration for LJIIA and the expected configuration for LJIIB~~ a worst case estimate.² In addition to the footprint impacts, construction of the facility ~~would~~ could disturb approximately ~~699850~~ acres, ~~based on a worst case estimate~~. Although much of the area is cropland, habitat ~~that could be~~ affected by construction disturbance includes areas of perennial bunchgrass, ~~and~~ desirable shrubs ~~and juniper trees~~. After disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to seven years; recovery of ~~juniper trees and~~ desirable shrubs such as bitterbrush and sagebrush might take ten to 30 years to reach maximum height and vertical branching. Even where recovery of these habitat subtypes is successful, there is a loss of habitat quality during the period of time needed to achieve recovery (temporal impact).

III. Calculation of the Size of the Mitigation Area

The actual footprint and construction disturbance areas cannot be determined until the final design layout of the facility is known. Before beginning construction of ~~any phase~~ the facility, the certificate holder shall provide to the Oregon Department of Energy (Department) a map showing the final design configuration of ~~that phase~~ the facility and a table showing the estimated areas of permanent impacts and construction area impacts on habitat (by category, habitat types and habitat subtypes) ~~in that phase~~. The certificate holder shall calculate the size of the mitigation area, as illustrated below, based on the final design configuration of the facility. The certificate holder shall implement the habitat enhancement actions described in this plan, after the Department has approved the size of the mitigation area. This plan does not address additional mitigation that might be required under the Leaning Juniper II Wildlife Monitoring and Mitigation Plan.

¹ This plan is incorporated by reference in the site certificate for the Leaning Juniper II Wind Power Facility 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.

² ~~“Worst case” estimates in this plan are based on revised Table P-10B (Application Supplement, Appendix B, Attachment 1) and revised Table P-15B (Application Supplement, Appendix C, Attachment 3). The LJIIA and LJIIB areas are described in the Proposed Order on Amendment #1. The expected acres of permanent impact for LJIIA are shown in Table 6 of the Proposed Order. The acres of permanent impact for LJIIB are shown in Table 7.~~

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1 The mitigation area must be large enough to meet the habitat mitigation goals and
2 standards of the Oregon Department of Fish and Wildlife (ODFW) described in OAR 635-415-
3 0025. The ODFW goals require mitigation to achieve “no net loss” of habitat in Categories 2, 3
4 and 4 and a “net benefit” in habitat quantity or quality for impacts to habitat in Categories 2 and
5 5.

6 For the footprint impacts, the mitigation area includes two acres for every one acre of
7 Category 2 habitat affected (a 2:1 ratio) and one acre for every acre of footprint impacts to
8 Category 3, 4 and 5 habitat (a 1:1 ratio). The 2:1 ratio for Category 2 is intended to meet the
9 ODFW goals of “no net loss” of Category 2 habitat and “net benefit” of habitat quantity for
10 impacts to both Category 2 and Category 5 habitat. The 1:1 ratio for the footprint impacts to
11 Category 3, 4 and 5 habitat is intended to meet the ODFW goal of “no net loss” of habitat in
12 these categories.

13 To mitigate for construction impacts outside the footprint, the mitigation area includes ½
14 acre for every Category 2 or 3 SSA (shrub-grass; sagebrush-rabbitbrush-snakeweed/bunchgrass-
15 annual grass), ~~and~~ SSE (bitterbrush-buckwheat-bunchgrass-annual grass) and WJ (juniper
16 woodland) habitat affected (a 0.5:1 ratio). This portion of the mitigation area is intended to
17 address the temporal loss of habitat quality during the recovery of SSA, ~~and~~ SSE and WJ habitat
18 disturbed during construction. The size of this portion of the mitigation area is based on the
19 assumption that restoration of disturbed SSA, ~~and~~ SSE and WJ habitat is successful, as
20 determined under the Leaning Juniper II Revegetation Plan. If the revegetation success criteria
21 are not met in the affected areas, then the Council may require the certificate holder to provide
22 additional mitigation.

23 For the first phase of the facility (LJIIA), the areas of impact within each affected habitat
24 category and the corresponding mitigation area for each category are calculated as follows, based
25 on the final design habitat assessment.

Category 2

Footprint impacts: 6.28 acres

Temporal impacts to SSA and SSE: 18.19 acres

Mitigation area: (6.28 acres x 2) + (18.19 acres x 0.5) = 21.66 acres

Category 3

Footprint impacts: 13.48 acres

Temporal impacts to SSA: 1.8 acres

Mitigation area: 13.48 acres + (1.8 acres x 0.5) = 14.38 acres

Category 4

Footprint impacts: 1.38 acres

Mitigation area: 2.1 acres

Category 5

Footprint impacts: 1.34 acres

Mitigation area: 1.34 acres

Total mitigation area for LJIIA (rounded to nearest whole acre): 39 acres

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1 ~~The~~ For the second phase of the facility (LJIIB), areas of potential impact within each
2 affected habitat category and the corresponding mitigation area for each category are calculated
3 as follows, based on ~~worst-case~~ maximum habitat impact estimates:³

4 Category 2

5 Footprint impacts: ~~49.4~~12.16 acres

6 Temporal impacts to SSA, ~~or~~ SSE and WJ: ~~78.5~~21.86 acres

7 Mitigation area: (~~49.4~~12.16 acres x 2) + (~~78.5~~21.86 acres x 0.5) = ~~77.5~~35.26 acres

8 Category 3

9 Footprint impacts: ~~22.5~~16.07 acres

10 Temporal impacts to SSA ~~or~~ SSE: ~~5.3~~0.31 acres

11 Mitigation area: ~~22.5~~16.07 acres + (~~5.3~~0.31 acres x 0.5) = ~~25.4~~16.23 acres

12 Category 4

13 Footprint impacts: ~~2.1~~1.44 acres

14 Mitigation area: ~~2.1~~1.44 acres

15 Category 5

16 Footprint impacts: 1.2 acres

17 Mitigation area: 1.2 acres

18 **Total mitigation area for LJIIB (rounded to nearest whole acre): 106.53 acres**

19 IV. Description of the Mitigation Area

20 The certificate holder shall select a mitigation area in proximity to the facility where
21 habitat protection and enhancement are feasible consistent with this plan.⁴ The applicant
22 identified a 440-acre parcel in a relatively remote setting where habitat protection and
23 enhancement are feasible and sufficient land area is available to accommodate the size of the
24 mitigation area, based on a worst-case estimate.⁵ Before beginning construction of any phase of
25 the facility, the certificate holder shall determine the final size of the mitigation area needed for
26 that phase. The certificate holder shall determine the ~~and~~ boundaries of the mitigation area in
27 consultation with ODFW and the affected landowners and subject to the approval of the
28 Department. The final mitigation area must contain suitable habitat to achieve the ODFW goals
29 of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality
30 for impacts to habitat in Categories 2 and 5 through appropriate enhancement actions. Before
31 beginning construction of any phase of the facility, the certificate holder shall acquire the legal
32 right to create, maintain and protect the habitat mitigation area needed for that phase for the life
33 of the facility by means of an outright purchase, conservation easement or similar conveyance
34 and shall provide a copy of the documentation to the Department.⁶

³ The maximum impact estimates are shown in Table 8 of the Proposed Order on Amendment #1.

⁴ 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.”

⁵ The 440-acre parcel is described in Section IV.4.(b)(F) of the Final Order on the Application.

⁶ 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.

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V. Habitat Enhancement Actions

The objectives of habitat enhancement are to protect habitat within the mitigation area from degradation and to improve the habitat quality of the mitigation area. By achieving these goals, the certificate holder can address the permanent and temporal habitat impacts of the LJJ and meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5. The certificate holder shall initiate the habitat enhancement actions for each phase of the facility as soon as the final design configuration of the LJJ-that phase is known and the size of the mitigation area has been determined and approved by the Department. The certificate holder shall implement the following enhancement actions:

- 1) Modification of Livestock Grazing Practices. The certificate holder shall restrict grazing within the habitat mitigation area. Eliminating livestock grazing within the mitigation area during most of the year will enable recovery of native bunchgrass and sagebrush in areas where past grazing has occurred, resulting in better vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing may be used as a vegetation management tool, limited to the period from February 1 through April 15.
- 2) Shrub Planting. The certificate holder shall plant sagebrush shrubs in locations where existing sagebrush is stressed. The certificate holder shall determine the size of the shrub-planting area based on the professional judgment of a qualified biologist after a ground survey of actual conditions. The size of the shrub-planting area will depend on the available mitigation area and opportunity for survival of planted shrubs. The shrub survival rate at four years after planting is an indicator of successful enhancement of habitat quality to Category 2. Accordingly, although a minimum 5-acre area of shrub planting is anticipated, the certificate holder may choose to plant a larger area. The certificate holder shall complete the initial sagebrush planting within one year after the beginning of construction of the LJJ. Supplementing existing but disturbed sagebrush areas with sagebrush seedlings would assist the recovery of this valuable shrub-steppe component. The certificate holder shall obtain shrubs from a qualified nursery or grow shrubs from native seeds gathered from the mitigation area. The certificate holder shall identify the area to be planted with sagebrush shrubs after consultation with ODFW and subject to final approval by the Department. The certificate holder shall mark the planted sagebrush clusters at the time of planting for later monitoring purposes and shall keep a record of the number of shrubs planted.
- 3) Tree Planting. If areas of juniper woodland are disturbed during construction, the certificate holder shall plant juniper trees in the mitigation area in locations of deeper soils near canyon bottoms. The certificate holder shall assess specific locations and provide a map of possible planting locations to ODFW and the Department before planting begins. The certificate holder shall determine the number and size of the juniper tree plants based on the professional judgment of a qualified biologist after a ground survey of actual conditions. The size of the tree-planting area will depend on the available mitigation area and opportunity for survival of planted trees. The tree survival rate at four years after planting is an indicator of successful enhancement of habitat quality to Category 2. The certificate holder shall obtain trees from a qualified nursery or suitable transplants from LJIIB construction zones. The certificate holder shall identify the area to be planted with juniper trees after consultation with ODFW and subject to

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1 final approval by the Department. The certificate holder shall mark the planted trees at
2 the time of planting for later monitoring purposes and shall keep a record of the number
3 of trees planted.

4 ~~3)4)~~ Weed Control. The certificate holder shall implement a weed control program.
5 Under the weed control program, the certificate holder shall monitor the mitigation area
6 to locate weed infestations. The certificate holder shall continue weed control monitoring,
7 as needed, for the life of the facility. As needed, the certificate holder shall use
8 appropriate methods to control weeds. Weed control on the mitigation site will reduce the
9 spread of noxious weeds within the habitat mitigation area and on any nearby grassland,
10 CRP or cultivated agricultural land. Weed control will promote the growth of desirable
11 native vegetation and planted sagebrush. The certificate holder may consider weeds to be
12 successfully controlled when weed clusters have been eradicated or reduced to a non-
13 competing level. Weeds may be controlled with herbicides or hand-pulling. The
14 certificate holder shall notify the landowner of the specific chemicals to be used on the
15 site and when spraying will occur. To protect locations where young desirable forbs may
16 be growing, spot-spraying may be used instead of total area spraying.

17 ~~4)5)~~ Fire Control. The certificate holder shall implement a fire control plan for wildfire
18 suppression within the mitigation area. The certificate holder shall provide a copy of the
19 fire control plan to the Department before starting habitat enhancement actions. The
20 certificate holder shall include in the plan appropriate fire prevention measures, methods
21 to detect fires that occur and a protocol for fire response and suppression. The certificate
22 holder shall maintain fire control for the life of the facility. If any part of the mitigation
23 area is damaged by wildfire, the certificate holder shall assess the extent of the damage
24 and implement appropriate actions to restore habitat quality in the damaged area.

25 ~~5)6)~~ Nest platforms. The certificate holder shall construct at least one artificial raptor
26 nest platform in the mitigation area tailored to the opportunities of the site, using best
27 professional judgment of raptor use in the general area. The certificate holder may
28 construct more than one nest platform based on the availability of suitable locations. The
29 certificate holder shall maintain the nest platforms for the life of the facility.

30 ~~6)7)~~ Habitat Protection. The certificate holder shall restrict uses of the mitigation area
31 that are inconsistent with the goals of no net loss of habitat in Categories 2, 3 and 4 and a
32 net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5.

33 VI. Monitoring

34 1. Monitoring Procedures

35 The certificate holder shall hire a qualified investigator (an independent botanist, wildlife
36 biologist or revegetation specialist) to conduct a comprehensive monitoring program for the
37 mitigation area. The purpose of this monitoring is to evaluate on an ongoing basis the protection
38 of habitat quality, the results of enhancement actions and the use of the area by avian and
39 mammal species, especially during the wildlife breeding season.

40 The investigator shall monitor the habitat mitigation area for the life of the facility
41 beginning in the year following the initial sagebrush planting. The investigator shall visit the site
42 as necessary to carry out the following monitoring procedures:

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- 1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward meeting the success criteria.
- 2) Annually record environmental factors (such as precipitation at the time of surveys and precipitation levels for the year).
- 3) Annually record any wildfire that occurs within the mitigation area and any remedial actions taken to restore habitat quality in the damaged area.
- 4) Annually assess the success of the weed control program and recommend remedial action, if needed.
- 5) Assess the recovery of native bunchgrass and natural recruitment of sagebrush resulting from removal of livestock grazing pressure by comparing the quality of bunchgrass and sagebrush cover at the time of each monitoring visit with the quality observed in previous monitoring visits and as observed when the mitigation area was first established. The investigator shall establish photo plots of naturally recovering sagebrush and native bunchgrass during the first year following the beginning of construction of the LJF. The investigator shall take comparison photos in the first year and in every other year thereafter until the subject vegetation has achieved mature stature. The investigator shall determine the extent of successful recovery of native bunchgrass based on measurable indicators (such as, signs of more abundant seed production) and shall report on the progress of recovery within in the monitoring plots. The investigator shall report on the timing and extent of any livestock grazing that has occurred within the mitigation area since the previous monitoring visit.
- 6) Assess the survival rate and growth of planted sagebrush. At the time of planting, sagebrush clusters will be marked for the purpose of monitoring. The investigator shall select several planted clusters for photo monitoring and shall take close-up and long-distance digital images of each selected cluster during each monitoring visit. The certificate holder shall determine the number of clusters to be photo-monitored at the time of planting, in consultation with the Department and ODFW, based on the number of clusters planted. The investigator shall take comparison photos in the first year following the initial sagebrush planting and in every other year thereafter until the surviving planted sagebrush has achieved mature stature. In each monitoring year, the investigator shall determine and report the survival rate of planted sagebrush. Based on past experience of restoration specialists for other sagebrush planting projects, a survival rate as high as 50 percent can be achieved if there are years of high soil moisture, but a more typical survival rate is 2 surviving shrubs per 10 planted (20 percent) after four years. Shrub-planting will be considered successful if a 20-percent survival rate is achieved after four years. The investigator shall recommend remedial action when, in the investigator's judgment, the survival rate of planted sagebrush is inadequate to demonstrate a trend toward an improvement in habitat quality.
- 7) Assess the survival rate and growth of planted juniper trees. At the time of planting, juniper trees will be marked for the purpose of monitoring. The investigator shall select several planted trees for photo monitoring and shall take close-up and long-distance digital images of each selected tree during each monitoring visit. The certificate holder shall determine the number of trees to be photo-monitored at the

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1 time of planting, in consultation with the Department and ODFW, based on the
2 number of trees planted. The investigator shall take comparison photos in the first
3 year following planting and in every other year thereafter until the surviving planted
4 trees have achieved mature stature. In each monitoring year, the investigator shall
5 determine and report the survival rate of planted trees and shall note overall vigor,
6 height of tree and the extent of branching. Based on past experience of restoration
7 specialists, one in five planted juniper trees may typically survive. Juniper planting
8 will be considered successful when, in the investigator's judgment, one in five have
9 survived. The investigator shall recommend remedial action when, in the
10 investigator's judgment, the survival rate is inadequate to demonstrate a trend toward
11 an improvement in habitat quality.

12 7)8) Between April 21 and May 21 beginning in the first spring season after the
13 beginning of construction of the LJF, conduct an area search survey of avian species.
14 An "area search" survey consists of recording all birds seen or heard in specific areas
15 (for example, square or circular plots that are 5 to 10 acres in size). Area searches will
16 be conducted during morning hours on days with low or no wind. The investigator
17 shall determine the number searches and the number of search areas in consultation
18 with ODFW. The investigator shall repeat the area search survey every five years
19 during the life of the facility.

20 8)9) Beginning in the first year after the beginning of construction of the LJF and
21 repeating every five years during the life of the facility, the investigator shall record
22 observations of special status plant or wildlife species (federal or state threatened or
23 endangered species and state sensitive species) during appropriate seasons for
24 detection of these species.

25 The certificate holder shall report the investigator's findings and recommendations
26 regarding the monitoring of the mitigation area to the Department and to ODFW on an annual
27 basis. In the annual report, the certificate holder shall describe all habitat mitigation actions
28 carried out during the reporting year. The report to the Department may be included as part of the
29 annual report on the LJF.

30 2. Success Criteria

31 Mitigation of the permanent and temporal habitat impacts of the facility may be
32 considered successful if the certificate holder protects and enhances sufficient habitat within the
33 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a
34 net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5. The
35 certificate holder must protect the quantity and quality of habitat within the mitigation area for
36 the life of the facility. ODFW has advised the Department that protection of habitat alone
37 (without enhancement activity) will not meet the intent of the "net benefit" goal.

38 The certificate holder must protect a sufficient quantity of habitat in each category to
39 meet the mitigation area requirements calculated under Section III based on the final design
40 configuration of each phase of the facility. As an illustration of the requirement, the following
41 habitat quantity goals are based on the worst case estimate described in Section III, expressed as
42 a percentage of the mitigation area in each habitat category:

43 **Total Mitigation Area: 106 acres**

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1 ~~Category 2: 77.5 acres (73 percent)~~

2 ~~Category 3: 25.1 acres (24 percent)~~

3 ~~Category 4: 2.1 acres (2 percent)~~

4 ~~Category 5: 1.2 acres (1 percent)~~

5 The certificate holder shall determine the actual mitigation area requirements for each
6 phase, subject to Department approval, before beginning construction of the ~~LJF~~that phase. If the
7 land selected for the mitigation area does not already contain sufficient habitat in each category
8 to meet these requirements, then the certificate holder must demonstrate improvement of habitat
9 quality sufficient to change lower-value habitat to a higher value (for example, to convert
10 Category 3 habitat to Category 2). The certificate holder may demonstrate improvement of
11 habitat quality based on evidence of indicators such as increased avian use by a diversity of
12 species, survival of planted shrubs and juniper trees, more abundant seed production of desirable
13 native bunchgrass, natural recruitment of sagebrush and successful weed control. If the
14 certificate holder cannot demonstrate that the habitat mitigation area is trending toward the
15 habitat quality goals described above within four years after the initial sagebrush planting, the
16 certificate holder shall propose remedial action. The Department may require supplemental
17 planting or other corrective measures.

18 After the certificate holder has demonstrated that the habitat quantity goals have been
19 achieved, the investigator shall verify, during subsequent monitoring visits, that the mitigation
20 area continues to meet the ODFW “no net loss” and “net benefit” goals described above. The
21 investigator shall recommend remedial action if the habitat quality within the mitigation area
22 falls below the habitat quantity goals listed above. The Department may require supplemental
23 planting, other corrective measures and additional monitoring as necessary to ensure that the
24 habitat quantity goals are achieved and maintained.

25 VII. Amendment of the Plan

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