

# Leaning Juniper II Wind Project: Habitat Mitigation Plan

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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 the Leaning Juniper II Wind Power Facility (LJF) to mitigate for the impacts of the  
4 facility on wildlife habitat.<sup>1</sup> This plan addresses mitigation for both the permanent impacts of  
5 facility components and the temporal impacts of facility construction. The certificate holder shall  
6 protect and enhance the mitigation area as described in this plan. This plan specifies habitat  
7 enhancement actions and monitoring procedures to evaluate the success of those actions.  
8 Remedial action may be necessary if progress toward habitat enhancement success is not  
9 demonstrated in any part of the mitigation area.

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

11 The estimated land area that could be occupied by permanent facility components (the  
12 “footprint”) is approximately 111 acres, based on the final design configuration for LJIIA and  
13 the expected configuration for LJIIB.<sup>2</sup> In addition to the footprint impacts, construction of the  
14 facility could disturb approximately 850 acres. Although much of the area is cropland, habitat  
15 that could be affected by construction disturbance includes areas of perennial bunchgrass,  
16 desirable shrubs and juniper trees. After disturbance, the recovery of perennial bunchgrass  
17 species to a mature stage might take five to seven years; recovery of juniper trees and desirable  
18 shrubs such as bitterbrush and sagebrush might take ten to 30 years to reach maximum height  
19 and vertical branching. Even where recovery of these habitat subtypes is successful, there is a  
20 loss of habitat quality during the period of time needed to achieve recovery (temporal impact).

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

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

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<sup>1</sup> 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.

<sup>2</sup> The LJIIA and LJIIB areas are described in the *Final Order on Amendment #1*. The expected acres of permanent impact for LJIIA are shown in Table 6 of the Final 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), SSE (bitterbrush-buckwheat-bunchgrass-annual grass) and WJ (juniper woodland)  
16 habitat affected (a 0.5:1 ratio). This portion of the mitigation area is intended to address the  
17 temporal loss of habitat quality during the recovery of SSA, SSE and WJ habitat disturbed during  
18 construction. The size of this portion of the mitigation area is based on the assumption that  
19 restoration of disturbed SSA, SSE and WJ habitat is successful, as determined under the Leaning  
20 Juniper II Revegetation Plan. If the revegetation success criteria are not met in the affected areas,  
21 then the Council may require the certificate holder to provide additional mitigation.

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

### 25 Category 2

26 Footprint impacts: 6.28 acres

27 Temporal impacts to SSA and SSE: 18.19 acres

28 Mitigation area:  $(6.28 \text{ acres} \times 2) + (18.19 \text{ acres} \times 0.5) = 21.66 \text{ acres}$

### 29 Category 3

30 Footprint impacts: 13.48 acres

31 Temporal impacts to SSA: 1.8 acres

32 Mitigation area:  $13.48 \text{ acres} + (1.8 \text{ acres} \times 0.5) = 14.38 \text{ acres}$

### 33 Category 4

34 Footprint impacts: 1.38 acres

35 Mitigation area: 2.1 acres

### 36 Category 5

37 Footprint impacts: 1.34 acres

38 Mitigation area: 1.34 acres

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

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1 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 maximum habitat impact estimates:<sup>3</sup>

### 4 Category 2

5 Footprint impacts: 12.16 acres

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

7 Mitigation area:  $(12.16 \text{ acres} \times 2) + (21.86 \text{ acres} \times 0.5) = 35.26 \text{ acres}$

### 8 Category 3

9 Footprint impacts: 16.07 acres

10 Temporal impacts to SSA: 0.31 acres

11 Mitigation area:  $16.07 \text{ acres} + (0.31 \text{ acres} \times 0.5) = 16.23 \text{ acres}$

### 12 Category 4

13 Footprint impacts: 1.44 acres

14 Mitigation area: 1.44 acres

15 **Total mitigation area for LJIIB (rounded to nearest whole acre): 53 acres**

## 16 IV. Description of the Mitigation Area

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

## 32 V. Habitat Enhancement Actions

33 The objectives of habitat enhancement are to protect habitat within the mitigation area from  
34 degradation and to improve the habitat quality of the mitigation area. By achieving these goals,

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<sup>3</sup> The maximum impact estimates are shown in Table 8 of the *Final Order on Amendment #1*.

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

<sup>6</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.

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

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

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- 1       4) Weed Control. The certificate holder shall implement a weed control program. Under the  
2 weed control program, the certificate holder shall monitor the mitigation area to locate  
3 weed infestations. The certificate holder shall continue weed control monitoring, as  
4 needed, for the life of the facility. As needed, the certificate holder shall use appropriate  
5 methods to control weeds. Weed control on the mitigation site will reduce the spread of  
6 noxious weeds within the habitat mitigation area and on any nearby grassland, CRP or  
7 cultivated agricultural land. Weed control will promote the growth of desirable native  
8 vegetation and planted sagebrush. The certificate holder may consider weeds to be  
9 successfully controlled when weed clusters have been eradicated or reduced to a non-  
10 competing level. Weeds may be controlled with herbicides or hand-pulling. The  
11 certificate holder shall notify the landowner of the specific chemicals to be used on the  
12 site and when spraying will occur. To protect locations where young desirable forbs may  
13 be growing, spot-spraying may be used instead of total area spraying.
- 14       5) Fire Control. The certificate holder shall implement a fire control plan for wildfire  
15 suppression within the mitigation area. The certificate holder shall provide a copy of the  
16 fire control plan to the Department before starting habitat enhancement actions. The  
17 certificate holder shall include in the plan appropriate fire prevention measures, methods  
18 to detect fires that occur and a protocol for fire response and suppression. The certificate  
19 holder shall maintain fire control for the life of the facility. If any part of the mitigation  
20 area is damaged by wildfire, the certificate holder shall assess the extent of the damage  
21 and implement appropriate actions to restore habitat quality in the damaged area.
- 22       6) Nest platforms. The certificate holder shall construct at least one artificial raptor nest  
23 platform in the mitigation area tailored to the opportunities of the site, using best  
24 professional judgment of raptor use in the general area. The certificate holder may  
25 construct more than one nest platform based on the availability of suitable locations. The  
26 certificate holder shall maintain the nest platforms for the life of the facility.
- 27       7) Habitat Protection. The certificate holder shall restrict uses of the mitigation area that are  
28 inconsistent with the goals of no net loss of habitat in Categories 2, 3 and 4 and a net  
29 benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5.

## 30 VI. Monitoring

### 31 1. Monitoring Procedures

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

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

- 40       1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward  
41 meeting the success criteria.

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- 1           2) Annually record environmental factors (such as precipitation at the time of surveys  
2           and precipitation levels for the year).
- 3           3) Annually record any wildfire that occurs within the mitigation area and any remedial  
4           actions taken to restore habitat quality in the damaged area.
- 5           4) Annually assess the success of the weed control program and recommend remedial  
6           action, if needed.
- 7           5) 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 mitigation area was  
11          first established. The investigator shall establish photo plots of naturally recovering  
12          sagebrush and native bunchgrass during the first year following the beginning of  
13          construction of the LJF. The investigator shall take comparison photos in the first  
14          year and in every other year thereafter until the subject vegetation has achieved  
15          mature stature. The investigator shall determine the extent of successful recovery of  
16          native bunchgrass based on measurable indicators (such as, signs of more abundant  
17          seed production) and shall report on the progress of recovery within in the monitoring  
18          plots. The investigator shall report on the timing and extent of any livestock grazing  
19          that has occurred within the mitigation area since the previous monitoring visit.
- 20          6) Assess the survival rate and growth of planted sagebrush. At the time of planting,  
21          sagebrush clusters will be marked for the purpose of monitoring. The investigator  
22          shall select several planted clusters for photo monitoring and shall take close-up and  
23          long-distance digital images of each selected cluster during each monitoring visit. The  
24          certificate holder shall determine the number of clusters to be photo-monitored at the  
25          time of planting, in consultation with the Department and ODFW, based on the  
26          number of clusters planted. The investigator shall take comparison photos in the first  
27          year following the initial sagebrush planting and in every other year thereafter until  
28          the surviving planted sagebrush has achieved mature stature. In each monitoring year,  
29          the investigator shall determine and report the survival rate of planted sagebrush.  
30          Based on past experience of restoration specialists for other sagebrush planting  
31          projects, a survival rate as high as 50 percent can be achieved if there are years of  
32          high soil moisture, but a more typical survival rate is 2 surviving shrubs per 10  
33          planted (20 percent) after four years. Shrub-planting will be considered successful if a  
34          20-percent survival rate is achieved after four years. The investigator shall  
35          recommend remedial action when, in the investigator's judgment, the survival rate of  
36          planted sagebrush is inadequate to demonstrate a trend toward an improvement in  
37          habitat quality.
- 38          7) Assess the survival rate and growth of planted juniper trees. At the time of planting,  
39          juniper trees will be marked for the purpose of monitoring. The investigator shall  
40          select several planted trees for photo monitoring and shall take close-up and long-  
41          distance digital images of each selected tree during each monitoring visit. The  
42          certificate holder shall determine the number of trees to be photo-monitored at the  
43          time of planting, in consultation with the Department and ODFW, based on the  
44          number of trees planted. The investigator shall take comparison photos in the first

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

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

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

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

### 28 2. Success Criteria

29 Mitigation of the permanent and temporal habitat impacts of the facility may be  
30 considered successful if the certificate holder protects and enhances sufficient habitat within the  
31 mitigation area to meet the ODFW 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. The  
33 certificate holder must protect the quantity and quality of habitat within the mitigation area for  
34 the life of the facility. ODFW has advised the Department that protection of habitat alone  
35 (without enhancement activity) will not meet the intent of the "net benefit" goal.

36 The certificate holder must protect a sufficient quantity of habitat in each category to  
37 meet the mitigation area requirements calculated under Section III based on the final design  
38 configuration of each phase of the facility. The certificate holder shall determine the actual  
39 mitigation area requirements for each phase, subject to Department approval, before beginning  
40 construction of the that phase. If the land selected for the mitigation area does not already  
41 contain sufficient habitat in each category to meet these requirements, then the certificate holder  
42 must demonstrate improvement of habitat quality sufficient to change lower-value habitat to a  
43 higher value (for example, to convert Category 3 habitat to Category 2). The certificate holder

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1 may demonstrate improvement of habitat quality based on evidence of indicators such as  
2 increased avian use by a diversity of species, survival of planted shrubs and juniper trees, more  
3 abundant seed production of desirable native bunchgrass, natural recruitment of sagebrush and  
4 successful weed control. If the certificate holder cannot demonstrate that the habitat mitigation  
5 area is trending toward the habitat quality goals described above within four years after the initial  
6 sagebrush planting, the certificate holder shall propose remedial action. The Department may  
7 require supplemental planting or other corrective measures.

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

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

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