

Horse Heaven Clean Energy Center

Townsend's Ground Squirrel Mitigation and Management Plan

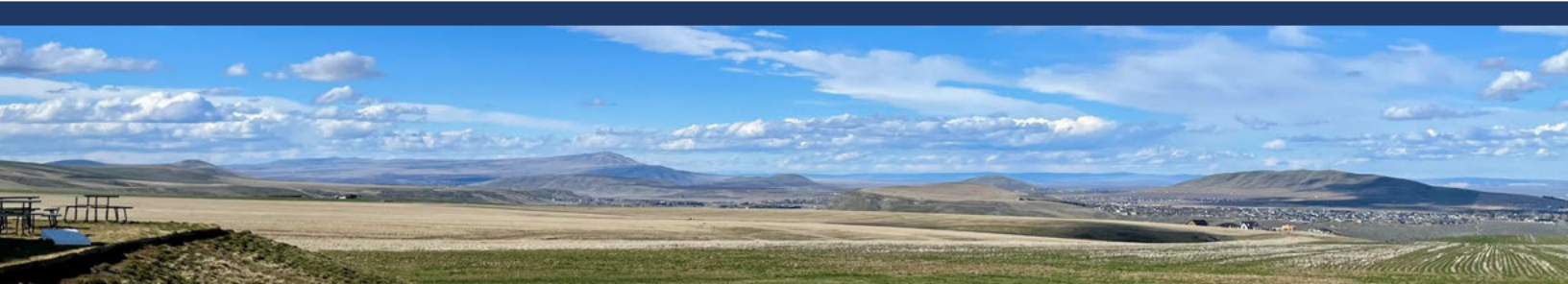
Prepared for:
Horse Heaven Wind Farm, LLC.

Prepared by:



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1.0 Introduction

The Washington Energy Facility Site Evaluation Council's (EFSEC) Site Certification Agreement (SCA) for the Horse Heaven Wind Farm (Project) included a mitigation measure (Spec-12 Townsend's Ground Squirrel) aimed at avoiding, minimizing, and mitigating impacts on the state candidate species Townsend's ground squirrel (*Urocitellus townsendii townsendii*) during facility construction and operations (WDFW 2026). Spec-12 requires that habitat loss be avoided in Townsend's ground squirrel habitat concentration areas (HCA) and where known colonies are present in the final design.

Spec-12 further requires that, in the event that avoidance is not feasible and a Project component must be proposed for siting within HCAs that are rated as medium or greater or near known colonies, the Certificate Holder shall prepare, in consultation with the Pre-operational Technical Advisory Group (PTAG), a Project-specific Townsend's Ground Squirrel Mitigation and Management Plan (Plan) for approval by EFSEC.

As described in the EFSEC SCA Spec-12 the plan shall include:

1. Outline why avoidance is impossible
2. Outline additional mitigation measures (such as setbacks, colony monitoring, habitat restoration, relocation, and habitat reconstruction)
3. Describe monitoring and adaptive management during Project operation

The plan must be provided to and discussed with the PTAG and approved by EFSEC if avoidance of colonies is not possible. This Plan has been completed to fulfill this requirement.

2.0 Changes to Project Design

The Project is subject to several types of exclusion areas identified in the SCA (i.e., historic fire setbacks, residential setbacks, and cultural resource setbacks). Implementation of these setbacks, along with those required by the EFSEC Council decision on Resolution 357, will require that portions of the originally proposed Project would need to be removed or relocated in order to meet the mitigation requirements. The PTAG advised on exclusions related to Spec-5 (ferruginous hawk) and reviewed the Project design changes resulting from those additional exclusions. The PTAG will review any future updates to the Project, prior to construction, in order to continue confirming that the Project layout complies with the SCA.

3.0 Townsend's Ground Squirrel Habitat in the Project Area

The Washington Wildlife Connectivity Working Group (WWCWG) modeled linkage networks for eleven focal species in the Columbia Plateau Ecoregion (WWCWG 2012). Townsend's ground

squirrel is one of the focal species. For each focal species, HCAs were identified, which are locations where there is a high concentration of known use or suitable habitat that is then used as a core area in a linkage-modeling exercise. Linkages are modeled between HCAs based on the species' natural history, including habitat use and movement tendencies, along with landscape-level resistance factors (i.e., barriers) that may inhibit movement.

There are medium- and high-quality Townsend's ground squirrel HCAs in the Project Area (Figure 1). The medium-quality HCA occurs [REDACTED] and [REDACTED]. Approximately half of the HCA is within the Project Lease Boundary and it extends [REDACTED], outside of the Project Lease Boundary. The high-quality HCA runs [REDACTED] of the Project along the [REDACTED] of the Project Lease Boundary. This HCA extends from [REDACTED] past [REDACTED] [REDACTED]. There was no documentation of Townsend's ground squirrel colonies in the Project Lease Boundary, including in any of the HCAs, during wildlife and habitat surveys conducted in support of the Application for Site Certification (ASC). Pre-construction surveys will be conducted in all suitable Townsend's ground squirrel habitat within the Project's Micrositing Corridor, including in the HCAs, prior to the commencement of construction as described in the Pre-construction Wildlife Survey Plan¹.

The required setbacks described in Section 2.0 have also resulted in the minimization of Project-related disturbance within modeled Townsend's ground squirrel HCAs (Figure 1). The updated design has eliminated all wind turbines from medium-quality HCA, leaving only one wind turbine in a high-quality HCA, along the northern edge of the Project. Correspondingly, the affected Townsend's ground squirrel habitat acreage has been reduced to five acres of permanent impact and 70 acres of temporary impacts² in medium-quality HCAs, along with five acres of temporary disturbance in a high-quality HCA. Note that there is no anticipated permanent impact in high-quality HCAs despite there being one wind turbine sited within a high-quality HCA, because the underlying habitat in that wind turbine location is dryland wheat, and is therefore not suitable for Townsend's ground squirrel despite being located inside a modeled HCA.

¹ The Pre-Construction Wildlife Survey Plan is Attachment 1 to the Horse Heaven Wind Farm Pre-Operational Technical Advisory Group Facilitator Report for: Spec-1 Striped Whipsnake and Sagebrush Lizard, Spec-4 Burrowing Owl, Spec-8 Prairie Falcon, Spec-10 Black-tailed Jackrabbit and White-tailed Jackrabbit, and Spec-12 Townsend's Ground Squirrel.

² Temporary impacts are those that will be returned to pre-project habitat functionality within one year of the completion of project-related disturbance.



Figure 1. Townsend's Ground Squirrel Habitat Concentration Areas in the Project Area

4.0 Habitat Loss and Mitigation

The SCA requires the Certificate Holder to quantify the amount of habitat that will be removed by Project infrastructure in HCAs, in order to allow the PTAG and EFSEC to evaluate whether any habitat loss is adequately mitigated.

4.1 Summary of Habitat Loss in Habitat Concentration Areas

Only one wind turbine is planned within a high-quality HCA. That location, despite being inside of an HCA, has an underlying land use of dryland wheat, and therefore is not considered suitable habitat for Townsend's ground squirrel. Nonetheless, there are roads and underground interconnection associated with that wind turbine that could encroach on suitable habitat. No primary infrastructure (i.e., wind turbines or solar panels) is planned in the medium-quality HCA, but some secondary infrastructure will pass through the medium-quality HCA, such as underground collection lines, roads, and an overhead transmission line which will connect to the substation just east of I-82.

Impact calculations include both permanent and temporary impacts and are summarized by vegetation type, in order to allow for an examination of whether the impacts would result in habitat loss for Townsend's ground squirrel and a mitigation need, as required by the SCA.

Table 1. Acres of Disturbance Within Habitat Concentration Areas by Vegetation Type

Vegetation Type	Medium-Quality HCA		High-Quality HCA	
	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Agricultural Land	--	--	0.3	4.9
Developed/Disturbed	--	--	--	--
Grassland ¹	1.5	22.9	--	4.5
Shrubland	3.9 ²	47.1 ²	--	0.6 ³
Total	5.4	70.0	0.3	10.0

¹ Includes eastside grassland, planted grassland, and non-native grassland

² Only includes rabbitbrush shrubland

³ Only includes dwarf shrub-steppe

4.2 Measures to Reduce Habitat Impacts in Townsend's Ground Squirrel HCAs

With one exception, primary infrastructure will be relocated outside of modeled Townsend's ground squirrel HCAs. This will reduce the impact from construction activities within these areas because there will be fewer construction personnel and vehicles working for extended periods within modeled HCAs – for example, to erect wind turbines. This also reduces overall permanent impacts on habitat within HCAs to those associated with new access roads or support structures for overhead transmission lines.

Impacts to Townsend's ground squirrel habitat from the secondary infrastructure that will pass through the modeled corridor [REDACTED] will be minimized through Project design and construction management measures. Overhead transmission lines have a small permanent footprint and outside of those discrete locations, where support structures would be placed, would not impede use of suitable habitat by Townsend's ground squirrel. Although the habitat disturbance is small, overhead lines do create perching opportunities for raptors that may prey upon Townsend's ground squirrel. However, one of the inherent values of Townsend's ground squirrel in the ecosystem is that they are a food resource for raptors.

Underground electrical lines create a temporary disturbance to suitable habitat during construction but are then covered over and revegetated back to pre-Project conditions according to the Project's revegetation plan, unless the lines are buried in the roadbed. Nonetheless, underground and overhead lines will be consolidated into single corridors and located alongside roadways whenever possible, in order to consolidate impacts on the landscape. This will reduce habitat loss overall and reduce the distribution of impacts across the landscape, which would otherwise have a larger cumulative effect within the modeled HCAs. If Townsend's ground squirrel colonies are discovered during pre-construction surveys in locations where overhead lines are planned, the Certificate Holder will consider how to minimize the creation of new perching opportunities on overhead lines near colonies. This could involve some combination of fitting power poles with devices that dissuade perching, or possibly putting portions of the overhead line underground, provided it does not create additional ground disturbance within the colony itself.

Roads that would be located within modeled HCAs would be similar to roads that currently exist in the Project Area. They would be packed gravel roads large enough to accommodate construction vehicles, which are similar to existing roads in the Project Area, which are built to accommodate farm machinery and heavy trucks during harvest.

Due to the flexibility of siting of secondary infrastructure, if Townsend's ground squirrel colonies are discovered during pre-construction activities, all attempts will be made to site around the colony. If avoidance of the colony is not possible, the Certificate Holder will coordinate with the PTAG and EFSEC on efforts to minimize impacts to the colony during construction and operations.

4.3 Mitigation and Monitoring of Habitat Loss in Habitat Concentration Areas

Mitigation of habitat loss in Townsend's ground squirrel HCAs will be consistent with mitigation ratios outlined in the Horse Heaven Wind Farm Draft Habitat Mitigation Plan (HMP), provided as Appendix L in the Project's Application for Site Certification (ASC). Mitigation ratios and resulting acreages are provided in Table 2, based on impact numbers provided in Table 1.

Table 2. Summary of Mitigation Acres by Vegetation Type Needed to Offset Habitat Impacts in Townsend's Ground Squirrel Habitat Concentration Areas

Vegetation Type	Permanent Impacts Mitigation Ratio ¹	Permanent Impact Mitigation Acres	Temporary Impacts Mitigation Ratio ¹	Temporary Impacts Mitigation Acres	Total Mitigation Acres
Agricultural Land	0:1	0	0:1	0	0
Developed/Disturbed	0:1	0	0:1	0	0
Grassland ²	1:1	1.5	0.1:1	2.7	4.2
Shrubland	2:1	7.8 ³	0.5:1	23.9 ⁴	31.7
Total	--	9.3	--	26.6	35.9

¹ Ratios are consistent with those approved by EFSEC and WDFW in the Habitat Mitigation Plan

² Includes eastside grassland, planted grassland, and non-native grassland

³ Only includes rabbitbrush shrubland

⁴ Only includes dwarf shrub-steppe

Implementation of habitat mitigation activities will be accompanied by a monitoring program. The monitoring program will aim to document the effectiveness of mitigation actions over time in order to ensure that the impacts of habitat loss are fully offset. In existing shrubsteppe and grassland habitats, monitoring will include documentation of management activities, such as ongoing invasive species control, maintenance of fire breaks, and any overseeding of existing habitat to increase vegetation cover or diversity. If areas are restored from agricultural uses to shrubsteppe or grassland, monitoring will include changes in vegetation cover and diversity over time, ongoing invasive species management, any necessary reseeding in locations that were less successful, and documentation of changes in wildlife use as the landscape transitions from agricultural use to more natural grassland or shrubsteppe habitat.

4.4 Restoration of Habitat Following Decommissioning

An initial site restoration plan was completed, as required, in support of the ASC. The requirements for site restoration following decommissioning are included in that plan. In summary, following decommissioning, Project infrastructure will be removed, potentially with the exception of some roads that will be retained for farm use or long-term fire management and control. Once Project infrastructure is removed, the land will be returned to pre-Project conditions, except in cases where that would be incompatible with land use practices at the time of decommissioning. In most cases, this will result in the land being returned to an agricultural condition, but in locations where non-agricultural land uses or vegetation types were removed by the Project, those vegetation types will be restored.

5.0 Minimization of Impacts on Colonies

In instances where an active Townsend's ground squirrel colony is observed, Project-related activities will be modified to avoid disturbance to the colony and reduce the risk of mortality. Project activities would be modified during construction and operational phases of the Project.

5.1 Pre-construction Survey Results

As described in the Horse Heaven Clean Energy Center Wildlife Survey Plan (Wildlife Survey Plan), pre-construction surveys will be completed prior to the commencement of construction activities. Systematic transect surveys will be conducted in the Primary Survey Area twice prior to construction, in April and May during the peak period of above-ground activity of Townsend's ground squirrel. Transects will be spaced no more than 60 meters apart, or closer if needed due to vegetation or terrain. All field crew will be trained in the survey methods and identification of Townsend's ground squirrel sign. Surveys will generally be done in the morning when squirrels are active and conditions allow good visibility and audible detection.

If squirrel activity is documented, surveyors will document and map the colony perimeter using GPS. The extent of habitat supporting the squirrels will also be mapped to guide avoidance and minimization of disturbance during construction. For more details, refer to the survey protocol in the Pre-construction Wildlife Survey Plan. Additionally, construction personnel will be trained to recognize Townsend's ground squirrel sign and will report any incidental observations during construction activities. This opportunistic monitoring will help identify active burrow systems that may require protective measures to avoid harm during ongoing work.

5.2 Actions to Minimize Impacts

If an active Townsend's ground squirrel colony is documented during pre-construction surveys, no ground disturbance will be permitted within the colony boundary. If construction activities need to occur near the colony during the time of year when Townsend's ground squirrels are active (typically April and May, but can extend from March – June depending on weather and

temperature), the Certificate Holder will work with the PTAG/TAC, WDFW, and EFSEC to determine a course of action that protects the colony while allowing construction of the Project to proceed. This may require temporary suspension of certain types of activities near the colony (e.g., blasting) or the establishment of a temporary buffer around the colony to minimize impacts.

6.0 Monitoring of Townsend's Ground Squirrel Activity

If Townsend's ground squirrel colonies are discovered near infrastructure during pre-construction surveys, those colonies will continue to be monitored annually for the duration of Project construction. Once construction is complete and the Project is operational, the Certificate Holder will work with WDFW, the TAC, and EFSEC to determine if colony monitoring should continue, and if so, at what frequency. This will depend on where Project infrastructure is in relation to the colony and whether operational activities could occur near the colony, such that having an ongoing understanding of colony size and dynamics would be useful.

7.0 Reporting

The results of any surveys, pre- and post-construction, and any necessary adaptive management strategies resulting from survey findings will be reviewed with the PTAG or Technical Advisory Committee. Reports will include the dates and locations of surveys, detailed records of Townsend's ground squirrel detections or sign, mapped boundaries of active burrow systems, and recommended protective measures. Additional updates will be provided as needed throughout the construction and operations phases to document any new observations or changes in colony activity.

8.0 Certificate Holder Commitments

Based on this Plan, the Certificate Holder commits to do the following:

1. Complete a pre-construction survey for Townsend's ground squirrel colonies in suitable habitat and in Townsend's ground squirrel HCAs in the micrositing corridor.
2. If Townsend's ground squirrel colonies are found during pre-construction surveys, the Certificate Holder will avoid placing Project infrastructure in the active colony.
3. If Townsend's ground squirrel colonies are found during pre-construction surveys, the Certificate Holder will work with the PTAG, WDFW, and EFSEC to minimize construction activities near the colony during periods of peak activity to the extent practical.
4. If a Townsend's ground squirrel colony is found during pre-construction surveys, the colony will continue to be monitored annually for the duration of Project construction.

5. The results of any surveys, pre- and post-construction, and any necessary adaptive management strategies resulting from survey findings, including any updates on colony activity, will be reviewed with the PTAG or Technical Advisory Committee.

9.0 References

Horse Heaven Wind Farm. 2023. Draft Wildlife and Habitat Mitigation Plan for the Horse Heaven Wind Farm, Benton County, WA. Prepared for Horse Heaven Wind Farm, LLC. Prepare by Tetra Tech.

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