

## Washington Ground Squirrel Protections and Survey Requirements

This document is an outline from the Oregon Department of Fish and Wildlife for protections and survey requirements for Washington ground squirrel (WGS) (*Uroditellus washingtoni*) during the construction of the proposed energy development projects. The intent of these guidelines is to provide strategies on avoidance and minimization measures to eliminate or reduce direct and indirect impacts to individual WGS during construction-related activities from the energy development projects.

The WGS is a state listed endangered species in Oregon. This document assumes careful, successful design of projects and associated features (i.e., access roads) to fully avoid direct impacts to Category 1 WGS habitat and avoid and minimize, as much as practicable, direct impacts to WGS habitats adjacent to Category 1 habitats, historically occupied habitat<sup>1</sup>, suitable WGS habitat<sup>2</sup>, and suitable WGS dispersal and foraging areas outside of Category 1 habitat<sup>3</sup>.

### WASHINGTON GROUND SQUIRREL LIFE HISTORY

WGS have an annual life cycle characterized by a relatively short active period when all reproductive, foraging, and dispersal activity takes place followed by a longer period of dormancy when WGS live off accumulated fat reserves while hibernating in underground burrows (Table 1). The active season for WGS generally extends from mid-winter to early summer (January 1 – June 30) when lush grasses and forbs are available for consumption. Juvenile WGS have been observed foraging above ground in early July in years of late or wet springs (Carlson, 1980). Above ground activity lasts about 5 months for adult squirrels and about 4 months for young-of-the-year juveniles, but is shorter or longer within different WGS populations depending on elevation and other environmental factors (Shaw, 1921; Scheffer, 1941; Carlson et al., 1980; Rickart & Yensen, 1991). The inactive season for WGS extends from early summer to mid-winter (July 1 – December 31). These WGS life stage-specific seasonal activity patterns and the potential vulnerability to construction-related direct and indirect effects constitute the development of seasonal and distance buffer recommendations. Female WGS are sexually receptive on only one afternoon per season, usually within a few days of emergence from hibernation. Yearling females are sexually mature but males are not until they reach two years of age (Sherman, 2000). The gestation period for WGS generally lasts 25 days (Scheffer, 1941). The short interval that WGS are active above ground precludes production of more than one litter. Therefore it is imperative that construction-related activities minimize adverse impacts to WGS during this brief life history characteristic. Birthing generally occurs

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<sup>1</sup> Historically occupied habitat can be defined as areas of suitable habitat where previous surveys documented WGS active colonies but are currently not active.

<sup>2</sup> Suitable WGS habitat can be defined as any terrestrial habitat within the range of the WGS that was not developed: i.e. active agricultural lands. Areas containing shrub-steppe and grassland habitats with silty soils should be considered highly suitable and prioritized.

<sup>3</sup> Suitable WGS dispersal and foraging areas include areas outside of the 785-foot buffer from active colonies where juvenile and adult WGS are present during dispersal and foraging activities.



## AVOIDANCE AND MINIMIZATION MEASURES

### Survey requirements

ODFW recommends that surveys for WGS occur within 1000 feet of any ground disturbing activity in suitable WGS habitat. Suitable WGS habitat can be defined as any terrestrial habitat within the range of the WGS that has not been developed (i.e. active agricultural lands). Areas containing shrub-steppe and grassland habitats with silty soils should be considered highly suitable and prioritized. Surveys should be completed following the protocol outlined by Morgan and Nugent 1999. This include two sets of surveys at least two weeks apart between the months of February and May. Surveys require meandering transects approximately 60 meters apart and the two survey transects are completed perpendicular to each other to better cover the entire survey area. The 1000 foot survey buffer allows for finding and protecting any occupied WGS habitat. Occupied WGS habitat is considered Category 1 habitat and is protected by definition under the ODFW Habitat Mitigation plan (see definition below). The Category 1 habitat includes the active WGS colony with a 785-foot buffer of suitable WGS habitat. The Category 1 habitat 785 foot buffer may be reduced if there is a suitable habitat break that is not suitable for foraging or burrow establishment. Examples of habitat breaks that would cause the 785-foot area to shrink would be tilled field edges, paved high use roads or unvegetated, continuous vertical drop rim rock which has no burrowing or food value to Washington ground squirrels choosing to explore a given area.

Surveys for WGS are considered viable for use in the construction of projects for a three-year period. While WGS have the ability to move around from year to year ODFW recognizes the need for some level of certainty by developers to layout their proposed projects and to be able to build the projects. During the three-year period the developer would only need to go to known existing WGS colonies in the project area to ensure that the WGS had not moved into the project area. After three years because of the propensity for WGS to move ODFW would recommend that the developer complete an entire new survey to ensure that WGS have not moved into the project area. While this three-year period does not ensure that there may not be potential for WGS movement into the project area it allows the developer some certainty in developing the layout of the project and minimizes the potential for impacts to WGS that might move into the project area during the three-year period.

## PROTECTION MEASURES

### Category 1

#### Category 1 WGS Habitat

Active WGS colony with a 785-foot buffer of suitable WGS habitat. The Department refers to this area as “**required habitat for Washington ground squirrel survival**”. The 785 foot buffer is based on the dispersal distance from Carlson, 1980 even though WGS have been recorded moving up to 1,621 feet between locations within their home range (Delavan, 2008). This indicates some foraging by juvenile and adult WGS may occur outside the 785-foot buffer around active colonies. The ability for WGS to actively forage without disturbances that could adversely affect the species from performing this life history trait is critical since the species commonly lose half their body weight during estivation/hibernation (Carlson, 1980).

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“**Habitat Category 1**” is irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population, or unique assemblage.

The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality. The Department shall act to protect Category 1 habitats by avoidance of impacts through alternatives to the proposed development action or no authorization of the proposed development action if impacts cannot be avoided.

ODFW considers any WGS hole or colony Category 1 habitat as long as there is current activity at the site. At any time WGS activity does not persist for an entire year at a site then the site would no longer be considered Category 1 habitat. For example if a single active WGS hole was found one year and the following year that hole was not active the hole location plus the 785 foot buffer surrounding the hole would no longer be considered Category 1 habitat. ODFW recognizes that individual holes may represent dispersing WGS and this is an important factor in the long term viability of any WGS population. Dispersing animals maintain genetic diversity between colonies as well as serve as a precursor to colony movements through time. WGS colony locations naturally shift over time and recent scientific work suggests that occupied, single burrows may be important to that movement. However, while these holes may be important to the long term viability of the species they also might just be dispersing individuals who do not survive through the estivation period or who may disperse from the area after they emerge in the spring in search of other WGS colonies. If a cluster of holes was found one year and the following year the cluster of holes was inactive then that would no longer be considered an active colony and no longer considered Category 1 habitat. However, if the cluster of active holes constricts between years we would still consider the original cluster of holes plus the 785 foot buffer to be Category 1 habitat even though the extent of the original site had shrunk. We know through research that WGS populations and colonies like all other rodent species are cyclic in nature and populations expand and contract through time. ODFW would consider the largest extent of the active colony that has been determined through surveys to be considered Category 1 habitat even if the colony constricts as the entire cluster of holes (active and inactive) is important to the long term viability of the colony.

ODFW would recommend that any known active WGS hole or cluster of holes that is found through any survey would be considered Category one habitat and protected accordingly.

## Category 2

- Habitat adjacent to an occupied WGS colony, as defined as the cluster of holes as well as the required habitat for squirrel survival, but not occupied by any WGS, which is of a similar habitat type and quality to the area occupied by WGS. The Department refers to this area as “**potential Washington ground squirrel use**”.

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“**Habitat Category 2**” is essential habitat for a fish and wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population, or unique assemblage.

Habitat adjacent to an occupied WGS colony, which contains similar habitat types and quality, will be considered Category 2 WGS habitat until it reaches a habitat break consisting of a tilled agricultural field, unvegetated continuous vertical drop rim rock which has no burrowing or food value to squirrel, paved road, or flowing waterbody (i.e., rivers and irrigation canals).

The Category 2 habitat is habitat for WGS dispersal, which is essential to the long-term viability of WGS. Dispersing WGS have been recorded dispersing from occupied WGS colonies up to 11,551 feet although about 90% of dispersal distances fall between 984’ – 7,218’ with individuals settling disproportionately in locations dominated annual grasses or sagebrush vegetation and in sites near other colonies (Klein, 2005). ODFW considers the area from the edge of the colony out 1500 meters (4,875 feet) as Category 2 habitat. This is based on the average dispersal distance of approximately 80% of WGS from Klein, 2005 and is the standard that ODFW has used on previous projects.

## BEST MANAGEMENT PRACTICES

### *Project Construction and Operational Activities*

- Avoid placement of Project facilities, staging areas, and temporary use sites, as much as practicable, in areas identified as suitable habitat adjacent to Category 1 habitat, historically occupied habitat.

- Identify and place exclusion flagging around areas identified as Category 1 habitat, historically occupied habitat, and provide maps to all construction personnel to ensure these habitats are identified.
- Avoid wire stringing activities, as much as practicable, that span Category 1 WGS habitat from January 1 – June 30.
- Implement a cleaning program for equipment and vehicles that prevents the spread of invasive plant species.
- Provide training for all construction personnel and environmental monitors on protocols for responding to new WGS discoveries, dead or injured squirrels, and other protocols related to avoiding and minimizing impacts to WGS.
- Restore areas identified as suitable habitat adjacent to Category 1 habitat, historically occupied habitat, and suitable WGS dispersal and foraging areas outside of Category 1 WGS habitat impacted by construction to, at least a minimum of, pre-construction form and function in a reasonable timeframe and monitor restoration efforts that may unintentionally cause adverse impacts to the species.

### **Road Construction and Use**

- Identify and make use of existing roads and farm lanes that do not contain suitable habitat adjacent to Category 1 habitat and historically occupied habitat.
- Avoid placement of roads, as much as practicable, in areas identified as suitable habitat adjacent to Category 1 habitat and historically occupied habitat.
- Avoid off-road vehicular travel, as much as practicable, in areas identified as suitable habitat adjacent to Category 1 habitat and historically occupied habitat.

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