Field Reconnaissance Habitat Report

New Market Industrial Campus and Tumwater Town Center
Master Development Plan

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Introduction

This field reconnaissance habitat report for assessing potential habitat for Mazama pocket gophers has been prepared for the Port of Olympia and SCJ Alliance to provide background information and constraints mapping for the New Market Industrial Campus (NMIC) and Tumwater Town Center (TTC) Master Development Plan. Potential habitat for the Olympia subspecies of Mazama pocket gopher (*Thomomys mazama pugetensis*) has been evaluated based on existing database information and reconnaissance-level field surveys in January and June 2015. The habitat map presented in this report was prepared to support master planning efforts. More detailed surveys may be required for permit purposes in the future.

Site Description

The NMIC and TTC study area is located immediately east of the Olympia airport and extends north to Tumwater Boulevard, west to Interstate 5, and south to 83rd Avenue South (Figure 1). It is approximately 550 acres in size and includes areas developed with commercial buildings, a school, and a golf course; and undeveloped areas ranging from forest to open grassland.

Methods

Review of Existing Information

Past and present aerial imagery and federal, state, and county databases were reviewed, including the Washington Department of Fish and Wildlife (WDFW) priority habitats and species database, Washington Department of Natural Resources (WDNR) oak/grassland mapping, and Natural Resources Conservation Service (NRCS) soil survey information.

Field Reconnaissance

A preliminary habitat assessment was conducted on January 16, 2015 in coordination with soil and groundwater testing that was being completed for wetland and stormwater studies, as well as for this habitat evaluation (SCJ Alliance 2015). One brief site visit was also made on December 10, 2014. An opportunistic survey for gopher mounds in potential habitat areas, including mowed areas along roadways throughout the study area was conducted on June 4 and 5, 2015. The June reconnaissance survey was conducted both on foot and slowly by bicycle to view mowed road shoulders throughout the study area.

Habitat Mapping

Habitats were divided into three categories based on the results of the field reconnaissance and review of existing information:

- Category 1 areas are unlikely to provide habitat for gophers because they are developed; covered by forest or dense shrubs; or contain compacted soils as determined in the field and during soil testing.
- Category 2 habitat areas may provide potential habitat for gophers but no active gopher mounds have been recorded to date.
- Category 3 habitat areas are areas of potential habitat where active gopher mounds were identified during the field reconnaissance or during other recent studies mainly those referenced in WDFW database records.

Aerial imagery, WDFW database records, and data collected during the field reconnaissance were used to characterize and map habitat in the study area.

Results

Most of the study area, approximately 463 acres, was characterized as Category 1, unlikely to provide habitat for gophers (Figure 1). This included areas covered by buildings and parking lots, as well as areas with compacted soils or dense forest or shrub vegetation (Photo 1). Mazama pocket gophers forage on a variety of herbs and grasses. They are usually absent from forest and shrub-dominated areas (Stinson 2013 and USFWS 2014). The most current WDFW survey protocol for gopher mounds does not require that any survey be conducted in forest areas (WDFW 2012).

Compacted soils are likely to impede gopher burrowing. No active gopher mounds were observed in areas that had compacted soils in the study area. The soil testing work provided valuable information on soil condition and ground water levels. Though no areas of high seasonal ground water or wetlands that would limit gopher occupation were encountered, compacted soils were found on some parcels that have previously been or are currently being used for log storage or other purposes (SCJ Alliance 2015). Areas that were confirmed as having compacted soils, or appeared to have compacted soils were mapped as Category 1. Surface ponding in January was commonly observed in these areas (Photo 2).

Most the study area is mapped as having Nisqually loamy fine sand and Cagey loamy sand (NRCS 2013). These soil types were confirmed during soil testing (SCJ Alliance 2015) and are soils suitable for gopher burrowing activities (Stinson 2013 and USFWS 2014). Therefore, given the study area's close proximity to the main airport terminal grounds where a large population of gophers exists, any areas that are not developed, covered with dense forest or shrub vegetation, or have compacted soils from human activities, are likely to be potential habitat for gophers.

A much smaller area, approximately 24 acres, was identified as Category 2, potential habitat for gophers. This area included some grassy road shoulder areas near areas of known occupancy and a school ball field area that may provide habitat in periphery areas or other areas that are not too compacted by frequent foot and/or vehicle traffic.

Category 3 areas were expanded from previous WDFW database records to cover approximately 63 acres of the study area. Approximately half of this area, or 30 acres, encompassed the golf course where main use areas may not currently be suitable for gophers due to lack of adequate forage or compacted soil conditions. Active gopher mounds were observed on the golf course in less manicured and compacted areas (Photo 3). It is also likely that gophers occupy perimeter areas of the ball field north of the golf course. Gopher occupancy was confirmed in most areas previously identified by WDFW and in some additional areas dominated by grasses and weedy herbs in open fields (Photo 4) and along road shoulders (Photo 5). Dominant plants in areas where gopher mounds were observed included sweet vernal grass (*Anthoxanthum dilatatum*), bentgrass (*Agrostis sp*.), orchard grass (*Dactylis glomerata*), hairy cat's ear (*Hypochaeris radicata*), dandelion (*Taraxacum officinale*), English plantain (*Plantago lanceolata*), sheep sorrel (*Rumex acetosella*), and bracken fern (*Pteridium aquilinum*). Fields north of Tumwater Boulevard were mowed recently (Photo 6). The frequency of active mounds observed was greatest in habitat areas located closest to the airport terminal grounds.

Limitations

This reconnaissance level study was conducted at a broad scale and has likely missed small inclusions of habitat that have suitable soils and forage for gophers. For example, most forested areas that are considered to be Category 1 in the study area have soils suitable for gophers and may include small openings dominated by herbs and grasses that could potentially be occupied by gophers. Areas of compacted soil may not be uniformly compacted, and therefore may also include small inclusions of suitable soil and vegetation for gophers.

The habitat map presented in this report was prepared to support master planning efforts. More detailed surveys may be required for permit purposes in the future.

References

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Photos

Photo 1. Forest and shrub habitat between the Kimmie Road curve and Interstate 5, view east (January 16, 2015).

Photo 2. Compacted soils southeast of the Kimmie Road curve (January 16, 2015).

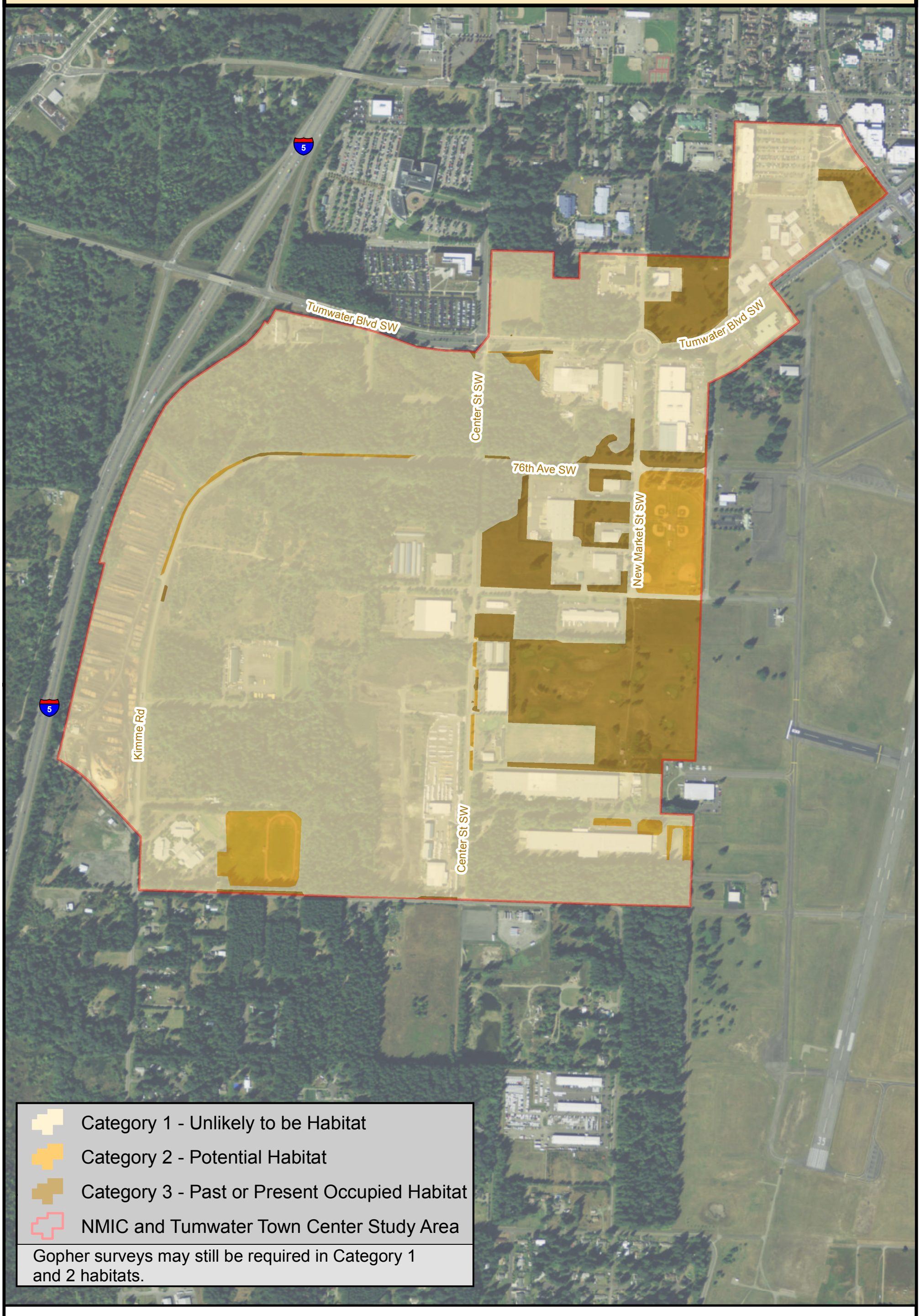
Photo 3. Golf course, view west (June 5, 2015).

Photo 4. Grassy field at the northeast corner of 78th Avenue SW and Center Street SW, view west (June 4, 2015).

Photo 5. Outside corner of Kimmie Road curve, view east (June 4, 2015).

Photo 6. Mowed field north of Tumwater Boulevard (June 4, 2015).

Figure 1. Habitat Overlay Map: Mazama Pocket Gopher



Sources: NMIC study area: SCJ Alliance, 2015
Habitat: Krippner Consulting, LLC, 2015
Imagery: ESRI, 2015

0 0.125 0.25 0.5 Miles

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Mapping by S. Krippner, Krippner Consulting, LLC
Map date: 6/30/2015

KRIPPNER Consulting, LLC