CHAPTER 2. NATURAL RESOURCES

The City of Tenino is situated in a valley nestled amongst the hills of South Thurston County. The floor of the valley, where the bulk of the community sits, is typified by flat land and highly porous prairie soils, while the slopes to the northern, southern, and western portions tend to have steeper grades typified by forests, wetlands and sandstone outcroppings. Wetlands and the majority of the priority habitat present in the community are located along Scatter Creek. Recent westward expansion of the community has included a swath of land that acts as critical habitat for the Taylor's checkerspot butterfly and the Mazama pocket gopher. This chapter presents these known environmentally sensitive areas in Tenino as well as a framework for the community to retain the character of the surrounding natural environs.

A. ENVIRONMENTALLY-SENSITIVE AREAS

Environmentally sensitive or critical areas are located throughout Tenino including along Scatter Creek, the surrounding hillsides, and in the prairies of West Tenino. Critical areas, as defined in state law, include wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife conservation areas. The Growth Management Act mandates local governments that plan under RCW 36.70A.060, like Tenino, identify and adopt development regulations that protect critical areas from incompatible uses and development. When possible impacts to critical areas may occur, avoiding those impacts should be the first course of action. If impacts are unavoidable, then minimizing those impacts and mitigating them is essential. This is known as mitigation sequencing and is a tool that can be used to protect critical areas from incompatible uses and development. Where avoiding and minimizing impacts is possible but are limited by zoning requirements (such as required front, side and rear yard setbacks), the City should encourage reasonable reductions in the zoning requirements to help preserve critical areas.

The five maps found at the end of this chapter and discussed throughout show many of the areas of Tenino identified as potential critical areas. These maps are for informational purposes only and are intended to alert the development community, appraisers, and current or prospective property owners about the possible presence of critical areas on a site. The presence of a critical area on these maps is sufficient foundation for the City to require an analysis of the area prior to the acceptance of a development application for review. Fish and wildlife conservation areas are presented with State Priority Habitat and Species data, as well as on federal Endangered Species listings. Due to the changing nature of these listings and habitat and species priorities, a map of known conservation areas is not included as part of this chapter.

B. GROUNDWATER AND CRITICAL AQUIFER RECHARGE AREAS

An extreme critical aquifer recharge area underlies the majority of the flat portion of the City of Tenino (see Map NR-1). Characteristics of this aquifer recharge area are:

- **Porous Soils with No Confining Layer.** Soils are exceptionally porous and pollutants can easily enter the underlying groundwater as a result. Because the City relies on groundwater from an

unconfined aquifer as its only source of potable water and the well depth is relatively shallow, protection of this aquifer from potential pollutants is particularly important.

- **Small Contributing Watershed Upstream of the Water Source.** Scatter Creek's watershed upstream from municipal wells is relatively small in area and offers a limited recharge capability for groundwater supplies. Capturing or slowing water upstream from the community's wells may be accomplished through wetland preservation and construction and will ensure that drinking water supplies are recharged. This is essential, especially during the dry summer months. Wetland preservation and creation will also contribute to in-stream flows in Scatter Creek, improving the quality of water and riparian habitat.

C. FREQUENTLY FLOODED AREAS

Frequently flooded areas, or areas that often experience surface or groundwater flooding, are primarily located near Scatter Creek and in Tenino City Park. Scatter Creek often experiences low flows in the summer months but floods in winter; surrounding land has been defined as a floodplain as a result (see Map NR-2). Areas of localized flooding and high groundwater hazards also occur as a result of winter storms. Key areas that expericence local flooding include the Tenino City Park and the Huston Street area and known high groundwater areas, as documented during the 1997 flood. These areas are also shown on Map NR-2.

D. WETLANDS

Wetlands in and around Tenino are located primarily along Scatter Creek, south of the Yelm-Tenino Trail in City Park, and on lands near the park (see Map NR-3). In their natural state, these wetlands perform a number of functions that are difficult, costly, and sometimes impossible to replace. Wetlands in Tenino:

- Provide erosion and sediment control.
- Stabilize streambanks, floodplains, and shorelines as a result of the extensive root systems of wetland vegetation.
- Improve water quality by decreasing the velocity of water flow as well as physically intercepting and filtering waterborne sediments, excess nutrients, heavy metals, and other pollutants.
- Provide food, shelter and essential breeding, spawning, nesting and wintering habitats for fish and wildlife, including migratory birds, anadromous fish, and other species.
- Store and slowly release stormwater.

E. FISH AND WILDLIFE CONSERVATION AREAS

Fish and wildlife conservation areas protected under the Growth Management Act are primarily located along Scatter Creek and in West Tenino. High quality habitat is also adjacent to Tenino City Park due to the nearby forest and Creekside Conservancy lands. Known fish and wildlife priority habitat and species areas are documented on the Washington Department of Fish and Widlife's website and in Washington State's Priority Habitat and Species data. Existing protected and priority species known to be present in Tenino include the Mazama pocket gopher (a species listed as threatened under the Endangered Species Act) in West Tenino and coho salmon and cutthroat trout in Scatter Creek.

Populations of the Taylor's checkerspot butterfly (a federal endangered species) and the mardon skipper butterfly (a state endangered species) also historically existed in the western portion of the community.

No populations of Taylor's checkerspot are currently known to exist in the area (though the land has been designated as critical habitat to recover the species), and the present status of the mardon skipper in Tenino is unknown. Protected and priority species are shown in Table 2.1.

Table 2.1: Existing Protected and Priority Species in Tenino

Species	Occurrence	Critical Habitat	Listing Status	
			Federal	State
Fish				
Coho Salmon	X		--	--
Cutthroat Trout	X		--	--
Insects				
Taylor's Checkerspot Butterfly	X (Historic)	X	Endangered	Endangered
Mardon Skipper Butterfly	X		Candidate Species	Endangered
Mammals				
Mazama Pocket Gopher	X	X	Threatened	Threatened

Key habitats in the community include prairie lands designated as critical habitat for the both the Mazama pocket gopher and Taylor's checkerspot butterfly, and state-designated Oregon White Oak priority habitat that primarily borders Scatter Creek. The functions and values of critical resources, including threatened and endangered species and habitats, can be protected through a variety of strategies, including educating the public about the value of the resource or species; supporting community, non-profit, and governmental efforts to conserve the species or habitat; having a proactive permit review process, and ongoing code enforcement efforts.

F. LANDSLIDE AND EROSION HAZARDS

Land with slopes of more than 40% are considered to have potential landslide or erosion hazards (see Map NR-4). Where these areas exist, potential hazards should be evaluated under the Tenino Critical Areas Ordinance to ensure development does not further contribute to a landslide or erosion hazard.

G. OPEN SPACE FRAMEWORK

While natural areas surround the City of Tenino, the primary open space and habitat areas present in the community are associated with Tenino City Park and the adjacent Creekside Conservancy properties, Scatter Creek and its surrounding riparian areas, and the prairie lands in West Tenino. Map NR-5 illustrates these open space and habitat areas as well as areas the Shoreline Master Program has jurisdiction over. Lands within 200 feet of the Ordinary High Water Mark or floodway of Scatter Creek, as well as any wetlands associated with the creek, are subject to the Tenino Shoreline Master Program. Shoreline areas contain key habitat for fish and the bulk of the community's wetlands.

H. GOALS, POLICIES, AND ACTIONS.

In reviewing each of the critical areas, Tenino has identified the following goals and policies to protect and maintain environmentally-sensitive areas; protect groundwater and critical aquifer recharge areas; help

defend the community from frequently flooded areas; preserve and protect wetland functions; conserve habitat for fish and wildlife; protect the public from landslide and erosion hazards; and maintain open space corridors. Additional goals and policies for development along Scatter Creek are presented in the Shoreline Master Program for Tenino (adopted herein by reference). Where the jurisdictions of unincorporated Thurston County and the City of Tenino intersect, the City encourages Thurston County to adopt those goals and policies denoted with an asterisk (*).

ENVIRONMENTALLY-SENSITIVE AREAS – GENERALLY

***Goal NR 1: Natural resources and the environment are conserved.**

****Policy NR 1.1:*** Seek to minimize impacts to critical areas. Unavoidable impacts should be mitigated.

****Policy NR 1.2:*** Ensure attributes, functions, and amenities of the natural environment are protected.

****Policy NR 1.3:*** Use Best Available Science in the creation of ordinances and other development regulations and in making land use decisions to protect the functions and values of critical areas.

****Policy NR 1.4:*** Where a development proposal is to be located within the boundary of one or more critical area, require site-specific analyses.

Policy NR 1.5: Ensure all development (including clearing and grading) that could potentially impact a critical area is reviewed under the Tenino Critical Areas Ordinance.

Policy NR 1.6: Require mitigation sequencing in the development of mitigation plans.

****Policy NR 1.7:*** Promote the clustering of homes away from critical areas when new developments are proposed.

Goal NR 2: Land uses are compatible with topography, geology, underlying soils, surface water, ground water, frequently flooded areas, wetlands, and other geological or biological factors.

Policy NR 2.1: Protect members of the public and community resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, volcanic eruptions, and flooding.

Policy NR 2.2: Encourage the use of native plantings to help prevent erosion and other environmental impacts during and after construction.

GROUNDWATER AND CRITICAL AQUIFER RECHARGE AREAS

Goal NR 3: Tenino maintains a high quality of drinking water with minimal contaminants and limited need to treat the water.

Policy NR 3.1: Continue to monitor the quality of the drinking water to understand if and when potential contamination occurs.

Policy NR 3.2: Clarify the extent of the wellhead protection area and continue to review projects in accordance with wellhead protection standards.

***Goal NR 4: Adequate water supplies are maintained within the aquifer.**

****Policy NR 4.1:*** Promote the preservation, restoration, and expansion of wetlands to aid in water filtration and recharge capabilities.

****Policy NR 4.2:*** Encourage the infiltration of water into the soil near where it falls to help replenish the aquifer.

****Policy NR 4.3:*** Continue to adopt and enforce standards and policies that limit unnecessary impervious surfaces, especially in critical aquifer recharge areas.

FREQUENTLY FLOODED AREAS

***Goal NR 5: Public property, private property, and natural resources are protected from losses associated with flooding.**

****Policy NR 5.1:*** Minimize development within the Tenino floodplain and known high groundwater hazard areas.

****Policy NR 5.2:*** Preserve the size and function of natural water storage areas, including wetlands, along Scatter Creek especially upstream from the City's wells.

Policy NR 5.3: Maintain flood standards, including building, mechanical and other codes, that are consistent with most recent FEMA standards and utilize best available science for floodplain construction practices.

Policy NR 5.4: Incorporate floodplain considerations and flood damage protection measures in the location, design, and construction of new development including public and infrastructure projects.

Policy NR 5.5: Develop a comprehensive stormwater management plan to better understand how stormwater flows through the community.

Policy NR 5.6: Consider adopting standards to assist in the review of stormwater treatment for construction projects.

WETLANDS

Goal NR 6: No net loss in the function and values of wetlands in Tenino occurs.

Policy NR 6.1: Make standards for wetland protection easy to understand and consistent with best available science.

Policy NR 6.2: Where a wetland may be impacted, require developers/property owners to perform a wetland delineation and to mitigate wetland impacts that will occur as a result of the development proposal.

Policy NR 6.3: Promote the clustering of homes away from wetlands.

FISH AND WILDLIFE CONSERVATION AREAS

***GOAL NR 7: Protect and enhance critical resources and habitats.**

****Policy NR 7.1:*** Use best available science in preserving and enhancing resources for anadromous fish and other local endangered, threatened or sensitive species.

Policy NR 7.2: Monitor state and federal discussions regarding endangered, threatened, and protected species and habitats.

Policy NR 7.3: Take proactive steps to protect species and prepare for limitations on development associated with their protection.

LANDSLIDE AND EROSION HAZARDS

GOAL NR 8: Development in geologically hazardous areas is consistent with maintaining public health and safety.

Policy NR 8.1: Require engineering and or geotechnical investigations and certifications be made prior to approval of development permits or authorizations to proceed.

Policy NR 8.2: Require development of housing, roads, and other facilities to locate away from steep slopes where possible and practical.

Policy NR 8.3: Consider a variety of factors including soil instability, slopes, shrink/swell potential and other limitations for building and road construction in the processing of development applications.

Policy NR 8.4: Require revegetation and restoration of hillsides disturbed during development activities, consistent with the best available science.

OPEN SPACES

Goal NR 9: Significant open space in Tenino is preserved and will always be part of the City.

Policy NR 9.1: Work with non-profits, governmental agencies and other interested parties to preserve natural lands within Tenino.

***Goal 10: Retain properties adjacent to Tenino City Park as natural lands, forestry and/or habitat.**

****Policy NR 10.1:*** Partner with adjacent land owners to best preserve natural lands around Tenino City Park.

Policy NR 10.2: Strive to appropriately manage habitat and the growth of any invasive species within the park, given limited available City maintenance budgets.

****Policy NR 10.3:*** Improve connections between Tenino City Park and adjacent properties through better signage and trails.

Goal NR 11: Scatter Creek is a natural corridor that balances the needs for open space, recreation opportunities, and wildlife habitat.

Policy NR 11.1: Improve and maintain the health of Scatter Creek. Consider using the Shoreline Master Program's restoration plan to identify potential habitat restoration projects.

Policy NR 11.2: Strive to create a trail adjacent to the creek or riparian areas near the creek. Require the construction of the trail as part of future developments to create an amenity for residents.

Goal NR 12: In West Tenino, preservation of prairie habitat is balanced with commercial and residential development.

Policy NR 12.1: Require a habitat assessment to evaluate potential impacts to endangered, threatened or priority species as a result of any future development in West Tenino.

Policy NR 12.2: Prohibit habitat fragmentation wherever possible and practical.

Policy NR 12.3: Encourage clustered development patterns.

Goal NR 13: Tenino's scenic hillsides are protected.

Policy NR 13.1: Encourage hillside developments to preserve trees.

Policy NR 13.2: Consider developing standards for preserving treed skylines on Tenino's hills.

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