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TO: Thurston County Planning Commission

FROM: Claire Swearingen, Associate Planner

DATE: August 19, 2025

SUBJECT: CAO Fish and Wildlife Habitat Conservation Areas Gap Analysis

BAS Overview

Introduction

Fish and Wildlife Habitat Conservation Ares (FWHCAs) are various parts of the environment that provide habitat for animals and plants, and for which protection is mandated by state laws addressing critical areas. WAC 365-190-030 defines FWHCAs as follows:

> *"'Fish and wildlife habitat conservation areas' are areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness. Counties and cities may also designate locally important habitats and species.*
>
> *'Habitats of local importance' designated as fish and wildlife habitat conservation areas include those areas found to be locally important by counties and cities.*
>
> *'Fish and wildlife habitat conservation areas' does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of, and are maintained by, a port district or an irrigation district or company."*

FWHCAs generally protect the habitats and species on the Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species List. This list, which includes federally listed species, contains habitats, fishes, mammals, birds, reptiles, amphibians, and invertebrates that need protection in Washington state. Thurston County is home to 97 of these priority habitats and species, though some of these inhabit Puget Sound, so the Critical Areas Ordinance is not as central to their protection. In addition, the four federally listed species that are covered by the Habitat Conservation Plan (HCP) (Mazama Pocket Gopher, Oregon Spotted Frog, Taylor's

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Checkerspot Butterfly and Vesper Sparrow) are managed solely by the HCP. The CAO defers to the HCP for these species, though prairie habitat that supports other State-listed species is still covered by the CAO.

A major component of protecting FWHCAs is protecting streams and the areas around them, called riparian areas. Thurston County is also home to many rare or threatened terrestrial species. Some of Thurston County's protected terrestrial habitats include aspen stands, herbaceous balds, old growth forest, Oregon White Oak woodlands, westside prairie, and talus biomes. Sometimes, individual features are listed as protected, and some of these include snags and logs, caves, and cliffs.

Functions and Values

Riparian Areas

Riparian areas are places where waterbodies, such as streams, lakes, and rivers, meet and interact with dry land. In these areas, the land and the water help each other function ecologically by exchanging nutrients, plant matter, shade and other functions. Protecting riparian areas helps protect habitat both on the land and in the water, and keeps streams and rivers cool and clean (Quinn et al., 2020). Protecting riparian areas is a key aspect of regulating FWHCAs. WDFW has published new science and recommendations for protecting riparian areas (Quinn et al., 2020, Rentz et al., 2020). According to this guidance, riparian areas include the channel migration zone (CMZ), and the nearby land that contributes ecological functions to the stream (i.e. shade for cooling, plants or soils that filter pollutants, or trees that drop branches into streams).

Riparian areas contribute to healthy stream morphology by providing necessary sediment through natural erosion processes, promoting bank stability via plant and tree roots, and contributing large woody debris (fallen trees or branches) into streams, which creates more varied morphology and supports fish habitat. Healthy riparian areas also help keep streams cool, especially by providing shade (Quinn et al., 2020). Salmonid species (which include various kinds of salmon and trout) need cold water in streams to survive (Quinn et al., 2020). Woody debris can also lower stream temperature by creating deep pools in the stream (Quinn et al., 2020, Poole & Berman, 2001). Natural nutrient exchange also happens in riparian areas. Salmon carcasses provide nutrients to the plants and animals that live near streams, and riparian forests drop organic material such as leaf litter into streams, providing an appropriate level of nutrients for stream environments. Too many nutrients in a stream can negatively impact stream health and the ability of fish to survive, and these excess nutrients often come from manmade fertilizers and wastewater systems (Quinn et al., 2020, Baker et al., 2006).

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Prairies, Savannahs, and Grasslands

Prairie, savannah, and grassland environments are unique in western Washington because they are dominated by grasses, flowers, and shrubs rather than trees or forested areas (Carver & Nolan, 2011). Some of these areas may be home to trees like the Oregon White Oak, which is a State-listed species (Nolan & Azerrad, 2024). Prairies used to be a more dominant feature of the landscape that is now Thurston County, and they were managed with fire from time immemorial as important food systems by local Indigenous peoples (Nolan & Azerrad, 2024, Long et al. 2021). Prairies support many species, including some federally threatened and endangered HCP species and State-listed PHS species, that cannot thrive in the Douglas Fir-dominated forests that have encroached upon prairies since the arrival of European settlers. Prairies have become seriously threatened in Thurston County due to the removal of Indigenous peoples and management practices and the introduction of development and land uses that have fragmented prairie systems, and prairie restoration is needed to support rare and declining plants, mammals, birds, and insects. Prairies are a key part of the historical and cultural identity of Thurston County. Prairies also act as effective, fire-resistant carbon sinks, storing carbon in root systems underground and reducing greenhouse gas effects (Tallgrass Ontario, 2020).

Oregon White Oaks

Oregon White Oak stands and woodlands support threatened mammals like the Western Gray Squirrel, provide important nesting habitat for many birds, food to a variety of species with their acorns, and shade and refuge to many threatened and endangered species. Oregon White Oaks can live as single trees in a prairie environment, or in stands, woodlands, and forests. Oregon White Oaks are particularly important in savannah areas where they may be some of the only large trees available (Nolan & Azerrad, 2024).

Stands and Forests

Forested areas provide many habitat functions to many local species, including shade, shelter, and food. Forests also interact with other kinds of habitat, such as riparian and aquatic habitats, as was discussed in the previous Planning Commission session. Forests help reduce and mitigate the effects of climate change by providing shade, reducing air and water temperatures, and sequestering carbon. Stands of trees like Oregon White Oaks can act as transition areas between prairies and forests, and stands of trees in general can act as more functionally dense areas of habitat for tree reliant species (Wiles et al., 2023).

Climate Change

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Streams and riparian areas are sensitive to the effects of climate change. Hotter, drier summers can lead to warmer stream temperatures which threaten salmonids and other species that rely on cool water)Quinn et al., 2020). Loss of riparian vegetation compounds this issue, since vegetation provides necessary shade for cooling. Vegetation loss also decreases other ecological functions like pollution removal and woody debris recruitment (Quinn et al., 2020). More extreme rainfall events and overall hydrologic and weather changes can increase fast-flowing and intense flood events, which can disrupt habitat and stream morphology, and cause excess erosion (Quinn et al., 2020).

As discussed above, prairie and savannah habitats have become threatened as a result of European colonization in the region, and the loss and destruction of indigenous land management practices, which include controlled burning (Nolan & Azerrad, 2024, Long et al. 2021). Human development and harmful activity (i.e. unpermitted disruption of critical areas) in habitats has contributed to major habitat loss in the region, and this has resulted in the decline of state and federally listed species. Non-native plant species, such as Scot's broom, introduced by humans can also threaten native prairie plants. Maintaining healthy forests and prairies can help to combat the impacts of climate change through carbon sequestration, and can support the health of native species. Maintaining prairie habitats can also provide breaks in the landscape which can prevent wildfires from spreading.

Protection Strategies

Riparian buffers help ensure that riparian areas can reduce the amount of pollution that enters streams. Buffer width is the most important factor for pollution removal, followed by vegetation composition. The distances required to achieve pollution removal depend on site details and on the specific chemical or pollutant being measured, but about 95% of pollutants are removed by buffers ranging from 56 to 251 feet in width. Many other functions such as leaf litter input, shade, and woody debris contribution are functions of the height of trees in riparian areas (Quinn et al., 2020). Because many important functions are related to tree height, WDFW has recommended a new framework for understanding the optimal width of functional riparian areas: site potential tree height (SPTH). SPTH takes into consideration the average height that the dominant tree species in a given area would reach after 200 years. According to WDFW guidance, the riparian buffer established by SPTH should be measured from the edge of the channel migration zone, not the edge of the stream (ordinary high water mark). This combination of a riparian buffer and channel migration zone form a riparian management zone (RMZ). RMZs should also contain any delineated wetlands associated with the water body (Rentz et al., 2020).

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County staff have received a grant to research the impacts of and build resources for the use of SPTH. This work won't be complete until 2027, and may produce recommended changes to the code.

WDFW recommends that the same protection frameworks apply to all streams, regardless of whether they are fish-bearing. According to WDFW, non-fish-bearing streams:

- *"Support a unique community of aquatic and riparian-obligate wildlife;*
- *Provide movement corridors for wildlife, particularly in the face of changing climate conditions;*
- *Provision fish-bearing streams with matter and energy; and*
- *Provide cool water to downstream reaches. Washington State has already experienced increased stream temperatures due to climate change and expect further increases, which have direct implications for the persistence of fish."*

Terrestrial Habitats

Because terrestrial FWHCAs are so diverse, the strategies used to protect and enhance them are also varied. In developing code, it is necessary to identify what features and data sets can indicate the potential presence of areas requiring protection. Like with other chapters, this data should be clear and easy for the public to access, and clearly identified in code. Once critical areas are designated, development in these areas should follow the standard mitigation sequence of avoidance, minimization, then mitigation. After avoidance and minimization are established, mitigation could include best management practices, restoration, or mitigation banking with impact fees. A mitigation banking program could utilize land that has already been acquired to protect HCP species.

Gap Analysis

The following gap analysis highlights potential changes to the existing CAO that came from initial Planning Commission feedback, public comment to date, recommendations from County staff who implement the existing CAO, and County, state or federal agency staff with relevant subject matter expertise. This table and the descriptions that follow provide rationale for the proposed changes, and are intended to serve as a reference.

Code Section	Title	Recommendations	Reason
24.25.013 (New)	Fish and wildlife habitat conservation areas designated	Provide clear designation criteria	Clarity and accessibility

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		for all regulated FWHCAs	
24.25.020	Standard freshwater riparian habitat width	Use WDFW riparian management zone delineation and management recommendations	BAS, State agency guidance
24.25.025	Reduced riparian habitat width	Use WDFW riparian management zone delineation and management recommendations	BAS, State agency guidance
24.25.040	Riparian management zones	Incorporate into implementation of WDFW riparian management zone guidance	BAS, State agency guidance
24.25.070	Tree protection	Include provisions for restoration, particularly in prairies	Feedback from conservation groups, BAS
24.25.075	Important habitats and species – Identification and buffers	Include prescriptive provisions for development in prairie areas	BAS, process improvements, clarity
Table 24.25-3	Approvable uses and restrictions within fish and wildlife habitat conservation areas	Use designations that reflect the riparian management zone framework, and include more specificity for other habitats, like prairies	Clarity, BAS
Table 24.25-3	Approvable uses and restrictions within fish and wildlife habitat conservation areas	Reflect common use recommendations from WDFW	BAS, State agency guidance

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24.25.013 (New) Fish and wildlife habitat conservation areas designated

As with other chapters, specific designation criteria which reflect publicly available mapping tools should be included.

24.25.020 Standard freshwater riparian habitat width

The standards for riparian areas delineation should align with the recommendations in WDFW's 2020 *Riparian Ecosystems, Volumes 1 and 2*. Key points from this guidance are discussed above, and involve the use of channel migration zones and site potential tree height to determine the protected riparian area. WDFW also does not recommend regulating fish-bearing and non-fish-bearing streams differently.

24.25.025 Reduced riparian habitat width

This section relies on stream typing which is not supported by WDFW. Any standards for reduced buffer width should reflect current science and agency guidance.

24.25.040 Riparian management zones

This section should be incorporated into the implementation of the riparian management zone framework as it will be established in 24.25.020.

24.25.070 Tree protection

Feedback from regional conservation organizations has highlighted barriers to prairie restoration work. This section should be updated to include provisions that support the restoration of prairie areas, Oregon White Oak habitats, and other restoration contexts, which can include appropriate, science-supported removal of certain tree species, pared with mitigation and restoration efforts.

24.25.075 Important habitats and species – Identification and buffers

Several important habitat areas currently rely on a site-by-site, discretionary review by staff, without clear prescriptive performance and development standards. While this can be a necessary approach for some habitats that are very spatially limited, for more widespread areas, particularly prairies and Oregon White Oak habitats, more prescriptive standards should be developed.

Table 24.25-3 Approvable uses and restrictions within fish and wildlife habitat conservation areas

Designations used in the table should align with the designation criteria established in 24.25.013 and the riparian management zone framework. The use table should also reflect the guidance

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for common activities provided in WDFW's 2020 *Riparian Ecosystems, Volume 2*. These uses include on-site sewage systems, clearing and grading, hazard tree removal, and more.

Best Available Science Resources

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