

State Technical Advisory Committee Meeting-July 2018

EXECUTIVE SUMMARY

**Issue: Oregon Spotted Frog Habitat Improvement on Working Lands**

**Request: STC support and recommendation to the State Conservationist of adding new Washington geography to the ACEP WRE Reserved Grazing Rights eligibility areas.**

**Recommendation** is to add eligible grazing and grasslands in Whatcom, Skagit, Pierce, and Thurston Counties to ACEP WRE Reserved Grazing Rights eligibility area. All other landowner, land, and program eligibility requirements will remain in effect.

**Rational:** Oregon Spotted Frog is listed as a Threatened species under the Endangered Species Program. The frog requires short stature wetland vegetation for successful breeding. Properly designed prescribed grazing plans can maintain the desired plant community structure for the frog, and allow for continued economic productivity of working lands.

**Wetland Reserve Program Reserved Rights:  
Grazing and Oregon Spotted Frog Habitat**

Mechanism for the reserved grazing rights is described in this Exhibit of the warranty easement deed, which authorizes the Landowner to reserve grazing rights “provided the Natural Resources Conservation Service (NRCS) determines that the reservation of the grazing right is:

- Compatible with the land subject to the WRP easement; and
- Consistent with the long-term wetland protection and enhancement goals for which the easement is being established.”

Special consideration shall be given when this grazing right is to be used as a tool with or in conjunction to haying and/or mowing with the intent of protecting or enhancing habitat for the federally listed Oregon Spotted Frog.

## WESTERN WASHINGTON WETLAND HABITAT SUPPORTING STATE ENDANGERED AND FEDERALLY THREATENED OREGON SPOTTED FROGS

In recent history, the Puget Sound Lowland Ecoregion of Washington State contained large expanses of low-lying wetlands, oxbows, marshes, and wet-meadows, connected by riverine flood plains, slow low gradient streams, and large beaver pond complexes. These large aquatic habitats were maintained by flooding, fire, and/or beaver activity (Watson et al. 2003, Shovlain 2005). Many species used these habitats, such as juvenile salmon, water fowl, and amphibians. In Washington State and across the Nation, we have drained, diked, ditched, and developed much of our wetland habitat. Based on a 1988 estimate by the FWS, about 20 to 39 percent of Washington's wetlands have been lost during the past two centuries. Other estimates place the total loss as great as 50 percent, and some urbanized areas of the Puget Sound area have experienced losses of from 70 to 100 percent. Estimates of continuing wetland loss range from 700 to 2,000 acres per year. In addition, most of the State's remaining wetlands have been significantly degraded (Lane et al 1997). This large loss of habitat has had significant impacts on many aquatic organisms, and continued unchecked destruction of wetlands will certainly lead to extinction of sensitive species.

This document focuses on the Oregon spotted frog (*Rana pretiosa*), which spends most of its lifecycle in freshwater and is almost entirely dependent on this habitat type. Oregon spotted frog (abbreviated "OSF") are generally associated with wetland complexes greater than 4 ha (10 acres) in size with extensive emergent marsh coverage (Pearl and Hayes 2004). Across its range, this species is thought to have lost up to 76 – 90 percent of wetland habitat that once supported them (Hayes 1997, p.1). Washington State in particular has a history of large open wetland loss; this is especially true along the Eastern Puget Sound where the State's population and expansion is greatest. At one point in the not too distant past, Seattle's freshwaters were home to the OSF; however, now it only occurs at the extreme northern and southern extents of the Puget Lowlands, and two large wetlands in the shadow of Mount Adams (Dickerson 1969, p.221, 222, Hallock 2013, p. 8, USFWS 2104 p. 51662 – 51665). With the expansion of urban and rural development and alterations to historic wetlands for agriculture, the native range of the Oregon spotted frog has declined sharply over the years, leading to its addition to the Washington State

Endangered Species list in the 1997 and listing as a threatened species under the Federal Endangered Species Act in 2014. Two years later, Critical Habitat for the species was designated across the species' remaining range.

Currently, OSF persist in habitat distributed across only 7 of 16 historically-occupied watersheds, spanning the six following counties: Whatcom, Skagit, Pierce, Thurston, Skamania, and Klickitat (USFWS 2014, p. 51663). All the remaining Oregon spotted frog sites have moderate to severe habitat alteration, including a history of cattle grazing and/or hay production, as well as encroaching or established rural residential development. Hydrology has been altered to some extent at all sites with the most extensive changes at Conboy Lake National Wildlife Refuge and surrounding area.

### **SUITABLE HABITAT PHYSICAL CHARACTERISTICS**

Watson et al. succinctly summarized the necessary features a site must contain to be considered viable for OSF in *Ecology of a Remnant Population of Oregon spotted frogs in Thurston County, Washington*:

“...a large expanse of meadow/wetland with a continuum of vegetation densities along edges and in pools; gradual topographic relief that results in a shallow, slow-moving stream that branches and provides shallow side-pools for oviposition; channels that allow aquatic travel corridors to deeper pools that provide refugia during the dry season, and to shallow water habitats that don't freeze in the winter” (p. 67).

Keeping this larger description in mind, it is helpful to then divide the habitat requirements temporally: specifically, OSF have different requirements during the breeding season than during the rest of their life-cycle.

Suitable OSF breeding habitat is typically comprised of thin stands of sparse, low emergent wetland vegetation (e.g. sedges, rushes, pondweeds, native grasses). Canopy closure must be less than 50% in order to allow adequate insolation to warm the shallow pools and egg masses (Figure 2). These conditions are synonymous with early-successional habitat, which relies on frequent disturbance to prevent encroachment of late-successional vegetation such as shrubs and trees. However, it is worth noting that *species composition* is not as critical as

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*vegetative structure*; in fact, Oregon spotted frog are frequently found occupying sites dominated by reed canary-grass. In these instances, early-successional conditions were maintained through grazing, haying, and/or mowing, which kept the vegetation low and mimicked the favorable settings mentioned above. Essentially, the warm, slow flow conditions created in inundated, relatively open, grassy wetlands are ideal for the growth and security of Oregon spotted frog egg masses (Kapust et al., 2012).



Fig. #1: A sampling of the diversity of Oregon spotted frog wetland habitat in Washington State. Note the relative lack of shading vegetation, shallow edge habitat, and overall short vegetative structure. Upper and lower left – Nisqually NWR - Black River Unit and adjacent agricultural lands (*USFWS*), Center- Trout Lake NAP (*Washington State Natural Heritage Program*), right - Hopkins Ditch, WA (*USFWS*).

Connectivity between breeding sites and deeper, perennial waters is another critical factor for both the adult and juvenile OSF. These permanent water bodies can take many forms, including springs, ponds, slow-moving streams/rivers, irrigation canals, and even roadside ditches (Watson et al., 2000). Regardless of the specific location, the site must have persistent freshwater connected breeding and tadpole rearing habitat.

## DESCRIPTION OF COMPATIBLE EFFECTS OF GRAZING



Fig 2: Oregon spotted frog oviposition site.  
Jennifer Bohannon, Whatcom County, WA 2012.

Considering that the majority of the Oregon spotted frog life cycle takes place in perennial waters, it follows that the main area of focus for this grazing right would be on maintaining desirable breeding habitat, which occurs in the ephemeral (temporary) wetland margins of perennial water bodies and is readily manageable by landowners. **Simply stated, rotational grazing (or mowing/haying) can be used to maintain the vegetative conditions critical to the survival of Oregon spotted frog egg masses.** Whether through mechanical (mowing) or biological (grazing) means, the height of vegetation in these areas can be managed throughout the dry months in order to promote open, shallow wetlands during the breeding season.

Existing studies have shown that properly managed grazing is a promising tool to restore, create, and maintain OSF habitat. Bohannon et al. noted in their 2016 publication *Discovery of the OSF in the Northern Puget Sound Basin* that **“the majority of [OSF] breeding sites discovered were located on private land that had recently been mowed or grazed,”** and **“the two sites where we observed the highest number of egg masses were grazed just prior to or during our surveys”** (p. 90). In fact, this same study goes on to suggest that the *removal* of cattle grazing has a negative effect on suitable OSF habitat: in these instances, the vegetation that was no longer maintained by cattle became tall and dense, riparian shrubs and trees encroached, and numbers of egg masses decreased (p. 82, 90, 91). This observation is further supported in the Watson et al. publication *Ecology of a Remnant Population of Oregon Spotted Frogs in Thurston County, Washington*, where “evidence suggested that moderate levels of grazing created useable

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habitat in reed canary-grass communities that would otherwise have been a heavy thatch over shallow water or muck” (p. 69).

Considering that OSF tend to breed in the same areas year after year, it is entirely possible to maintain the optimal vegetative conditions in these sites using carefully-planned, rotational grazing, therefore promoting the long-term survival of this species (Kapust et al. 2012).

The specific prescription listing dates and durations of targeted grazing events will differ from site to site; however, the general prescription will be as follows:

1. The portion of the field suspected to be suitable Oregon spotted frog habitat will be evaluated using screening tools and professional judgement on behalf of NRCS, USFWS, and other appropriate ecological professionals.
2. If determined favorable (or potentially favorable) breeding habitat, a grazing plan will be created by NRCS that determines the timing, duration, frequency and intensity of grazing events. Specific locations will be noted on maps, and fencing, livestock watering facilities, and other necessary infrastructure requirements will be addressed. Goals will be centered around maintaining optimal stubble heights in suspected/known OSF oviposition sites.
3. Feedback between the landowner and NRCS will guide any adjustments to the grazing plan over time.
4. Monitoring will be conducted in part by the landowner and by NRCS (or other appropriate agency/organization at NRCS discretion)—specifically, at least one survey for egg masses shall be conducted each breeding season to determine efficacy of the reserved grazing right.
5. Success will be measured by positive trends in OSF egg-masses and land-owner satisfaction with the grazing plan.

This process hinges on good communication between the landowner and NRCS staff. The landowner should be trained to identify the Oregon spotted frog from other amphibians, and efforts should be made to include them on egg surveys.

**CONSIDERATIONS**

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As with any tool, the misuse of grazing can have detrimental effects on Oregon Spotted Frog habitat if not used appropriately. Fencing may be needed to exclude cattle from frog-bearing streams and prevent excessive bank erosion. The duration and timing of grazing events should be planned so as to avoid compaction and “humming” of riparian soils, which can have a negative impact on native wetland species. Over-grazing has been shown to have a negative effect on OSF utilization, and should obviously be avoided. Grazing will take place outside of the breeding window, in order to protect egg masses from trampling. Stocking rates and time-in-paddock will be limited in order to minimize the risk of nutrient loading or water quality degradation from excessive livestock waste.

It is also worth noting that, while grazing can be a promising tool for benefitting OSF habitat, the effects on other wetland-dependent species may be detrimental. It is imperative that NRCS (or other appropriate environmental professionals) be involved with the planning phases of the grazing management plan to ensure all potential risks are addressed.

**SUMMARY AND REQUEST**

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**REFERENCES**

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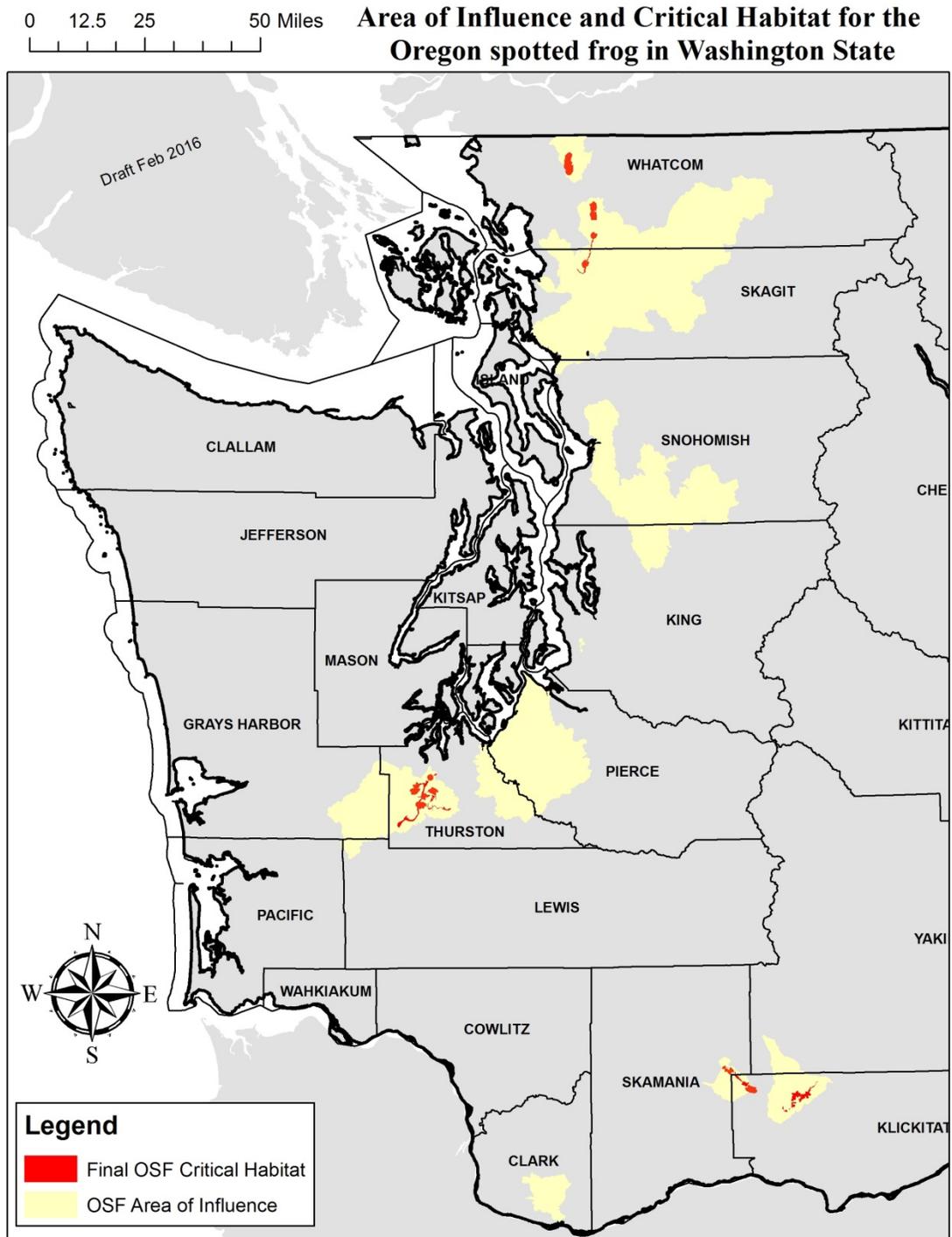


Fig. 3: WDFW designated areas of interest and Critical Habitat for Oregon Spotted Frog.