Introduction

Section 1

1-1 Purpose

The purpose of this report is to outline a 5-year anadromous fish habitat enhancement plan for a four mile reach of lower Gales Creek, a tributary of the Tualatin River (see Figure 1-1). The Lower Gales Creek Habitat Enhancement Plan (Lower Gales Plan) builds upon a base of work conducted through a watershed assessment process, habitat studies, and work performed by the Tualatin River Watershed Council (Council) stream and riparian restoration committee. The Lower Gales Plan was developed in response to a U.S. Bureau of Reclamation (BOR) request for proposal to evaluate and prioritize factors limiting salmonid production, particularly winter steelhead trout (*Oncorhynchus mykiss*), and develop a 5-year habitat restoration plan for one priority area within the Tualatin River Watershed. The BOR is providing funds to mitigate for loss of salmonid habitat caused by the construction of Scoggins Dam and the creation of Henry Hagg Lake.

The Lower Gales Plan describes the process used to identify the priority area. After the reach was identified, a functional assessment and limiting factors analysis was completed. This led to the division of the priority area into 13 functional sub-reaches (project reaches). The current condition of the stream and riparian corridor, opportunities for enhancement projects, and recommendations for action for each of these 13 project reaches is described in the Lower Gales Plan. Enhancement projects for each of the project reaches were evaluated based on biological significance, accessibility, and willingness of landowners to participate. The recommendations provide a guideline for future enhancement efforts. The recommendations in the Lower Gales Plan provide conceptual level design information. Additional design work will be required to implement projects.

The analyses conducted for this plan consider all life history stages of winter steelhead trout. However, it should be recognized that there are other important species in Gales Creek. Although aspects of this plan have been written specifically with winter steelhead trout in mind, it is the hope of the Council and partners that the projects developed from this plan will benefit multiple species.

The Council is committed to supporting the recommendations in the Lower Gales Plan. One of the main goals of the Council, identified in the Tualatin River Watershed Action Plan (Action Item 2), is to conserve and improve fish and wildlife habitat (focusing on anadromous fish). The main elements of this Action Item are:

- Promote and implement streambank and riparian restoration;
- Improve fish passage at identified priority artificial obstructions;
- Promote development of management plans for non-indigenous terrestrial and animal species; and
- Identify priority habitat areas and suggest strategies for protection and management of wildlife purposes.

In addition, there are a number of partners in the watershed that share the common goal of protecting and enhancing anadromous fish habitat, and will assist with the implementation of this plan. This plan has been

developed in partnership with the Tualatin Soil & Water Conservation District (SWCD). Guidance for the plan was provided by the Tualatin Habitat Restoration Oversight Committee (HROC). HROC members include: U.S. Bureau of Reclamation (BOR), Clean Water Services (CWS), Oregon Department of Fish and Wildlife (ODFW), NOAA Fisheries (formerly known as National Marine Fisheries Service –NMFS), Tualatin Riverkeepers (TRK), Trout Unlimited (TU), and the U.S. Fish and Wildlife Service (USFWS).

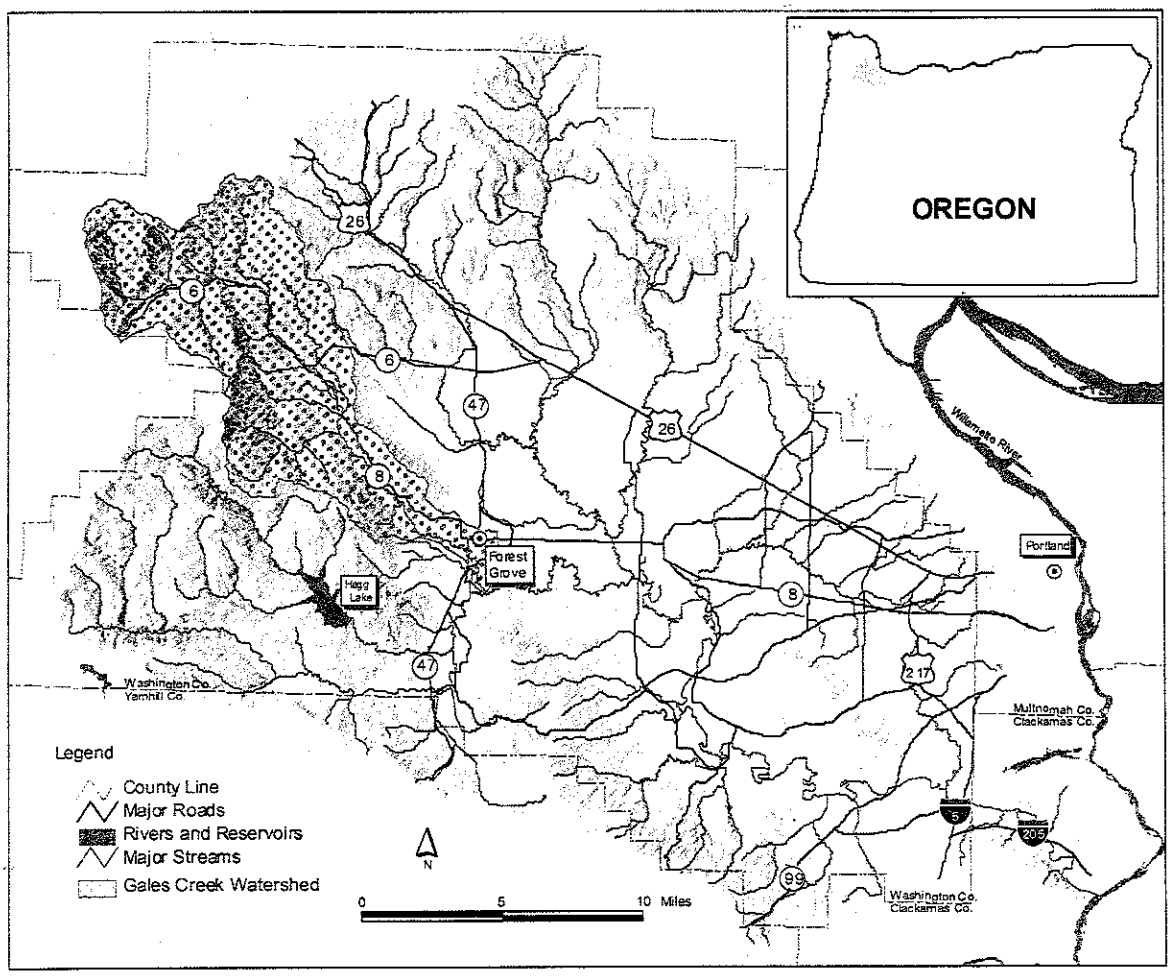

Fig. 1-1: Location of Gales Creek Watershed Within the Tualatin River Basin

1-2 History of Fish Mitigation in the Tualatin Basin

The construction of the BOR's Tualatin Project, consisting of Scoggins Dam/ Henry Hagg Lake and related elements, eliminated 15 miles of anadromous fish spawning habitat upstream of Hagg Lake (see Figure 1-1). BOR has an ongoing Federal requirement to mitigate for impacts on anadromous fish populations in the Tualatin River basin due to construction of the Scoggins Dam (Tualatin Project); established by a 1972 Final Environmental Impact Statement[1] and 1973 supplement.

To meet the mitigation requirement, historically BOR provided funding on an annual basis to ODFW to trap, hold, rear, and stock hatchery anadromous fish in the Tualatin River basin. In 1998, ODFW reached an agreement with NOAA Fisheries to stop releasing hatchery-reared anadromous fish into the Tualatin River basin. The change in policy is an effort to comply with ODFW's Wild Fish Gene Resource Conservation Policy, specifically relating to potential genetic risks associated with interactions between wild and hatchery steelhead trout stocks. To respond, BOR determined that using the annual mitigation funds for its original purpose of stocking hatchery fish is no longer reasonable and appropriate.

In order to determine the appropriate use of the annual mitigation funds, BOR conducted a National Environmental Policy Act (NEPA) review and subsequently completed an Environmental Assessment (EA) and Findings of No Significant Impact (FONSI) in May 2001. BOR's preferred alternative and final NEPA decision determined that the annual funding would continue to meet BOR's required fish mitigation obligations by funding habitat enhancement and restoration projects instead of supporting hatcheries. In future years, BOR's mitigation funds may be used to help implement on-the-ground habitat restoration projects based upon the 5-year enhancement plan for Lower Gales Creek. (BOR, 2001)

1-3 Gales Creek: An Overview

Physical Characteristics

The Gales Creek watershed is one of the many large rural sub-basins of the Tualatin River watershed. The 49,481-acre (77.9 sq. mi.) sub-basin is situated on the eastern side of the Coast Range Mountains and is primarily contained within the northwestern edge of Washington County, except for two small portions extending into Tillamook County (see Figure 1-2). The mainstem of Gales Creek is 23.5 miles long and flows in a southeasterly direction, entering the Tualatin River about 1.5 miles south of the City of Forest Grove.

Elevations in the Gales Creek Watershed range from a minimum of 159 ft., at the confluence with the Tualatin River, to a maximum of 3,154 ft. The mainstem of Gales Creek has a low gradient and is slow moving for about 10 miles upstream from the confluence. Above the community of Gales Creek, the gradient increases and the slope rises steeply (in the middle reach). In the upper reaches of the watershed the slope becomes much steeper, with gradients over 15%. Table 1-1 provides a list of the tributary streams, the location of their confluence with Gales Creek and their contributing drainage area.

[1] Required by Section 102(2) (c) of the National Environmental Policy Act (NEPA)

Table 1-1: Main Tributaries of Gales Creek[2]

Stream Name	Gales Creek river mile (RM) at confluence with tributary	Drainage Area (Acres)
Prickett Creek	6.53	841
Roderick Creek	7.70	664
Godfrey Creek	8.94	343
Clear Creek	10.68	6109
Iller Creek	11.44	3089
Fir Creek	11.47	932
Little Beaver Creek	12.40	4393
White Creek	14.44	566
Bateman Creek	16.26	892
Beaver Creek	18.00	6560
Coffee Creek	19.88	1238
Finger Creek	20.07	588
South Fork Gales Creek	20.70	2631
North Fork Gales Creek	21.60	8969
Low Divide Creek	22.76	*Included in North Fork

Vegetation

The Gales Creek watershed contains a mosaic of native and introduced plant species. The original forest uplands, most of which were logged 40 to 80 years ago or burned in two stand-replacing fires (1933 and 1945) have been replaced with Douglas fir forests that are intensely managed. Douglas-fir, western red cedar, red alder, big leaf maple, vine maple, and elderberry are the dominant plant species in the riparian zone of the upper reaches of Gales Creek. The lower elevation foothills were originally Oregon white oak and Douglas fir but are now dominated by woodland, pastureland, vineyards, Christmas tree farms, and orchards. The flat, flood plain lands of the watershed are almost exclusively used for agricultural crops, including container nurseries and small livestock operations. Riparian vegetation in the lower reaches includes a mix of native and introduced species: Douglas-fir, western red cedar, willows, red alder, big leaf maple, Oregon ash and black cottonwood. Typical, native understory species are red-osier dogwood, snowberry, hawthorn, ninebark, oceanspray, cascara and sedges. Invasive plant species such as Himalayan blackberry, reed canarygrass, English ivy, Japanese knotweed, and Scot's broom are found in patches in the lower reaches of the watershed.

Land Use

Almost two/thirds of the watershed is privately owned, either as industrial forestland (26%) or private agriculture and rural residential lands (38%). The Oregon Department of Forestry (ODF) owns and manages 28% of the watershed as part of the Tillamook State Forest. The City of Forest Grove owns another 8%. There are no federal lands in the watershed.

[2] Excerpted from the Gales Creek Watershed Assessment Project

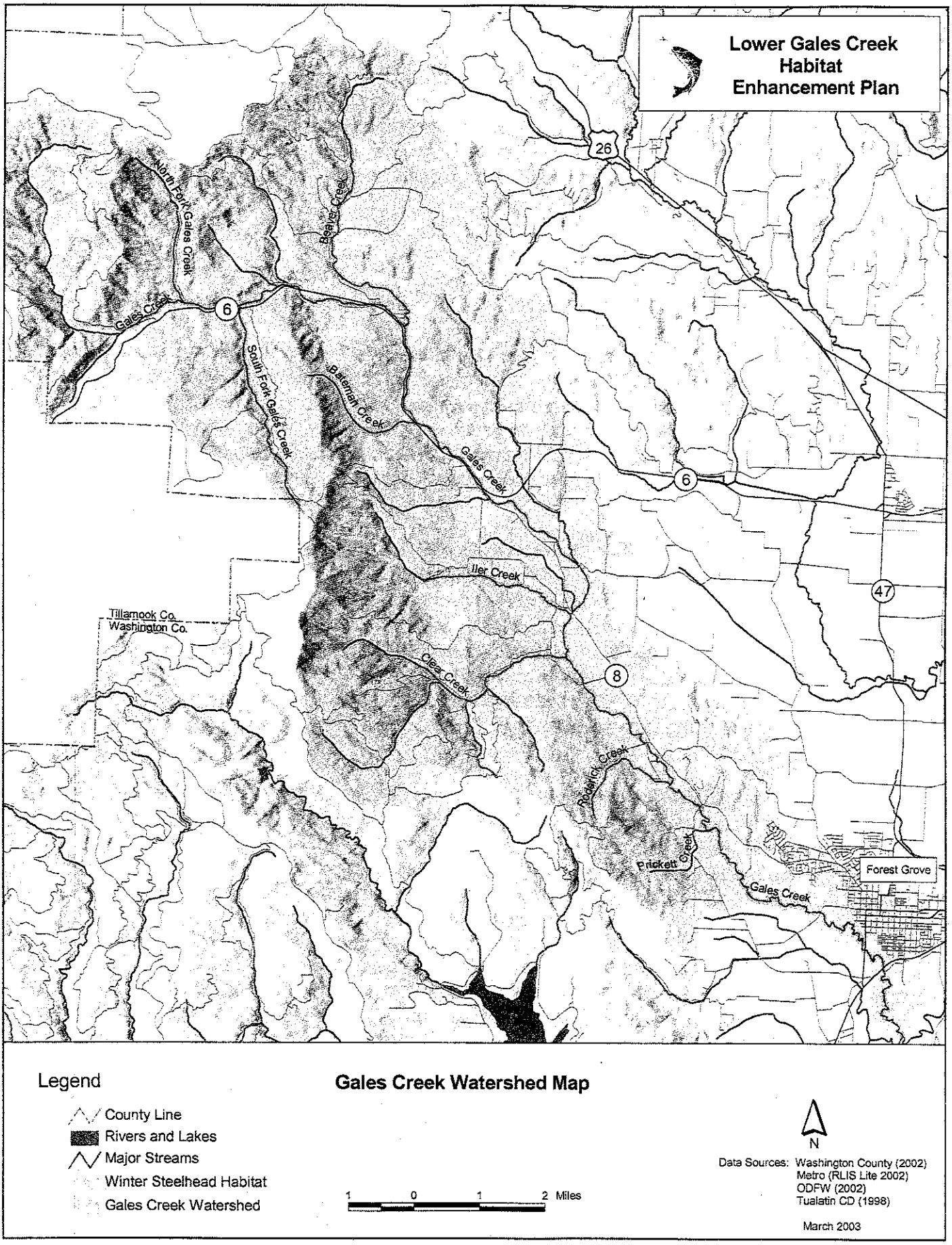
Lower Gales Creek
Habitat
Enhancement Plan
North Fork Gales Creek
Beaver Creek
Gales Creek
South Fork Gale's Creek
Bateman Creek
Gales Creek
Iler Creek
Tillamook Co.
Washington Co.
Clear Creek
Rocklick Creek
Prickett Creek
Gales Creek
Forest Grove
26
6
6
47
8
Legend
County Line
Rivers and Lakes
Major Streams
Winter Steelhead Habitat
Gales Creek Watershed
Gales Creek Watershed Map
1 0 1 2 Miles
N
Data Sources: Washington County (2002)
Metro (RLIS Lite 2002)
ODFW (2002)
Tualatin CD (1998)
March 2003

Figure 1-2

A small part of Forest Grove, the only incorporated city within the watershed, is located at the southeastern edge of the Gales Creek basin. Small rural communities include Gales Creek, Balm Grove, and Glenwood. Rural residences are scattered throughout the watershed, with most homes located near the banks of the mainstem of Gales Creek. Because the majority of the watershed is outside of the urban growth boundary, and the dominant land uses are forestry and farming, population growth in the watershed is limited. (Breuner, 1998)

1-4 Salmonid Distribution

According to the Gales Creek Watershed Assessment Project: cutthroat trout, steelhead trout, and coho salmon are important fish species found in the Gales Creek watershed. They depend on clear, cool water, vegetated riparian zones, and unobstructed passageways to rearing, spawning, and overwintering habitat. The tributaries and mainstem of Gales Creek provide the only non-fragmented natural connection between the upland forests of the Coast Range and the wetlands and floodplain of the Tualatin River. Anadromous fish migrate to and from the watershed via the Tualatin, Willamette, and the Columbia rivers on their way to and from the Pacific Ocean. (TRWC, 1998)

Evidence suggests that winter steelhead trout (*Oncorhynchus mykiss*), an anadromous species listed as threatened under the Federal Endangered Species Act (ESA) in 1999, has historically used Gales Creek for spawning and rearing and are considered indigenous to the watershed (NOAA, 1999). Cutthroat trout *(O. clarki)* are also considered indigenous to the Tualatin basin. Populations of cutthroat are found in most of the larger tributaries and headwater areas of Gales Creek where cool water temperatures and good water quality persists. Cutthroat trout in the Gales Creek system are either resident or seasonally migratory (potamodromous). Migratory cutthroat trout inhabit the mainstem of the Tualatin and Willamette rivers from May to October/November and, in late fall/ early winter, migrate into the smaller streams in the upper watersheds to spawn (BOR, 2001).

Coho salmon (*O. kisutch)* are not native to the Tualatin basin and did not utilize the watershed until construction of a fish ladder at Willamette Falls in the late 1800's[3]. Coho fingerlings were stocked in Gales Creek from 1936 until 1987 (TRWC, 1998). With improved fish passage at Willamette Falls, strays from other basins, and the introduction of hatchery stock, some natural production of coho salmon is now occurring in the Tualatin basin. Juvenile coho salmon have been observed in the upper Tualatin River, Gales Creek, and lower Roaring Creek, a tributary to the Tualatin River (Leader, 2001).

Salmonid populations statewide are decreasing. Appropriate enhancement or restoration activity in watersheds like Gales Creek will help to strengthen native fish populations by providing viable spawning and rearing habitats. Indigenous to the watershed and listed as a threatened species under the ESA, winter steelhead trout are the focus species for the habitat enhancement efforts identified in the Lower Gales Plan.

[3] Given adequate conditions, winter steelhead trout were able to migrate past the falls before the fish ladder was constructed.