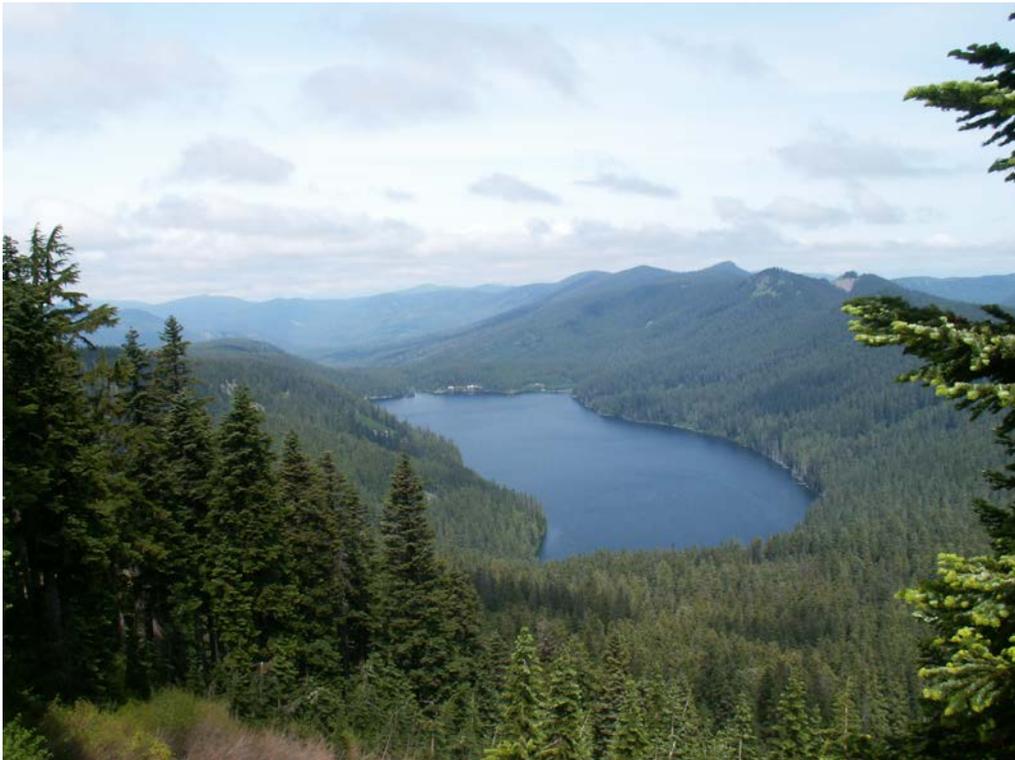

Portland Water Bureau and United States Forest Service

Bull Run Watershed Management Unit Semi-Annual Report

October 2012



Bull Run Watershed Semi-Annual Meeting



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A. SECURITY and ACCESS MANAGEMENT

Bull Run Security Access Policies and Procedures

PWB began implementation of its new Bull Run Security Access Policies and Procedures, outlining updated procedures for entering the Bull Run as an employee or contractor. The plan creates a comprehensive and clear policy regarding who has authorization to enter the watershed and the level of access the person is granted. Key components of the plan include a requirement for PWB employees and contractors to notify Security Dispatch when entering and exiting the watershed, and a new vehicle permit designed to more clearly mark vehicles in the watershed, used by both PWB and the Forest Service.

Another component of the security policy is the roll out of the new electronic lock and key system. PWB Security began issuing keys to authorized PWB staff in August 2012. PWB Security is working with the Forest Service and will issue keys to authorized Forest Service staff during fall 2012. The implementation date for converting to the new locks is estimated to be late fall 2012. The new lock system will provide a higher level of security by allowing Security managers to selectively program keys to only activate locks on specific gates, for specific times and days, and for a specific begin date and expiration date. The new system will also allow Security to run a variety of reports on which users are accessing which locks, how frequently, and whether or not the user is authorized for access.

PWB coordinated with the Forest Service and installed an authorizer device at Zigzag Ranger Station in order to allow the Forest Service to electronically update the security controls for keys issued to their personnel, contractors, and cooperative agencies. Authorizer devices are also located at the Portland Building, the PWB Security Dispatch office, Interstate, Sandy River Station, and the Bull Run main gate.

Bull Run Closure Area

PWB is pursuing an agreement with BLM to grant PWB enforcement authority on BLM-owned lands within the Bull Run Closure Area. BLM passed a Closure Order in 2011 to close its lands within the Bull Run Watershed Management Unit (BRWMU) to public access. An agreement with PWB would enhance the ability of both agencies to enforce the boundaries of the Closure Area.

B. EMERGENCY PLANNING and RESPONSE

The Forest Service and PWB exchange updated emergency contact information for key personnel in the fall and spring of each year.

Life Flight Helicopter Landing Zones

The Forest Service and PWB have a joint interest in identifying helispots that could be used on an emergency basis for medical evacuation. Personnel from both agencies, as well as cooperative agencies and contractors, conduct field work in portions of the watershed that are long distances by vehicle travel from the nearest medical facility. Identifying a landing site for a potential emergency medical evacuation addresses concerns on the part of both agencies regarding safety and risk management.

PWB identified a preliminary set of potential helicopter landings in the BRWMU in June 2010 using a combination of digital aerial photos, digital elevation models, road GIS layers, and helicopter landing safety criteria recommended by the Forest Service. A Forest Service employee who is certified as a helicopter safety manager evaluated several of the proposed helispot landings during a field review with PWB staff in 2010. The program aviation manager for the local Life Flight program conducted a field review of several potential landing zones in March, 2012. A total of five Life Flight landing zones have been identified for the watershed, all of which are located on roadways, previously cleared storage areas or rock quarries. Removal of eight alder trees within the road prism was required at one of the landing zones. PWB is coordinating with the Life Flight program to conduct test landings at the five sites in the fall of 2012.

C. TRANSPORTATION SYSTEM

No road or bridge capital improvement projects were conducted in the watershed during 2012.

D. FIRE PLANNING, PREVENTION, DETECTION, and SUPPRESSION

Hickman Butte Fire Lookout

PWB and the Forest Service have a new interagency agreement to staff Hickman Butte that covers the five-year period from 2012 to 2017 and includes authorization for a small maintenance fund of \$2,500/year to cover the cost of minor maintenance work on the tower.

In 2010, PWB's electrical engineer and supervisory electrician conducted an evaluation of the power supply for the Hickman Butte tower. The evaluation determined that the relatively old solar panels that are used to power the Forest Service radio, PWB radio, cell phone charger and cabin lights produce insufficient output and the batteries do not provide sufficient storage capacity.

After PWB developed a comprehensive list of equipment necessary to upgrade the Hickman Butte electrical system, the Forest Service obtained funds from a Regional Sustainable Operations Microgrant to purchase the equipment in 2011. Installation of the new solar panel system began in August and was completed in September 2012. The roof on the shed that holds the batteries and other new electrical equipment for the solar system is scheduled to be replaced by mid-October.

The replacement windows fabricated in 2011 for three window panels in the tower were installed in September 2012. The new windows were designed with screens in order to provide better air ventilation, which is needed because of the use of the gas cooking stove.

E. WATER MONITORING (Quality and Quantity)

Stream temperature monitoring was implemented in the Little Sandy watershed to determine the source of warm water that results in routine exceedences of Oregon Department of Environmental Quality (DEQ) water temperature standards in the Little Sandy River. Water temperature was monitored year round at four locations in the Little Sandy River, the Upper ,Middle and Lower Goodfellows Lakes, and in the outlet of the Upper and lower Goodfellows Lakes. Water temperature data has been collected in the Little Sandy River and Goodfellows lakes in 2012, but has not been analyzed.

The data from the summer of 2011 indicates that the water coming out of the lower Goodfellows Lake is ~9°C higher temperature than in the Little Sandy River.

The Water Bureau continues its cooperative agreement with the U.S. Geological Survey (USGS) to monitor stream flow, reservoir levels, and/or water quality at a total of 11 stations within the Bull Run watershed. The Water Bureau also contracts with the Natural Resources Conservation Service (NRCS) to monitor snow depth, snow water equivalent, and meteorological conditions at three sites in the watershed.

F. NATURAL RESOURCES – TERRESTRIAL

Aerial Survey for Forest Health /Insects & Disease

Aerial surveys are flown in Oregon and Washington each year to survey for forest disturbances. This aerial survey covers all forested lands and is flown on a 4-mile grid. The surveys in Oregon are conducted in cooperation with the Oregon Department of Forestry. Resource managers can request that limited geographic areas be flown with a tighter grid pattern to provide detailed survey results for area(s)

of concern. The results of the survey flights are posted on the Forest Health Protection web site at: www.fs.usda.gov/goto/r6/fhp/ads . Portions of The Bull Run watershed area are mapped on the following quadrangle maps: Vancouver, Hood River, Oregon City, and Mt. Hood.

Some tree killing attributed to Douglas-fir beetle (DFB) continued in 2012 in the vicinity of Bull Run Reservoir No. 1 one with some expansion to the south and west toward Reservoir No. 2 (Figure 1). Mapped mortality indicates lighter, more scattered mortality in the vicinity of Reservoir No. 2.

There were 55 clusters of DFB mapped in 2012, ranging from 2 to 82 acres. A total of 625 acres, or an average of approximately 1.24 trees per acre (TPA), were mapped with mortality caused by DFB. This represents an over-all decrease in acres mapped from the 2011 survey (1,100), but with the average number of trees killed the same (775).

Some of the mapped tree mortality could have occurred in 2010 and mapped in both 2011 and 2012 depending on the amount of red foliage retained by the tree, which is how aerial observers key into the damage signature. Extensive field examinations would be required to more accurately ascertain the actual degree of mortality.

Other notable damage was attributed to bear feeding in young Douglas-fir stands. Although 26 distinct areas were mapped with threshold levels of damage (an estimated $\frac{1}{4}$ TPA), the overall average tree kill was estimated at less than $\frac{1}{2}$ TPA on the mapped 408 affected acres.

Minor tree killing was observed in some of the high elevation stands of true fir, but nothing out of the ordinary.

Land managers with questions about insect and disease conditions may contact the Forest Health Protection – Westside Service Center at the Mt Hood Headquarters in Sandy. This group provides assistance to resource managers in the detection, evaluation, and management of insects and diseases on federal lands. Members of this group specialize in entomology, plant pathology, and aerial survey.

The key for the damage agents shown in Figure 1 below can be found on the Aerial Detection Survey portion of the Forest Service's Region 6 website:

<http://www.fs.usda.gov/detail/r6/forest-grasslandhealth/insects-diseases/?cid=stelprdb5286951>

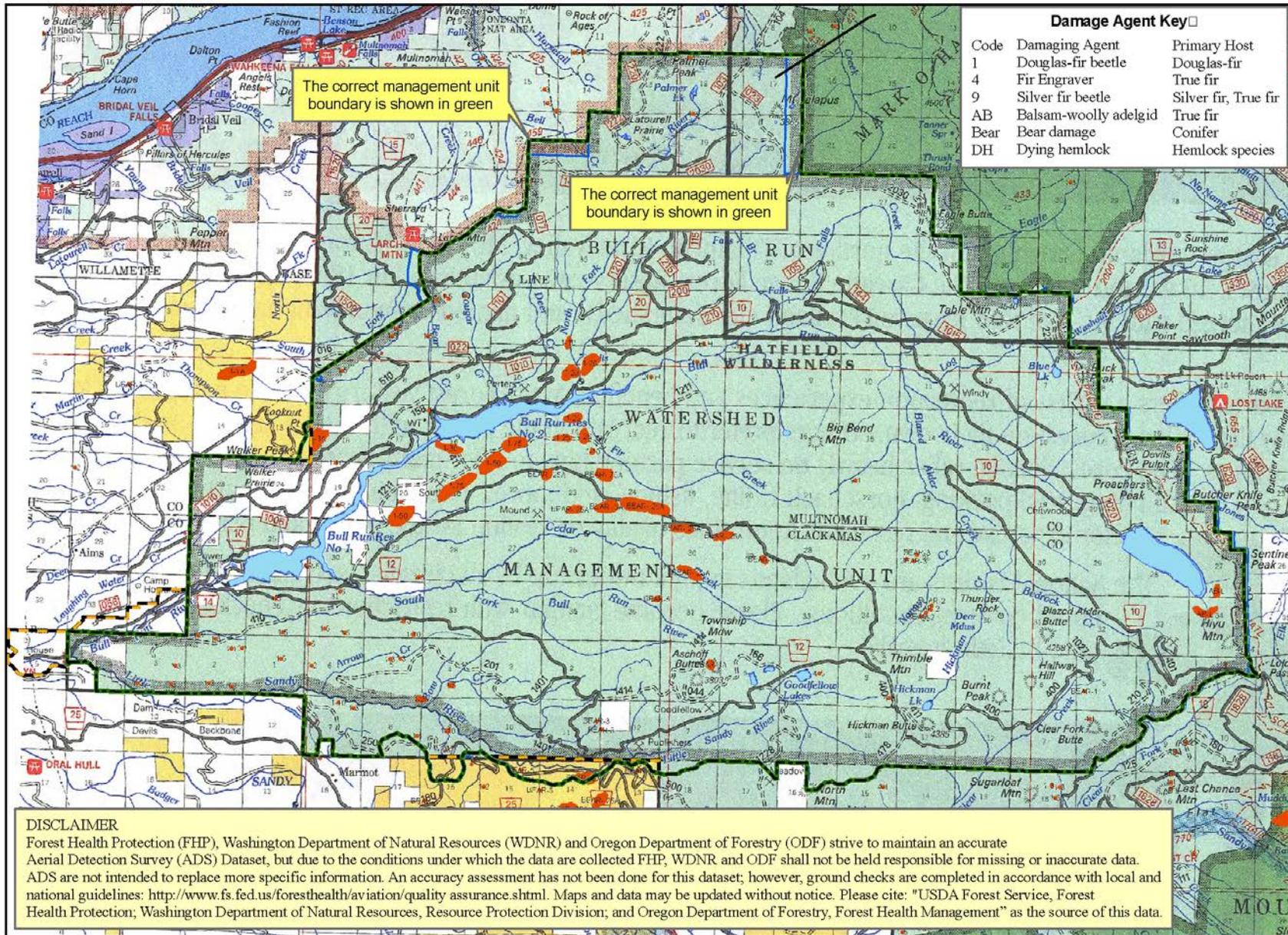


Figure 1: 2012 Bull Run Watershed Management Unit Insect and Disease Survey preliminary results.

Invasive Species

Aquatics

In August 2012, the Aquatic Invasive and Nuisance Species Standard Operating Protocol was revised to reflect current contact information and a minor regulation change at the State level. Staff continued to oversee implementation of preventative measures for both contractors and in-house maintenance and operations work, including boat and equipment decontamination for safe use in the reservoirs and Bull Run River.

Plants

Invasive non-native plant species pose a threat to the long-term health of forests and watersheds. Invasive plants can alter or displace native plant communities, which in turn can negatively affect wildlife habitat, nutrient cycling, soil erosion, hydrologic regimes, and water quality.

In June 2012, PWB installed a wheel wash station on NFS Rd 10, just inside the main gate. The wheel wash is designed to clean all vehicles entering the watershed to minimize the risk of the spread of invasive species. PWB is already implementing Forest Service policy requiring higher standards for weed prevention through vehicle cleaning and use of weed-free materials, and the wheel wash is designed to make that process simpler and more effective. The Mt. Hood National Forest currently requires the cleaning of all project vehicles before entering the Management Unit. The wheel wash station is expected to be operational in the late fall of 2012 or early spring 2013.

PWB staff continues to monitor sites where road construction projects have taken place in the recent past, and continues to monitor and control some of the most aggressive invasive plant species that occur inside the watershed along the primary roadways. Most of these species are either absent at the present time or found in very small populations within the BRWMU. PWB regularly coordinates with the Mt. Hood National Forest, the Bureau of Land Management, Metro, the Nature Conservancy, the East Multnomah and Clackamas County Soil and Water Conservation Districts, Oregon State Parks and the Sandy River Basin Council on monitoring and controlling other invasive plants throughout the watershed.

Much of the work related to invasive prevention and management is ongoing. PWB will work to monitor Early Detection Rapid Response (EDRR) species and control them as quickly as possible. The Water Bureau is also preparing an invasive species management plan for the BRWMU. That plan will incorporate the standard operating protocols for aquatic and plant species.

Bat Surveys

Pat Ormsbee (pormsbee@fs.fed.us), Bat Specialist for Forest Service Region 6, is the lead for an interagency and NGO partners bat monitoring program that includes conducting bat surveys in randomly-selected areas across Oregon and Washington. The project is called The Bat Grid. These surveys include monitoring units, targeted for ten consecutive years of sampling to obtain a statistical sample to determine population trends.

Bull Run was randomly selected as a monitoring unit. Sampling started in August, 2007 and will continue annually each August until 2016. August is the best month to survey the Bull Run for bats.

Monitoring surveys are conducted in a three-tiered approach including sonar detections, mistnet sampling, and genetic sampling. Bat sonograms are collected using a detector with a recorder and then downloaded into a software package that analyzes the sonogram in order to determine bat species. In addition, two streams and one pond are surveyed for bats using mistnets to capture bats. Captured bats are identified and genetic samples are collected from select bat species to confirm species identification. Monitoring surveys also include day and night roost checks at two structures (bridge and outside shack). Our monitoring is conducted at the exact same sites with the exact same methodology every August so that data collection is consistent with other monitoring sites in the region and across years, improving the robustness of the data analysis.

Surveys occur at or in the vicinity of North Fork Bull Run River bridge, Deer Creek, Station 18 trailhead, North Fork Bull Run River Wetland Pond, and Latourell Prairie. Twelve species of bats have been detected during the surveys, and another is suspected.

The mistnet survey protocol requires 3.5 hours of survey starting at sunset or first bat sighting (usually around 8:20 p.m. in August). Surveyors require highly specialized skills and rabies vaccinations to conduct the survey effort. Catherine Flick from the CRGNSA coordinates the permitting and survey crews for the Bull Run monitoring effort. In the four years the Forest Service has conducted the bat monitoring survey, they have used from 5 to 10 Forest Service and other agency employees as well as private citizens and wildlife consultants. Surveys are generally conducted over two afternoons and two nights. These surveys provide increasingly important baseline data with threats to bat populations including climate change, wind energy development, and White Nose Syndrome.

G. NATURAL RESOURCES - AQUATIC

Bull Run Lake

PWB operates and maintains drinking-water supply facilities at Bull Run Lake under a 20-year easement with the Mt. Hood National Forest. The bureau implements mitigation and monitoring measures as required by the easement and the Bull Run Lake Mitigation and Monitoring Implementation Plan.

Aquatic monitoring was conducted at Bull Run Lake from 1998 through 2012. The goal of the monitoring efforts is to assess potential effects of lake water withdrawals on the fish population and provide information for mitigation efforts. Spawning surveys are typically conducted in the tributaries of Bull Run Lake each spring and summer of the year documenting adult abundance, spawning timing and redd counts of coastal cutthroat trout. The spawning surveys are mostly conducted by Forest Service personnel from the Zigzag Ranger District. During five years (2004, and 2009-2012), a contractor was hired by PWB to complete the surveys. PWB plans to utilize a contractor to conduct spawning surveys in May/June of 2013.

The annual spawning surveys have shown a somewhat statistically significant relationship between lake water surface elevation and cutthroat trout spawning success. Cutthroat redd counts in years when water surface elevation reached or exceeded 3174' were greater than in other years. PWB has also been conducting lake hydro-acoustic surveys documenting fish population size. To date, these surveys show no significant change in the lake's cutthroat trout population over time. The surveys will continue into the foreseeable future.

The Forest Service and the Water Bureau have continually coordinated to evaluate the current monitoring and mitigation plan. A new plan was created in September 2012 and it is currently being reviewed by the Forest Service.

Amphibian Surveys at Goodfellows Lakes

No amphibian surveys were conducted at Goodfellows Lakes in 2012. Amphibian surveys conducted in two of the three Goodfellows Lakes in 2011 found Malone Jumping slugs (*Hemphillia malonei*) in the riparian areas of the upper lake. Based on these preliminary results, more presence/absence amphibian studies are recommended.

Salmon & Steelhead Monitoring in Little Sandy River

The Water Bureau continues to do two activities in the Little Sandy River: 1) maintenance of a smolt trap just upstream of the former Little Sandy Dam site, and 2) fish habitat surveys and snorkel surveys from the mouth of the river to the former dam site. The smolt trap was operated from roughly late March through mid-June

and the results of the fish trapping effort will be summarized in the 2012 Compliance Report for Bull Run Water Supply Habitat Conservation Plan. The habitat and snorkel results for the lower Bull Run River will also be summarized in the 2012 HCP Compliance Report.

Spawning surveys for spring Chinook, coho, and winter steelhead continue to be conducted above and below the former Little Sandy Dam site. All three species have been documented above the former dam site and appear to be re-colonizing much of their former habitat. Spring Chinook adults were observed up to 1.2 miles above the dam site in the fall of 2011.

Johnson's Hairstreak Butterfly Surveys

The Johnson's Hairstreak (*Callophrys johnsoni*) is a rare butterfly that inhabits the Pacific Northwest region of the United States of America. This butterfly is a "Sensitive" special status species in Washington and Oregon. The Forest Service fisheries program conducted larval butterfly surveys in the Bull Run Watershed Management Unit by collecting western hemlock dwarf mistletoe, the host plant. No larvae were detected in 2012 as dwarf mistletoe was lacking in the understory due to less than optimal growing for the parasitic plant.

Blue Lake Cutthroat Trout Survey

The Forest Service conducted a fish survey of Blue Lake, a 12-acre lake located in the headwaters of Log Creek, on July 2, 2012. Blue Lake has 0.48 miles of shoreline, a 250 acre-ft. volume, 60 ft. maximum depth, and 21 ft. average depth and lies within the Bull Run Watershed with a drainage basin of 0.32 mi². Blue Lake has three tributaries on the south end and one outlet forming Log Creek, which has an average discharge of < 1 cfs, based on a survey conducted by the Forest Service in 1995. During the July 2nd survey, shoal spawning surveys were conducted the entire length of the shoreline and hook and line surveys were conducted from the north shoreline. A total of 13 fish were collected with a hook and line ranging in length from 5.5 to 10.5 inches. Scales were collected for age and growth analyses and an upper caudal fin clip was collected for genetic analysis. Spawning was observed along the shoreline and in the three tributaries to Blue Lake. A gabion structure dam was observed at the outlet of the lake, which is artificially holding the lake at a higher water elevation and blocking upstream fish passage from Log Creek.

H. CONSERVATION EDUCATION

The Portland Water Bureau offers educational field trips and tours of the Bull Run watershed for students and the general public. All tours are planned and guided by a

professional Water Resources Educator.

Participants on adult tours learn about the history of the watershed, its natural resources, water supply infrastructure and operations, and the cooperative partnership between PWB and the Mt. Hood National Forest. These tours generally occur June through September.

Tours for school groups are generally scheduled in May, June, September, and October. During PWB's tours for school groups, students are divided into small groups at Bull Run Dam No. 1 to tour the dam, to measure the turbidity of the reservoir water, and to learn about the role of forest protection in providing high-quality raw water.

PWB led a total of 54 tours in the Bull Run between January 1, 2012 and October 10, 2012.

I. ADMINISTRATIVE USE TRAILS

Several trails in the BRWMU provide access to stream gauges operated by the U.S. Geological Survey (USGS) and water-quality monitoring stations maintained by PWB. PWB performed routine maintenance on several of these trails in 2012.

J. LAND OWNERSHIP and LAND OCCUPANCY ARRANGEMENTS

Land Exchange

A Land Exchange has been proposed between the Forest Service and City of Portland. The primary purpose of the exchange is to eliminate intermingled ownerships and isolated parcels within the Management Unit, which would allow for more efficient operations by the Forest Service and the City. Lands acquired by the Forest Service would be high quality habitat lands that would be managed for natural resource protection, as well as continuing to meet the objective of providing pure, clean potable water for the City. Lands acquired by the City would include most of their water production facilities, including reservoirs, and would improve their management efficiency in providing water for the Portland metropolitan area.

In 2010 the Portland Water Bureau and the Forest Service signed an Agreement to Initiate (ATI) which expresses the intent of the two parties to pursue the possibility of a land exchange and marks the beginning of the process. PWB coordinated with its public stakeholders to develop new sections of the City Code that adopt the same tree-cutting restrictions contained in the Bull Run Management Act (16 U.S.C. § 482b Note) for City-owned land within and directly adjacent to the BRWMU.

Public scoping for the NEPA process associated with the land exchange occurred in August and September 2010. Completion of the NEPA documentation is expected by September 2013.

As part of the land exchange process, all of the land in the exchange must be appraised and the Forest Service exchange parcels must undergo a cultural resources survey. Cultural resources surveys for most of the Forest Service exchange parcels were completed in 2006. In order to satisfy the requirements of the appraisal, a timber cruise that involves over 800 plots was initiated in September 2012 and is expected to be completed by November 2012. The cultural resources survey, including prehistoric, historic, and traditional cultural properties, is scheduled to be completed on the remaining un-inventoried parcels by December 2012.

Bull Run Lake Cabins

PWB used an existing on-call contractor to build a replica of the original fireplace at the historic Bull Run Lake South Cabin. PWB crews collected rock for use at an abandoned quarry within the watershed and close to the project site. PWB built the fireplace to match the original in size and style, except it is a non-working fireplace. The fireplace is not designed to support or sustain any fire. The work was completed in August 2012.

K. OTHER ACTIVITIES

Dam 2 Tower Improvement Project

Construction on the Dam 2 Tower improvement project, which modifies the north tower so that water from the reservoir can be accessed at three different depths to access raw water of varied temperatures, began in the spring of 2012. The project is a component of Measure T-2 of the Bull Run Water Supply Habitat Conservation Plan (HCP). Currently, both of the towers have intakes at the bottom of the reservoir only. Modifications to the north tower will address the problem associated with early depletion of the coldest water in the reservoir during the summer months. The tower modification will allow the Water Bureau to regulate the withdrawal level and retain a sufficient supply of cold water from the lowest levels of the reservoir for late summer and fall to maintain cooler temperatures in the lower Bull Run River for fish habitat. Construction will continue through December 2013.