

Metro Parks and Nature North Tualatin Mountains Natural Areas

Management and Monitoring Summary



Prepared by Metro Parks and Nature

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Exhibit D.108.7

Background

This memo provides a summary of Metro's habitat management and wildlife monitoring efforts at the North Tualatin Mountains sites (see map following text). Metro's North Tualatin Mountains properties total 1315 acres, and are comprised of Burlington Creek Forest Natural Area (353 acres), Ennis Creek Forest Natural Area (349 acres), McCarthy Creek Natural Area (402 acres) and North Abbey Creek Natural Area (210 acres).

Management actions

All four North Tualatin Mountains sites have each been assembled from multiple acquisitions. As a result of the acquisition of each natural area over time, each site has a history of smaller scale "stabilization" actions that occur when a property is first purchased to secure its conservation values, typically weed control and native species planting, or emergency road work. With the passage of the 2013 operating levy, Metro was able to undertake several larger restoration projects. These actions include:

- Machine forest thinning for enhancing forest health
- Hand forest thinning for enhancing forest health
- Snag and downed wood creation
- Planting native trees and shrubs to enhance diversity
- Invasive tree treatments
- Invasive species treatment including invasive ivy and blackberry treatments
- Road assessments
- Road and culvert repair and road retirement
- Boundary surveys

Management summary table:

Management action	Sites	Years	Notes
Machine (commercial) thinning	North Abbey, McCarthy	2015	• 35 acres - McCarthy • 17 acres - N. Abbey
Hand (pre-commercial) thinning	McCarthy, Burlington, Ennis	2015 - 2017	• 257 acres - McCarthy • 112 acres - Burlington • 243 acres - Ennis • Left downed wood on ground in thinned units
Snag/downed wood	North Abbey, McCarthy, Burlington	2015 - 2016	• Targeted snag creation in mature stands • Topping trees created downed wood • 27 snags – Burlington • 29 snags – McCarthy • Snag creation in machine thinned units – smaller diameter trees • Log piles left 2 per acre in machine thinned units to mimic large logs

Management action	Sites	Years	Notes
Planting (143,000 plants)	North Abbey, McCarthy, Burlington, Ennis	2011 - 2017	• 35,000 plants - McCarthy • 20,000 plants - Burlington • 22,000 plants - Ennis • 66,000 plants - North Abbey • Date range reflects acquisition of properties over time
Invasive tree treatments	North Abbey, McCarthy, Burlington, Ennis	2011 - 2017	• Implemented in conjunction with pre-commercial thinning when possible • Date range reflects acquisition of properties over time
Other weed treatments (ivy, blackberry, spurge laurel, etc.)	North Abbey, McCarthy, Burlington, Ennis	2011 - 2017	• Date range reflects acquisition of properties over time
Road assessments	McCarthy, Burlington, Ennis	2012, 2016, 2017	• Evaluating legacy road systems for repair needs and decommissioning opportunities
Road/culvert repair	Burlington, Ennis	2015, 2017, 2018	• Emergency slide repair and culvert installation at Burlington • Emergency repair work at Ennis • Large scale work at Burlington summer/fall 2018
Boundary surveys	North Abbey, McCarthy, Burlington	2012 - 2014	• North Abbey Creek only partially surveyed on as needed basis

Monitoring

Metro has undertaken various wildlife survey - monitoring efforts across all four natural areas including:

- Avian point count monitoring
- Terrestrial amphibian monitoring and survey
- Pond breeding amphibian monitoring
- Amphibian road mortality monitoring
- Elk survey

Summary Table:

Monitoring Type	Sites	Years	Notes/Description
Avian	Burlington, Ennis, McCarthy, N. Abbey	• 2015-2018 • Conducted annually. Plan for a minimum of seven years.	• 5 point count locations per site • Data collected 3 times a year during breeding season (May 15th – June 30th) • 2015: Pre-thinning treatment data collected on all four sites; thinning began on all four sites after breeding bird season • 2017: Ennis and Burlington thinning completed • 2018: McCarthy thinning completed • 2015: N. Abbey thinning completed
Terrestrial salamander	Burlington, McCarthy, N. Abbey	2012, 2014, 2017	• Western red-backed salamander, Dunn's salamander, and Ensatina present • Pacific giant salamanders found in larval stage in McCarthy Ck
Pond-breeding amphibians	N. Abbey	2016, 2017, 2018	• 2016 - spot checked following anecdotal observation; Red-legged frog egg masses observed in cistern • Surveyed 3 times in 2017 and 2 times in 2018; Red-legged frog egg masses found both years in old cistern
Amphibian mortality survey on roads	Burlington	2018	• January • 1 day by Metro staff, post initial scouting site visit • No road mortality observed within Metro property as well as local access • High mortality observed on Hwy 30 near the area. • Walked roads and lower trail alignment • 2019: Both early morning and evening (approximately 2100 hrs)
Elk	Burlington, McCarthy	2016	• Desktop and field preliminary use study conducted by consultants • Heavy elk use at McCarthy • Minimal elk sign at Burlington

Results and discussion by major group

Avian point counts

Metro retained the services of Turnstone Environmental Consultants, Inc. (Turnstone) to conduct avian point count surveys at all four Metro-owned North Tualatin Mt. sites: Burlington Creek Forest, Ennis Creek Forest, North Abbey, and McCarthy Creek Forest. Prior to extensive pre-commercial thinning work at the NTMF properties, Turnstone and Metro staff established four point count arrays of five points each. Turnstone biologists began on-site point counts in order to characterize bird species composition representative of site conditions for comparison with post-management habitats on the sites. Minimum data collection duration planned for seven years. The data will be used to document species occurrences, proportionate species abundances, species richness, and how bird assemblages change over time. Post thinning results are preliminary only. The first year post thinning showed an increase in species overall, with an average of four more species detected at each site. These species were all typical of upland closed forest, with a mix of conifer and deciduous tree species. Examples of expected species detections include Swainson's thrush, Pacific wren, and Pacific slope flycatcher. In 2016 some of the new species detected included Chestnut-backed chickadees and Black-throated gray warblers, which can be expected in post thinning conditions. Fluctuations in optimal conditions for breeding birds are taken into consideration, and it was noted that in 2015 conditions were dry and the food supply may have been lower than normal. Conditions in 2016 appeared to be better for nesting success overall, however at the onset of data collection there were a few colder and wetter days which could result in lower numbers of singing birds on point count surveys. We did observe a slight increase in species diversity in 2017 and 2018, with varying conditions between those years. No significant shift in more open, shrub obligate species were detected, but analysis will continue over the next three years.

Terrestrial amphibians

Terrestrial salamander surveys were conducted by Metro staff with community science volunteers in early spring 2015 at North Abbey Natural Area, 2016 at Burlington Creek Forest, and 2012 and 2017 at McCarthy Creek. This was done in anticipation of culvert removal at McCarthy, and general interest for the other sites. These are conducted in the later spring, as these salamanders are moving from wintering areas. These were presence surveys only, with Pacific giant salamander larvae detected at McCarthy Creek, and Western red-backed salamander, Dunn's salamander, and *Ensatina*, as the predominant species detected at the other sites. For each site only one survey was done within the each location as to minimize disturbance. Presence of these species notes supportive, moist, mixed conifer and deciduous forest habitat.

Pond breeding amphibians

Metro conducts amphibian egg mass monitoring to assess representative lentic habitat within seasonally inundated wetlands and the effects of Metro's restoration projects. Target amphibian populations include the Northern red-legged frog, Pacific chorus frog, Northwestern salamander, long-toed salamander, and the non-native bullfrog. Target habitats are emergent wetlands, shrublands, and seasonally-inundated ponds. Adjacent upland habitat for metamorphosed individuals is a required element for thriving pond-breeding amphibian species. The NTM sites generally lack ponds. At North Abbey creek, however, an old cistern serves as a small breeding pond for Northern red-legged frogs. In 2017 five egg masses were found in the cistern while in 2018 one egg mass was found.

Amphibian road mortality surveys

In anticipation of increased public access at Burlington Creek Forest Metro began conducting amphibian road mortality surveys at Burlington Creek Forest in 2018. This monitoring will continue and add a trail component through access development and after the site has been officially opened to the public. This will allow Metro to document pre and post construction mortality of amphibians and document and respond to any changes. The monitoring consists of trained volunteers walking the existing road system to look for evidence of any amphibian mortality during migration. The surveys are conducted both early in the morning and in the evening to coincide with typical amphibian movement times and to ensure that mortality that did occur is still visible prior to scavenging by other animals. The first surveys were conducted in the winter of 2018 and no mortality was observed.

Elk

Turnstone Environmental Consultants, Inc. (Turnstone) conducted desktop review and field reconnaissance for an initial assessment of use by Roosevelt elk in two of Metro's natural areas in the North Tualatin Mountains area: Burlington Creek Forest and McCarthy Creek Forest. Turnstone biologists recorded significant usage of McCarthy Creek and light usage of Burlington Creek by Roosevelt elk.

At Burlington Creek, no trails were identified that would indicate regular use by elk. Some sign was observed including a few tracks in two locations, and one rub that was in excess of 6' up tree bole in a clearing area adjacent to McNamee Rd. Several other rubs were present on alders along the roadside but they could not be positively identified as elk or deer. Probable elk browse was observed on western wahoo shrub in the Burlington Creek canyon. However, expanses of western red cedar, a highly preferred food plant for elk, appeared un-browsed.

Regular use of McCarthy Creek by elk is indicated by the presence of major trail networks, tree rubs, browse of shrubs, scat, hair and bedding areas. Significant browse and some rub damage were observed on the restoration meadow plantings. Biologists did not observe elk individuals in McCarthy Creek, but heard probable elk groups moving through woods each field day and observed fresh scat and tracks that were made the same day. Biologists mapped five major trails and several additional short trails. Major trails generally led to meadow areas including both the larger Metro-owned meadow and the western meadow on private land. Several of the shorter trails led to private land (large open yard areas resembling small meadows) from an old road bed on the eastern edge of the study area.

NORTH TUALATIN MOUNTAINS NATURAL AREAS

