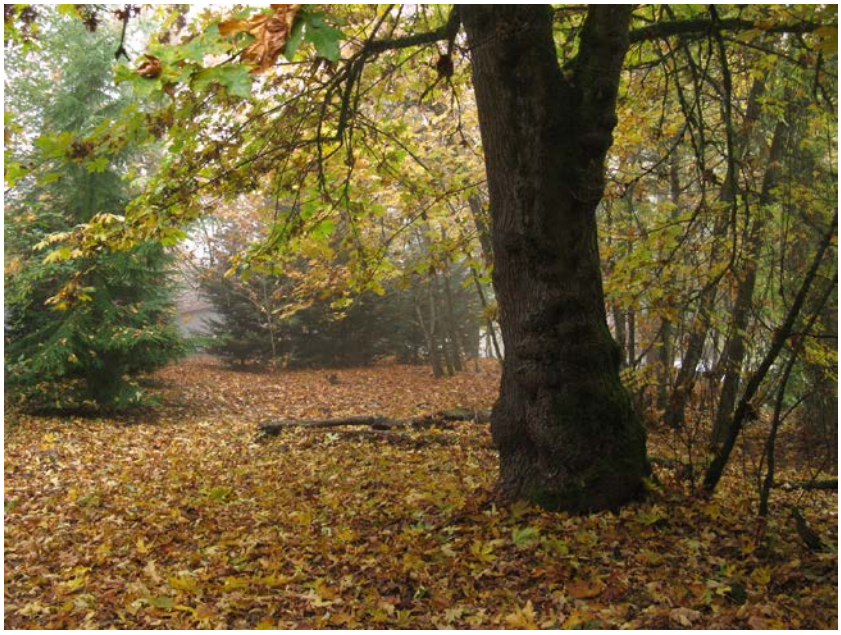
MOUNTAIN PARK HOMEOWNERS ASSOCIATION

Natural Areas Assessment

Lake Oswego, Oregon



Prepared for

Mountain Park HOA
2 Mt. Jefferson Terrace
Lake Oswego, Oregon 97035

Prepared by

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
PHS Project Number: 4843

February 9, 2012

TABLE OF CONTENTS

Page

1.0 INTRODUCTION

Mountain Park is a planned mixed use (single and multi-family residential/ commercial) development spread over 700 acres of hilly terrain on Mount Sylvania, a 958-foot extinct volcano in Lake Oswego, Oregon. The Mountain Park Home Owners Association (HOA) was established in 1968 as the development was being built, and is the sixth largest HOA in the country with over 8,500 members. Its mandate from the beginning has been to establish and maintain common recreational facilities, open spaces, and trails to enrich the lives of its members.

The HOA is seeking ways to better maintain or even upgrade the Mountain Park common areas while optimizing limited maintenance resources. Toward that end, the HOA has enlisted Pacific Habitat Services (PHS) to inventory existing natural resources within the HOA service area, provide recommendations for continuing or new maintenance priorities, suggest ways to minimize costs while maximizing the value to affected resources, and help find new ways to inform and enrich members' outdoor experiences. This work will build on the Trails and Pathways Assessment recently conducted by Alta Planning and Design; the HOA study area boundaries are depicted in Figure 1 (Appendix A).

2.0 PROJECT APPROACH

In order to provide the HOA with sufficient information on which to base future landscape management goals, PHS first prioritized our field assessments on those natural areas that can be readily accessed by members. Our intent was not so much to conduct an extensive inventory of all natural areas, which would involve much more extensive (and costly) field visits, but to access areas of most concern to HOA members. The existing trail system was utilized to enter these areas, with very limited off-trail travel to better assess the interiors of some forested sections. Since the HOA service area also includes numerous greenspaces and easements that are either hemmed in by private lots and lack public access, or are restricted to narrow roadside corridors, those areas have generally been mapped by using aerial photos and limited drive-by assessments.

For the first phase of this study, our report documents those areas of the HOA service area landscape that have been assessed for wildlife habitat suitability, native vs. invasive vegetation, and restoration potential. In addition, existing conditions and vegetation communities maps have been generated from the field data. Finally, general recommendations for either continuing or expanding on current maintenance activities, or implementing new restoration measures in some areas, are included with this report. During Phase 2, more detailed and site-specific plans will be generated to address various management priorities.

3.0 EXISTING CONDITIONS

The HOA service area encompasses a diverse mosaic of developed residential and commercial infrastructure, landscaped open areas, and relatively natural habitats all situated on the moderately steep sideslopes of Mt. Sylvania. The natural areas are mostly upland to riparian forested habitats, some of which provide relatively high quality wildlife habitat. Nonetheless, due to the highly fragmented nature of this and surrounding developments, the connectedness of these 'islands' of habitat is limited and so is less able to support the diversity of wildlife typically found in larger, more intact natural areas. Wildlife habitat characteristics are described further in the following section.

Due to the relatively steep terrain and elevated landscape position of the study area, most of the drainageways contain either seasonal or intermittent, stormwater-driven flows. Prior to development, many of these ravines and swales had already been formed as a result of stormwater erosion over many decades if not centuries. Fortunately, the Mountain Park designers retained as much of these areas as possible for natural corridors and greenspaces. Other greenspaces have been retained in support of existing easements along roads, sewer and stormwater pipelines, and other infrastructure.

Without gentler gradients, finer-grained soils, or earthworks of some sort to slow down stormwater runoff, these channels often drain off quickly after a storm event. As a result, few of the drainages remain wet enough long enough to develop a truly riparian plant community as influenced by shallow groundwater and surface flows. Nevertheless, the largest streams maintain prolonged seasonal to even year-round flows in the lowest elevations.

3.1 Biological Resources

3.1.1 Vegetation Communities

The Mountain Park HOA study area encompasses several distinct plant communities that have developed in response to past and current land use practices, the available soil and moisture conditions, and slope angle and aspect. The slopes of Mount Sylvania that were slated for the development have been logged multiple times since original settlement of the area, and most recently cleared in preparation for Mountain Park improvements (i.e. streets and necessary infrastructure) followed by construction of community structures and residences. As such, nearly all of the currently forested areas have grown up since the late 1960s, as reflected in the relative lack of larger trees (i.e. few are over 50 years old).

Several broad community types can be readily defined within the study area:

(1) Upland Mixed Conifer-Broadleaf Forest
(2) Upland Conifer Forest
(3) Upland Broadleaf Forest
(4) Riparian to Wetland Mixed Conifer-Broadleaf Forest
(5) Landscaped Common Areas-Playgrounds-Open Lawn

Each of these communities is further described below, and broadly mapped on Figure 2 in Appendix A. A partial species list is included in Appendix B.

(1) Upland Mixed Conifer-Broadleaf Forest

This upland forest community is the most prevalent cover type within the HOA, since it describes many of the smaller common greenspaces bordering streets and separating rows of houses. In addition, this community type dominates the larger natural areas, which typically include drainageways but are not truly riparian forest communities, since most streams are relatively small and primarily seasonal in nature.

This upland community is typically dominated by Douglas fir and bigleaf maple, with occasional western red cedar, red alder, Scouler's willow, and sweet cherry also present. Most of the overstory trees are young to mature, with diameters ranging from less than 8 inches up to a maximum of 18 to 24 inches diameter breast height (dbh). Very occasionally a tree of greater size is encountered, generally due either to its location within a deep ravine away from projected development, or in an area planned for open space (i.e. park or natural area). Canopy cover typically ranges from 70 to 100%, and due to differing tree ages the canopy height is variable. This community blends nearly seamlessly with the riparian mixed forest found along the larger drainageways.

Understory species include shrubs such as vine maple, Oregon grape, salal, English ivy, English holly, Himalayan blackberry, California dewberry, and snowberry. Groundcover species (where ivy is not dominant) include sword fern, herb Robert, fringecup, and woodland avens. Although evergreen shrubs provide additional year round cover for a variety of species, several are invasive non-natives that choke out more desirable natives.

(2) Upland Conifer Forest

This community is a relatively uncommon variation on the upland mixed forest in Mountain Park; in these smaller stands, Douglas fir dominates and virtually no broadleaf species are present in the overstory. Nevertheless, a few bigleaf maple and/or red alder may be present in the mid-story as minor stand components. The shrub understory varies in diversity, with some areas dominated by invasives such as English holly, English ivy, and Portuguese laurel.

(3) Upland Broadleaf Forest

This community is also a minor variation on the upland mixed forest; in these stands, virtually no mature Douglas fir or other conifers are present in the overstory, and bigleaf maple is typically the dominant species. Several of these stands have previously been recognized as lacking in conifers by HOA maintenance personnel, who have introduced some plantings into these areas over time. The relative lack of year round cover in these stands continues to provide a good opportunity for community enhancement through the planting of additional native conifers.

(4) Riparian to Wetland Mixed Conifer-Broadleaf Forest

This community is best represented in the lower reaches of the Tanglewood Park/ Gress Park natural area, and includes most of the species listed for the upland mixed forest assemblage described above. However, in areas truly subject to shallower water tables and potential for seasonal flooding near stream channels, species assemblages become distinctive. Tree species that are more likely to be seen within the riparian zone include western red cedar, red alder, Pacific willow, Oregon ash, and black cottonwood. Understory shrubs and groundcover may not be significantly different, although the herbaceous cover in the lowest areas may include reed canarygrass, scouring rush, and bittersweet nightshade.

(5) Landscaped Common Areas-Playgrounds-Open Lawn

Landscaped common areas are often dominated by turfgrasses along with scattered weedy forbs, which are generally kept low by periodic mowing. Turfgrass mixes usually include some combination of ryegrass, fescue, Kentucky bluegrass, and/or bentgrass. Lawns are occasionally punctuated by individual or grouped tree and shrub plantings, usually of horticultural origin. As such, there is a great variety of species in these areas, which generally transition into residential landscaping. This category also includes isolated landscape 'islands' within divided or loop roads, which can range from entirely mowed lawn to managed small-scale woodland.

In addition, there are numerous narrow strips of landscaping (primarily along road rights-of-way) that transition rapidly into forested habitats. These strips are typically obscured by tree canopies so are often indistinguishable from the less managed forest habitats on aerial photographs. As such, this category is very broadly applied to many of the narrow roadside greenways, even if they include native tree species in the overstory (Figure 2).

Since many of the Mountain Park greenspaces include expanses of lawn that directly border natural areas but are relatively remote from playgrounds and other high use areas, there is good potential for restoring at least portions of these areas to native communities.

3.1.2 Mapped Sensitive Areas (City of Lake Oswego)

The City of Lake Oswego has conducted an inventory and mapping of natural resource areas within the City boundaries, applying resource overlays to the more sensitive or high value areas. 'Sensitive Lands' categories include stream corridors, wetlands, and tree groves; mapped stream corridors and wetlands are within a Resource Protection (RP) district, while mapped tree groves are within the Resource Conservation (RC) district. Each district may either exempt or regulate certain activities that may potentially affect resource values.

All three regulated resource categories are mapped within the Mountain Park HOA study area. The most notable mapped sensitive area is the Tanglewood Park-Gress Park greenspace, which includes stream corridors, tree groves, and wetlands. Streams within this greenspace are tributaries to Springbrook Creek along Boones Ferry Road. An additional stream channel flows northward from McNary Parkway, past Walking Woods Drive, and beyond the HOA boundary at Stephenson Road; this channel is a tributary of Tryon Creek. 'Stream corridors' include a specified riparian buffer width based on the stream type, with contiguous forested areas that extend beyond the buffer being mapped as 'tree groves.' 'Wetlands' are mapped separately at just three locations (at Jefferson/Mountain View, Kerr/McNary, and Oswego Towne Center).

Please note: the Sensitive Areas mapping typically includes buffers drawn around the resource that do not always reflect the underlying development. As a result, it often appears that houses or other development lie well within the drawn resource boundary. This is not typically an issue unless structures or other development are being proposed for expansion into a mapped resource area, which generally triggers an administrative review and permitting process within the City. As mentioned above, different constraints on development come into play depending on whether the area is in an RP or RC zone.

The 'Existing Conditions' site map (Figure 1) incorporates those areas mapped as Sensitive Lands by the City (as revised in 2008).

3.1.3 Wildlife Habitat Elements

The Mountain Park HOA study area was visited on several occasions in November 2011; however, the proximity of natural areas to residences and other infrastructure assures that few wildlife species will actually be observed on any particular visit. Instead, most terrestrial species will avoid detection, especially during daylight hours, and any birds that may be moving through a site may or may not provide an adequate glimpse or call to notify us of their presence. As such, relatively few species are noted in Appendix C; nevertheless, the structural and species diversity of natural areas in the HOA study area likely provide suitable habitat for a much wider variety of species that are somewhat adapted to urban developed areas and edge habitats.

As already indicated in the plant community descriptions above, most of the undeveloped land within the HOA is comprised of mixed conifer-deciduous to deciduous forest that is generally under 50 years old due to historic logging activities. As a result, while many trees have grown to mature heights and have formed mostly closed canopy stands, the structural and species diversity within any particular stand may be moderate at best due to the past disturbance and infestation by invasives.

Forest Structural Diversity is an important habitat element found within the HOA. Ideally, at least from a habitat standpoint, a particular forest stand will include a mix of tree ages and sizes, some dead or dying standing snags in various states of decay, fallen logs and other woody debris, and a relatively diverse shrub and herb understory. This variability in cover and vegetative food sources maximizes the number of niches available to wildlife, including those species that serve as food for those higher on the 'food chain.'

Nevertheless, the forested areas within the Mountain Park study area lack much of this idealized diversity. There are only a few standing snags, and where the understory is dominated by invasive species the area may be deprived of diverse native food sources. Since large old snags are typically an increasing feature of older mixed stands, no immediate natural remedies are available.

Dead snags in particular can provide high value as potential roost and nest sites for a variety of bird species. Canopy nesters likely to be found in Mountain Park include several species of woodpecker (i.e. hairy and downy woodpeckers, northern flicker), chickadees, and nuthatches, among others. In lieu of large dead snags, a potentially viable alternative is the installation of properly sized and sited nest boxes.

Even more likely to be utilized successfully are 'manmade' snags created by intentionally girdling or topping less desirable non-native or potential hazard trees. Such 'hazard' trees may jeopardize trail users or nearby homes if noticeably diseased and/or leaning over a structure or trail. If confirmed as an imminent risk by a licensed arborist, a height modification (i.e. shortened to 30 feet or less) may be sufficient to mitigate the risk while at the same time keeping the tree in place as a wildlife snag. Any removed sections of tree can then be utilized in a nearby drainageway as a large woody debris feature.

Large woody debris (LWD) is another valuable habitat element that is typically scarce in natural areas that have been logged multiple times. By allowing wood to rot in place on the ground, the soil itself is enriched, while a variety of species (invertebrates as well as higher organisms like salamanders, birds, and small mammals) benefit. When left in streams, large wood can help moderate erosive forces from stormwater runoff, while also providing organic matter inputs that can benefit fish and other aquatic species further downstream.

Riparian forest elements. Since most drainages present within the HOA are limited to seasonal or intermittent streamflows, forested areas typically lack a distinct riparian 'zone' outside of a particular channel or narrow ravine. However, by providing thermal cover and adding organic inputs to flowing water, the forest overstory can be crucial to organisms further downstream. In addition, the seasonal availability of nearby surface water is valuable to a variety of wildlife, since many would not utilize a particular forest stand without a reliable water supply.

3.1.4 Specific Common Areas

The following table lists the specific natural areas and parks that were mapped in this inventory, as well as two miscellaneous categories that do not readily lend themselves to mapping.

Table 1 Parks and Greenspaces within the Mountain Park HOA study area

No.	Park Name or Designated Location	Feature Type
1	Hidalgo→Nansen Summit trail segments	Natural Area
2	Nansen Summit Park	Landscaped Park/Viewpoint
3	Garibaldi→Nansen Summit trail	Natural Area
4	Hidalgo and Garibaldi 'Greenstrips'	Natural Areas upslope of roads
5	Hidalgo→Grouse sewer easement	Natural Area
6	Hidalgo→Walking Woods (N. of McNary)	Natural Area / Viewpoint/ Monument
7	McNary→Walking Woods→Stephenson riparian corridor	Natural Area / Riparian/ (2) Monuments
8	Jefferson→Kerr Trail	Natural Area / Riparian
9	Bernini→Abelard	Natural Area / Riparian/ Lawn area
10	Cellini Park	Playground/ Natural Area
11	DaVinci→Kerr	Natural Area
12	Del Prado→Botticelli	Natural Area / Riparian
13	Eagle Crest (hillside above road)	Natural Area

No.	Park Name or Designated Location	Feature Type
14	Tanglewood Park	Natural Area / Riparian/ Landscaped
15	Gress Park	Landscaped Park-Playground/ Riparian/ Natural Area
16	Kerr→ The Grotto→McNary→Cirque	Natural Area / Riparian
17	Boones Ferry (Monroe→Country Club)	Natural Area / Riparian
18	Touchstone Park	Playground/ Landscaped
19	Traffic Islands	Landscaped to Partly Natural
Misc	Buffer Zones between Common and Private Parcels	Natural to Partially Landscaped Areas
Misc	Managed Lawn areas along Roadsides	Landscaped

Additionally, field observations regarding several of the specific mapped areas and categories are included below; please note that not every natural area has been described in detail due to their similarity of features).

#1 Hidalgo-→Garibaldi-→Nansen Summit Greenway

A steep wood chip trail (in two sections) extends from just inside the northwest entry to Mountain Park (opposite upper entrance to PCC campus) up to Nansen Summit Loop Drive. The mostly bigleaf maple canopy also includes a few red alder and more recent plantings of Douglas fir, western red cedar, and western hemlock. The understory is pretty sparse, but includes a fair amount of large woody debris (LWD) from fallen alders etc. as well as a nice standing snag. Some ongoing maintenance occurs in this area, effectively keeping blackberries and other invasives under control.

#2 and #3 Garibaldi to Nansen Summit Park

A steep wood chip trail rises through mixed woods, which includes Douglas fir (up to 24 inches in diameter), bigleaf maple, red alder, Scouler's willow, and a few European white birch. The shrub understory is comprised of a variety of both natives and invasives, including vine maple, red elderberry, Indian plum, Oregon grape, English holly, English ivy, Clematis, and Himalayan blackberry. Groundcover species include sword fern, fringecup, woodland avens, and herb Robert.

Nansen Summit Park occupies the top of Mt. Sylvania above the loop road; this site is managed for the open views it affords (except where blocked by houses). Primarily mowed lawn, it includes a few clumps of landscape plantings. Due to its open aspect and current level of maintenance, this park presents opportunities for enhancement, with native plantings.

#4 Garibaldi 'Strip'; Hidalgo 'Strip' Natural Areas

The Garibaldi forested strip extends above the street to the houses on Nansen Summit Drive, in similar fashion to the forested strip along Hidalgo, which is directly downslope to the northeast. Both strips are mostly deciduous, comprised primarily of maples and alders, with just a few Douglas fir. Other species include vine maple, hazelnut, sword fern, California dewberry, and fringecup.

#7 McNary Parkway→ Walking Woods Drive→Stephenson Road Natural Areas

- ***Sensitive Riparian Corridor and Tree Grove***

The upper reaches of this intermittent to seasonal drainageway are primarily overshadowed by deciduous forest dominated by bigleaf maple, along with a few alders and Douglas fir. The shrub understory includes vine maple, snowberry, and English holly, with English ivy dominating the groundcover. The ivy has been controlled to some extent by clipping around the base of trees.

Below Walking Woods Drive the drainageway becomes more pronounced, skirting the eastern margin of the Kerr Natural Area, a mostly deciduous forest stand surrounded on three sides by the Mountain Park development. The small stream and associated riparian to upland forest extends north and east through Icarus Loop, before extending northward across Stephenson Road and outside Mountain Park. This stream is an upper tributary of Tryon Creek.

The forest overstory is dominated by Douglas fir and red alder in the vicinity of Icarus Loop; some western red cedar has been planted as well. The understory includes vine maple, holly, and ivy. A small clearing has been maintained within the Icarus Loop woods; a few native plantings have also been added along a nearby stormwater channel. A landscaped open area borders the riparian forest between Icarus Loop and Stephenson Road.

The City has mapped both Sensitive Riparian Corridor and Tree Grove overlays along this stream corridor.

#8 Jefferson Parkway to Kerr Parkway Greenway

A steep wood chip trail passes through nice, predominantly deciduous, full canopy woodland. Comprised primarily of bigleaf maple, it also includes a few red alder, Douglas fir, and sweet cherry. Understory shrubs include Oregon grape, thimbleberry, hazelnut, vine maple, and snowberry. Variety of invasive shrubs as well, including English ivy, English holly, Himalayan blackberry, and Clematis. Somewhat weedy groundcover includes sword fern, woodland avens, fringecup, herb Robert, and a bit of false brome. A few old 'nurse' stumps support red huckleberry and salal.

#12 Del Prado→Botticelli Greenway

Freshly paved trail along seasonal drainageway, with mixed conifer-deciduous overstory. Understory in this stand is dominated by English holly, which provides good year-round cover for wildlife, but has also choked out more desirable species. While control of this plant is definitely desirable, it should be approached in phases to avoid degrading the existing habitat functions. Restoration efforts should include the planting of more desirable understory species.

#14 and #15 Tanglewood Park/ Gress Park Natural Areas

- ***Sensitive Riparian Corridor and Tree Groves***

The Tanglewood Park/ Gress Park complex represents the largest contiguous natural area within the Mountain Park HOA service area, including both lightly managed natural area and more intensively managed park like grounds without road crossings. Light management implies trail maintenance and limited weed control, while more intensively managed areas are typically mowed periodically and may require maintenance of play structures or other facilities. Most of this natural area is lightly managed.

The natural area is typically comprised of native mixed conifer-deciduous forest dominated by Douglas fir and bigleaf maple. The shrub understory often includes one or more invasive species as dominants, with English ivy and English holly the most prevalent. Despite the presence of non-natives, this area has good structural and species diversity, providing the highest quality wildlife habitat in the HOA.

In addition, the City has mapped these contiguous parks with both Sensitive Riparian Corridor and Tree Grove overlays. The riparian areas are most accessible near the Preakness or Monticello trailheads, and from within Gress Park.

#19 Traffic 'Islands'

This designation refers to several 'islands' of landscaping between divided road segments. A total of ten islands are mapped in Figure 1. Each island is maintained to at least some degree, with vegetation varying from mature trees with scattered shrub understory, to mostly mowed lawn with a few scattered shrubs. Their narrow configuration and regular disturbance from automobile and other traffic limits these areas as wildlife habitat. Nevertheless, where trees and shrubs provide some structural diversity, certain species (primarily birds well adapted to developed areas) may utilize these areas.

Miscellaneous Landscape Categories

Buffer Zones between Common and Private Parcels

These areas are transitional between the HOA-managed common areas and private parcels maintained by individual landowners. Given the complex pattern of Mountain Park development over time, these buffers currently vary from being fully landscaped in both common and private areas (with virtually no change in vegetation) to having an abrupt edge between the two (i.e. densely vegetated natural area to mowed lawn).

Since private landowners may currently introduce landscape plants with a high potential to invade natural areas, better awareness on everyone's part as to which plants should be avoided will aid future HOA management of these areas.

Note: these buffers have not been separately mapped due to their highly variable width and vegetative character.

Managed Lawn areas along Roadsides

These areas are typically very narrow and restricted to the immediate roadside right-of-way or easement. In some instances these mowed lawn areas also border a pedestrian trail, and may include a narrow landscaped margin comprised of introduced trees and/or shrubs. The roadside features may or may not broaden into larger natural areas; typically this miscellaneous category refers to those narrow isolated road sections that have been mapped but not separately designated by number.

As was also mentioned with regard to plant community mapping, this habitat category can typically not be distinguished from more natural forest habitats, since tree canopies often obscure any open lawn areas below on available aerial photographs.

4.0 RESOURCE MANAGEMENT STRATEGIES

4.1 Conservation/ Restoration Goals

The Mountain Park HOA study area includes numerous greenspaces and parks, a certain number of which include a relatively intact, native mixed forest overstory. Conservation of the existing habitat functions and values in these areas should be prioritized wherever practicable. In addition, for those areas which currently receive regular maintenance but that are seldom utilized by residents, there are opportunities to improve or even restore native habitat. Several of these opportunities are further explored below.

Management strategies outlined in this section emphasize maintaining or even expanding on invasive species control, with certain species being targeted to the extent that HOA resources allow. Often when left untreated, infestations can get totally out of hand and require an increasingly onerous outlay of manpower and materials to be brought under control. Once treated, however, a long-term vision of habitat restoration is warranted to avoid simply introducing additional invasive species or creating more open lawn areas. Restoring treated areas to a native plant community requires preparation for replanting efforts, installation of desirable species that are well suited to site conditions, and continued weed management.

Restoration of native plant communities can also occur in areas long managed as turfgrass lawn, such as in marginal common areas along roads or at the edges of playgrounds.

4.1.1 Invasive Species Control

Relatively few species of special management concern are found within the study area. Nevertheless, those present can and do pose significant problems over time if not controlled while reasonably manageable. In the case of a few very common species (English ivy in

particular), their widespread prevalence really precludes attempts to totally eradicate them, due both to the unreasonable expense and high likelihood of failure. Finding a happy medium where these species are tolerated in some areas but controlled where their dominance does real harm is the most realistic approach, and which is currently being followed to a large degree by the HOA maintenance staff.

Woody Vines and Shrubs

The following non-native shrubs and woody vines are widely scattered to common within HOA natural areas, and their control is encouraged wherever practicable. Most are found in more shaded forest settings, while others may tolerate more open conditions and can become especially problematic following disturbance. While there are additional non-native trees and shrubs found in the study area, those listed below have the most potential to spread and have few redeeming characteristics (excepting the edible fruit of Himalayan blackberry).

Table 2. Common Invasive Woody Plants in Mountain Park study area

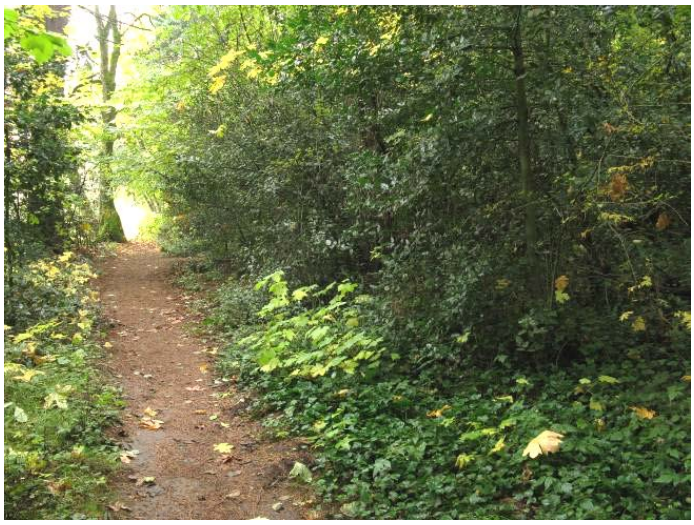
Species Name	Common Name
Clematis vitalpa	Traveler's joy
Crataegus monogyna	English hawthorn
Hedera helix	English ivy
Ilex aquifolium	English holly
Prunus lusitanica	Portuguese laurel
Rubus armeniacus [=R. discolor]	Himalayan blackberry

Species-specific recommendations for woody vines and shrubs are included below;

- **English ivy *(Hedera helix)*** groundcover can be physically pulled up and removed from an area; herbicide use is seldom recommended for control since their effectiveness may be limited due to the plant's thick leaf cuticle. However, if the active ingredient is used with an oil surfactant, better penetration of the cuticle, and thus greater control, is possible (as recently demonstrated by HOA maintenance staff). Climbing vines that have already grown up into the tree canopy are best cut near ground level, with lower portions stripped from the tree trunk to the extent possible. The cut aerial stems will die out over time, eventually falling out of the tree.

  Again, HOA maintenance staff has been very proactive in preventing vines from infesting trees. Given the extensive groundcover infestations persisting in many areas, but with few if any infested trees, it is obvious that extensive control efforts have already been exercised over many years. Controlled areas should be periodically revisited to monitor and if necessary, pull up any new growth.

- **Traveler's joy *(Clematis vitalpa)*** is typically detected when already growing up into woody vegetation; its vines can become dense and ropelike hanging out of tree canopies. Though groundcover can be easily pulled up and removed from the site, aerial vines that have already climbed up into the tree canopy are best cut near ground level, similarly to ivy. The cut aerial stems will die out over time, eventually falling out of the tree. Controlled areas should be periodically revisited to monitor and if necessary, pull up any new growth.
- **Himalayan blackberry *(Rubus armeniacus=R. discolor)*** is an easily recognized thorny shrub with clambering growth habit that can be cut and/or pulled, but will generally grow back rapidly unless treated with an appropriate herbicide; periodic revisits are typically necessary. Few areas are currently infested with this species, indicating ongoing and mostly successful control efforts by HOA maintenance staff.
- **English holly *(Ilex aquifolium),* English hawthorn *(Crataegus monogyna),*** and **Portuguese laurel *(Prunus lusitanica)*** are all potentially large shrubs to small trees that are readily spread into natural areas through seed dissemination (typically by birds).



Their stems can simply be cut, with periodic revisits likely needed to cut any new resprouts from the stumps. However, longer lasting control can be obtained when a freshly cut stump is painted with herbicide immediately after cutting to prevent resprouting. Living trunks can also be treated during the dormant season with a suitable herbicide/oil mixture to provide control with less harm to nearby desirable plants.

Herbaceous Weeds

Additional weedy species may be introduced into the understory over time, especially following disturbances such as ivy clearing. Periodic inspection of newly disturbed areas is necessary to limit their spread. Relatively few herbaceous weeds are currently a problem in the HOA study area. However, several could become bigger problems over time, and should be controlled when budgets permit. Herb Robert is the most prevalent of these, with woodland avens, several introduced bamboos, yellow archangel, and thistles being present at widely scattered locations as well. Herb Robert control is included as an example here:

- **Herb Robert *(Geranium robertianum)*** is scattered to common in both upland and riparian forest communities within the HOA. Its rapid growth, high seed production, shade tolerance, and possible allelopathic effects on other plants make this species highly effective at excluding other groundcover species. Hand pulling is effective if plants are carefully pulled from near the base, since stems are fragile. Plants may also be cut with a string trimmer. Timing is crucial in order to prevent plants from going to seed. Even cut plants with flowers, if left in place, may go to seed. Consequently, cut or pulled material should be bagged and hauled offsite.

4.1.2 Landscaping with Native Plants

Restoring a plant community from one dominated by weedy invasives to mostly natives typically requires persistent and ongoing weed control efforts. However, the value of those efforts is limited without also introducing more desirable species that can fill the void created by controlling the weeds. Otherwise the same or other species of weeds will probably refill that void. Since most of the weed problems noted within the Mountain Park HOA service area occur in partially to deeply shaded understories, the range of suitable natives that can compete under such conditions is somewhat limited. Nevertheless, suitable species are generally available from local wholesale nurseries.

Among the greatest challenges are choosing species that are most suitable to a particular microsite, then installing and nurturing the new plantings to enable their survival through the first few years. A particular microsite may have soil texture or moisture conditions that are unsuitable to most species, yet prove favorable to others. Individual species' preference for well drained or seasonally moist soils, combined with their relative shade tolerance, can help determine their suitability to a particular site. After planting, supplemental watering and continued weed control may be required for plant survival, especially during drought conditions or when competing with new weed growth.

Table 3 below suggests several native trees and shrubs that are well adapted to shaded upland to riparian sites in this area. Since many of Mountain Park's natural areas are dominated by a mix of deciduous trees with relatively few conifers, introducing more shade-tolerant conifers will help diversify these stands as well as provide additional year-round cover for wildlife. Introducing a variety of understory species (including evergreens) is especially important in areas where invasive broadleaf evergreens such as English holly and Portuguese laurel are being removed from the understory.

Table 3. Recommended Tree and Shrub Plantings for Partial to Deep Shade within Natural Areas of Mountain Park HOA study area

Scientific Name	Common Name
Trees	
*Abies grandis**	Grand fir
Cornus nuttallii	Pacific dogwood
*Tsuga heterophylla**	Western hemlock
*Thuja plicata**	Western red cedar
Shrubs/Groundcover	
Acer circinatum	Vine maple
Berberis nervosa	Cascade Oregon grape
Gaultheria shallon	Salal
Oemleria cerasiformis	Indian plum
Polystichum munitum	Sword fern
Ribes sanguineus	Red flowering currant
Rosa gymnocarpa	Baldhip rose
Rubus parviflorus	Thimbleberry
Sambucus racemosa	Red elderberry
Symphoricarpos albus	snowberry

***Note that each of these tree species (as well as several other native trees potentially planted in sunny areas) can grow tall enough to eventually block views, so their use near or below houses should be carefully considered prior to planting.**

4.1.3 Additional Habitat Enhancement Examples

Besides the restoration and/or enhancement of native plant communities through a combination of weed control and new plantings, there are additional measures that may be taken to improve habitat for wildlife as well as increase the recreational and educational value of the HOA natural areas for residents.

As discussed previously, habitat elements such as dead snags and large woody debris may be augmented as such opportunities arise. Hazard trees may be modified or removed for safety purposes, but in such a manner that a standing snag or log placement provides the maximum function for wildlife.

One opportunity to enhance both safety and aesthetics for park users is available along the trail through Gress Park. At the stream crossing there is an old warning sign that provides a fairly negative impression of the riparian habitat, one of risk and danger. An alternative approach, one that would provide more protection as well as be less offensive, could be the placement of a rustic split rail fence, possible augmented by barrier vegetation (e.g. Oregon grape, roses). Such a structure would provide a suitable setback from the streambank, while blending more naturally with the setting. This location could also be appropriate for some form of interpretive signage describing the functions and values of the riparian area.

Another longterm opportunity would be to enhance a small intermittent to seasonal drainageway located in Tanglewood Park. Currently, this area is managed for grass lawn under scattered trees, with limited vegetative cover along the drainageway. Fed by a stormwater culvert and lateral groundwater movement, the drainageway is very shallow and typically the wettest in the nearly level reach nearest the culvert, becoming increasingly incised and ditchlike as the gradient steepens and drops into full canopy forest to the north.

Native wetland shrub and groundcover plantings could be introduced along this drainageway's southern reaches, and structural improvements such as reshaping banks or installing log stepdams (in addition to native plantings) could also enhance the deeply incised sections of stream. Observing the drainageway during storm runoff conditions would be required for determining which structural improvements would be most appropriate for this site.

Further opportunities for specific enhancement or restoration activities will be explored in the next phase of this landscape planning effort.

5.0 SUMMARY

The initial phase of this study documents the current extent of natural areas and parks within Mountain Park HOA boundaries, and introduces a range of management actions that are either already occurring, could be expanded upon as financial resources permit, or may be considered as eventual goals as a part of long range planning for these areas.

While specific common areas have already been suggested as good enhancement or restoration opportunities, there are broad categorical improvements that could also be applied to such common features as entry monuments and their associated landscaping. Since the entry monuments actually provide a highly visible first impression of the Mountain Park area, renewing their look to provide a more consistently Northwestern or rustic landscape character can help save maintenance costs over time as well as increase the overall appeal of the community as a 'Gateway to Nature'. Monuments should also be removed from locations where they are no longer clearly visible to people entering Mountain Park.

Setting realistic goals for both categorical and specific improvements to natural areas will be the focus of discussions based on information gathered for this document. Table 4 below lists some of the potential management actions that may be appropriate for different common areas, and tentatively prioritizes these actions. Certainly, areas may be added, deleted, or their levels of priority adjusted to acknowledge the availability of financial resources, all within the framework of a master landscape plan for this community. The next phase of the work will provide more detailed and site-specific plans to address the various management priorities proposed in the table below.

Table 4. Management Recommendations for Parks and Greenspaces within the Mountain Park HOA study area

No.	Park Name or Designated Location	Proposed Restoration/ Maintenance Actions	Priority*
1	Hidalgo→Nansen Summit trail segments	• Invasive Species control as needed to achieve native plant goals	2
2	Nansen Summit Park	• Restore with native shrub plantings;	2
3	Garibaldi→Nansen Summit trail	• Invasive Species control as needed to achieve native plant goals	2
4	Hidalgo and Garibaldi 'Greenstrips'	• Invasive Species control as needed near roads	2
5	Hidalgo→Grouse sewer easement	• Native plantings for mowed easement; • Invasive Species control as needed to achieve native plant goals	3 2
6	Hidalgo→Walking Woods (N. of McNary)	• Native plantings for landscaped area; • Invasive Species control as needed to achieve native plant goals	2 1
7	McNary→Walking Woods→Stephenson riparian corridor	• Native plantings for mowed areas; • Replace flower beds with shrubs; • Upgrade monuments; • Invasive Species control as needed to achieve native plant goals	2 3 2 1
8	Jefferson→Kerr Trail	• Invasive Species control as needed to achieve native plant goals	2
9	Bernini→Abelard	• Enhance erosion control measures near bridge (e.g. replace gabions); • Invasive Species control as needed to achieve native plant goals	2 1
10	Cellini Park	• Invasive Species control as needed to achieve native plant goals	1
11	DaVinci→Kerr	• Invasive Species control as needed to achieve native plant goals	1
12	Del Prado→Botticelli	• Invasive Species control as needed (for *Ilex* in particular) to achieve native plant goals; apply control to sections over time to avoid drastic habitat degradation	1
13	Eagle Crest (hillside above road)	• Invasive Species control as needed along road	3
14	Tanglewood Park	• Restore open areas (near Kerr Reservoir, on Jefferson near church, at Preakness entry) with native plantings;	2
		• Enhance drainageway in open area north of Tanglewood Lane entry • Invasive Species control as needed to achieve native plant goals	2 1

No.	Park Name or Designated Location	Proposed Restoration/ Maintenance Actions	Priority*
15	Gress Park	• Restore open lawn north of trail/ stream crossing with native plantings;	2
		• Enhance snags, LWD in riparian area;	2
		• Incorporate interpretive signage (i.e. replace warning sign by stream crossing);	2
		• Utilize split rail fence or barrier plantings to augment or replace warning sign by creek	2
		• Restore open transitional areas along private property with native plantings;	3
		• Invasive Species control as needed to achieve native plant goals	1
16	Kerr→The Grotto→ McNary→ Cirque	• Invasive Species control as needed to achieve native plant goals	2
17	Boones Ferry (Monroe→Country Club)	• Invasive Species control as needed to achieve native plant goals	3
18	Touchstone Park	• Potentially restore portions with native trees and shrubs;	3
19	Traffic Islands	• Invasive Species control as needed to achieve native plant goals • Reclaim with native trees/shrubs	1 2
Misc	Buffer Zones between Common and Private Parcels	• Invasive Species control as needed to achieve native plant goals • Reclaim with native trees and shrubs	1 2
Misc	Managed Lawn areas along Roadsides	• Invasive Species control as needed to achieve native plant goals • Reclaim with native trees/shrubs	1 2

Tentative Priority ratings for management actions:

- *1→High*
- *2→Medium*
- *3→Low*

Appendix A

Figures

No.	Park Name or Designated Location	Feature Type
1	Hidalgo→Nansen Summit trail segments	Natural Area
2	Nansen Summit Park	Landscaped Park/Viewpoint
3	Garibaldi→Nansen Summit trail	Natural Area
4	Hidalgo and Garibaldi 'Greenstrips'	Natural Areas upslope of roads
5	Hidalgo→Grouse sewer easement	Natural Area
6	Hidalgo→Walking Woods (N. of McNary)	Natural Area / Viewpoint/ Monument
7	McNary→Walking Woods→Stephenson riparian corridor	Natural Area / Riparian/ (2) Monuments
8	Jefferson→Kerr Trail	Natural Area / Riparian
9	Bernini→Abelard	Natural Area / Riparian/ Lawn area
10	Cellini Park	Playground/ Natural Area
11	DaVinci→Kerr	Natural Area
12	Del Prado→Botticelli	Natural Area / Riparian
13	Eagle Crest (hillside above road)	Natural Area
14	Tanglewood Park	Natural Area / Riparian/ Landscaped
15	Gress Park	Landscaped Park-Playground/ Riparian/ Natural Area
16	Kerr→ The Grotto→McNary→Cirque	Natural Area / Riparian
17	Boones Ferry (Monroe→Country Club)	Natural Area / Riparian
18	Touchstone Park	Playground/ Landscaped
19	Traffic Islands	Landscaped to Partly Natural
Misc	Buffer Zones between Common and Private Parcels	Landscaped to Partly Natural
Misc	Managed Lawn areas along Roadsides	Landscaped

MOUNTAIN PARK
Nature's Neighborhood

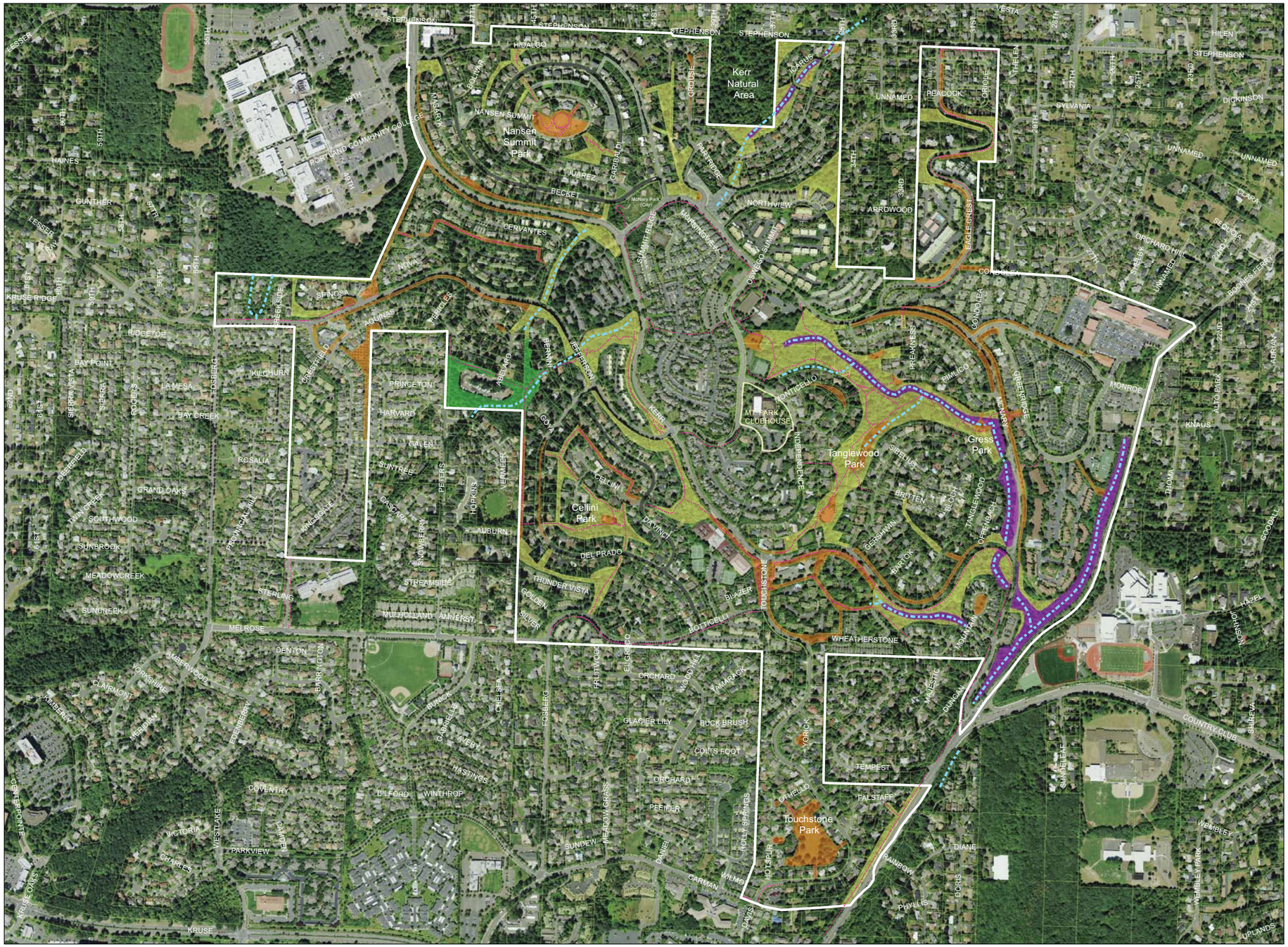
Mountain Park HOA Existing Natural Areas
1/30/12

FIGURE
1

0 500 1,000 1,500 Feet

N

PACIFIC HABITAT SERVICES
9450 SW Commerce Circle, Ste. 180
Wilsonville, Oregon 97070
Phone: (503) 570-0800
Fax: (503) 570-0855
E-mail: phs@pacifichabitat.com



Existing Mountain Park Trails
Streams
Mountain Park HOA Boundary
Upland Mixed Conifer-Broadleaf Forest
Upland Conifer Forest
Upland Broadleaf Forest
Riparian to Wetland Mixed Conifer-Broadleaf Forest
Landscaped Common Areas/ Playgrounds/Open Lawn

MOUNTAIN PARK
Nature's Neighborhood

Mountain Park HOA Existing Plant Communities
1/30/12

FIGURE 2

N

0 500 1,000 1,500 Feet

PACIFIC HABITAT SERVICES
9450 SW Commerce Circle, Ste. 180
Wilsonville, Oregon 97070
Phone: (503) 570-0800
Fax: (503) 570-0855
E-mail: phs@pacifichabitat.com

Appendix B

Partial Plant List

Partial Plant List
Mountain Park HOA properties, Lake Oswego, Oregon
(Compiled during November, 2011; excludes most horticultural plantings)

Scientific Name	Common Name	Native/ Introduced?[1]
TREES		
Acer macrophyllum	Bigleaf maple	N
Alnus rubra	Red alder	N
Betula pendula	European white birch	I
Fraxinus latifolia	Oregon ash	N
Pinus sp.	Pine (introduced)	I
Populus trichocarpa	Black cottonwood	N
Prunus avium	Sweet cherry	I
Pseudotsuga menziesii	Douglas fir	N
Salix scouleriana	Scouler's willow	N
Salix lasiandra	Pacific willow	N
Sorbus aucuparia	European mountain-ash	I
Thuja plicata	Western red cedar	N
SHRUBS		
Acer circinatum	Vine maple	N
Amelanchier alnifolia	Saskatoon serviceberry	N
Berberis aquifolium	Tall Oregon grape	N
Berberis nervosa	Cascade Oregon grape	N
Clematis vitalpa	Clematis	I
Cornus sericea	Red osier dogwood	N
Corylus cornuta	California hazel	N
Crataegus monogyna	English hawthorn	I
Gaultheria shallon	Salal	N
Hedera helix	English ivy	I**
Holodiscus discolor	Ocean spray	N
Ilex aquifolium	English holly	I**
Oemleria cerasiformis	Indian plum	N
Prunus lusitanica	Portuguese laurel	I**
Rhododendron spp. *(may include both native and hort. vars)*	Rhododendron (varieties)	N/I
Rosa gymnocarpa	Baldhip rose	N
Rubus discolor [=R. armeniacus]	Himalayan blackberry	I**
Rubus parviflorus	Thimbleberry	N
Rubus ursinus	California dewberry	N
Salix sp.	willows	N
Sambucus racemosa	Red elderberry	N
Symphoricarpos albus	Snowberry	N
Vaccinium parvifolium	Red huckleberry	N
FORBS		

Scientific Name	Common Name	Native/ Introduced?[1]
Athyrium filix-femina	Lady fern	N
Cirsium arvense	Canada thistle	I**
Cirsium vulgare	Bull thistle	I**
Daucus carota	Queen Annes lace	I
Epilobium watsonii	Watsons willowherb	N
Equisetum arvense	Field horsetail	N
Geranium robertianum	Herb Robert	I**
Geum macrophyllum	Largeleaved avens	N
Geum urbanum	Woodland avens	I**
Lamiastrum galeobdolon	Yellow archangel	I**
Lapsana communus	nipplewort	I
Osmorhiza berteroi [=O. chilensis]	Common sweet cicely	N
Polypodium glycyrrhiza	Licorice fern	N
Polystichum munitum	Sword fern	N
Ranunculus repens	Creeping buttercup	I
Solanum dulcamara	Bittersweet nightshade	I
Tellima grandiflora	Fringecup	N
Vancouveria hexandra	Inside-out flower	N
GRAMINOIDS		
Agrostis stolonifera	Creeping bentgrass	I
Alopecurus pratensis	Meadow foxtail	I
Bambusia, Phyllostachys, etc.	Various bamboo varieties	I**
Brachypodium sylvaticum	False brome	I**
Carex leptopoda [=C. deweyana]	Dewey's sedge	N
Dactylis glomerata	Orchardgrass	I
Elymus glaucus	Blue wildrye	N
Festuca arundinacea	Tall fescue	N
Holcus lanatus	Common velvetgrass	I
Phalaris arundinacea	Reed canarygrass	I**

[1]Species **N**ative or **I**ntroduced to this area?

** Noxious species; highly invasive, control efforts may be warranted

Appendix C

Partial Wildlife List

Partial Wildlife List
Mountain Park HOA properties, Lake Oswego, Oregon
(Birds Compiled during November, 2011; mammals assumed to be present)

Common Name	Scientific Name
MAMMALS	
Black-tailed deer	*Odocoileus hemionus*
Coyote	*Canis latrans*
Brush rabbit	*Sylvilagus bachmani*
Eastern fox squirrel	*Sciurus niger*
Virginia opossum	*Didelphus virginiana*
Raccoon	*Procyon lotor*
BIRDS	
Western screech owl	*Otus kennicottii*
Scrub jay	*Aphelocoma coerulescens*
Steller's jay	*Cyanocitta stelleri*
American Robin	*Turdus migratorius*
Black capped chickadee	*Parus atricapillus*
Song sparrow	*Melospiza melodia*
American crow	*Corvus brachyrhynchos*
Spotted towhee	*Pipilo erythrophthalmus*
Red-breasted nuthatch	*Sitta canadensis*
Ruby crowned kinglet	*Regulus calendula*
European starling	*Sturnus vulgaris*
Anna's hummingbird	*Calypte anna*
Bushtit	*Psaltriparus minimus*
Bewick's wren	*Thryomanes bewickii*
Hairy woodpecker	*Picoides villosus*
Northern flicker	*Colaptes auratus*