

AVOIDING IMPACTS ON NESTING BIRDS

BEST MANAGEMENT PRACTICES

VEGETATION AND CONSTRUCTION PROJECTS



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ENVIRONMENTAL SERVICES
CITY OF PORTLAND

Contact:

David Helzer
Bureau of Environmental Services
City of Portland
503-823-2761
david.helzer@portlandoregon.gov

Jennifer Devlin
Bureau of Environmental Services
City of Portland
503-823-6182
jennifer.devlin@portlandoregon.gov

Find injured or orphaned birds?

Contact:

Audubon Society of Portland
Wildlife Care Center
503-292-0304

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1.0 INTRODUCTION

The Terrestrial Ecology Enhancement Strategy (TEES) is part of the City of Portland’s Watershed Management Plan (PWMP), and is intended to help achieve the watershed health goals and objectives in the PWMP, particularly those for biological communities. Information about, and agreed-upon conservation and restoration priorities for, terrestrial plant and animal species and habitats in Portland inform the ongoing implementation of the PWMP.

The main elements of the TEES include:

- Identification of priority plant and animal species and terrestrial habitats in need of protection, conservation and/or restoration
- Identification and prioritization of key management issues
- Recommendations for watershed-specific objectives
- Identification of priority strategies and actions
- Selection of species and habitats to be monitored
- *Guidance to city bureaus and citizens for improving habitat and addressing plant and wildlife management issues*

This document provides information about nesting bird species in Portland and guidance that can inform habitat management decisions and in project timing, selection, design and maintenance. Intended audiences include: the Bureau of Environmental Services and Portland Parks & Recreation¹. Following these guidelines may minimize the chances of City activities (e.g., stream enhancement construction projects, invasive plant species removal and revegetation efforts) resulting in a “take” of nesting birds.

*It should be noted that these guidelines are advisory only, and simply present some precautionary actions to avoid the “take” of native birds. **They are intended to help facilitate project implementation—not hinder it. If followed, the guidelines will help you avoid conflicts and last-minute delays.** You can think of these as “Best Management Practices” for stream and upland restoration projects and revegetation activities. In order to safeguard migratory birds, employees are encouraged to practice as much due diligence as can reasonably be expected while carrying out their activities. **Because every project presents its own set of challenges (e.g., funding deadlines, weather, public safety), this document recognizes the need for flexibility in selecting strategies. It is recognized that there may be a variety of possible options for consideration on a project-by-project basis.***

¹ These guidelines have not been written to apply to Portland Bureau of Transportation (PBOT). PBOT employees should instead refer to the Oregon Department of Transportation’s Highway Division Directive #ENV 01-01.

2.0 BIRDS IN PORTLAND

There are over 200 bird species that spend all—or part—of their lives in Portland. Some are “resident” species, meaning they are non-migratory. For example, birds (such as scrub jays) spend their whole life in the same neighborhood and never migrate. Others (such as warblers) are migratory; they spend winters in Central and South America, but may breed here. Still others (such as some shorebirds) pass through this area on their migratory routes to feed and rest.

In addition to native bird species, there are some non-native bird species in Portland. These include rock pigeons (city or “street” pigeons), house sparrows, European starlings, ring-necked pheasant, domestic ducks and geese, and peacocks. These guidelines do not apply to non-native species.

The City has developed a *Special Status Species* list that includes over 50 birds. These are species that have been placed on Threatened, Endangered, and Sensitive lists or other “watch lists” by agencies and organizations (e.g., U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Partners In Flight). This list includes some birds that regularly nest in neighborhoods, parks and natural areas, like rufous hummingbirds, willow flycatchers and Vaux’s swifts. Because their populations are in decline, any disturbance to individuals or their breeding habitat is a significant concern.

3.0 NESTING BEHAVIOR OF PORTLAND BIRDS

Birds can be found nesting anywhere, even in the most developed areas. This guidance document describes those times of the year that birds are more likely to be present or nesting in a project area within the City of Portland. It also describes actions that minimize the risk of taking an actual bird or disturbing a nest without stopping a project. This guidance follows the adage that a little advanced planning can go a long way, and minimize problems later on. While these guidelines are directed at restoration and revegetation programs, they may be appropriate for a range of BES and Parks’ projects.

3.1 Timing

The best way to avoid disturbing birds is to schedule activities outside the nesting season. The nesting season is not the same for all species, and not all sites will have nesting birds present during the entire nesting season. Furthermore, about 100 species of birds build nests, lay eggs and raise young in the City. Determining what can or cannot be done can be challenging. However, here is some guidance so that you don’t have to know the particulars of each species. (But if you *are* interested in individual species, **Appendix A** is a list of average spring arrival dates of birds in the Portland Metro Area).

Non-nesting Season: August 1 – January 31

Nesting Season: The nesting season can be divided into two major time- frames:

Early Nesting Season: February 1 – April 15

Raptors (owls, eagles, falcons and hawks), herons, geese, and hummingbirds are early nesters. Great-horned owls are exceptionally early nesters and may lay eggs in January. Many early nesters have longer breeding cycles and most will not complete breeding until June or July.

Primary Nesting Season: April 15 - July 31

This includes songbirds and the majority of species. Willow flycatchers are late nesters, often extending to the end of August.

As they leave the nest, young birds go through the fledgling phase. They are often seen on the ground, flightless and unable to fend for themselves, however the adults are nearby and tending to them. June and July are peak months for fledgling activity. They often take shelter in *low vegetation* and are highly vulnerable to a variety of human disturbances at this critical time.

3.2 Nesting Habitats

Trees: Stick nests of hawks, crows, and jays placed in tree canopies are among the most conspicuous and familiar signs of nesting birds on the City. These are the easiest to detect and the easiest to avoid.

Shrubs: The majority of nesting birds build a cup nest in dense vegetation in the shrub layer, often close to the ground. These species – sometimes called “tangle nesters” – complicate reasonable efforts to avoid taking protected birds. Willow flycatcher, a species in decline, actually builds nests in Himalayan blackberry, an invasive plant species heavily managed in the City.

Ground: Many species place a well concealed nest on the ground in either open areas or forested habitats. Examples include meadowlarks, harriers, killdeer and Wilson’s warblers.

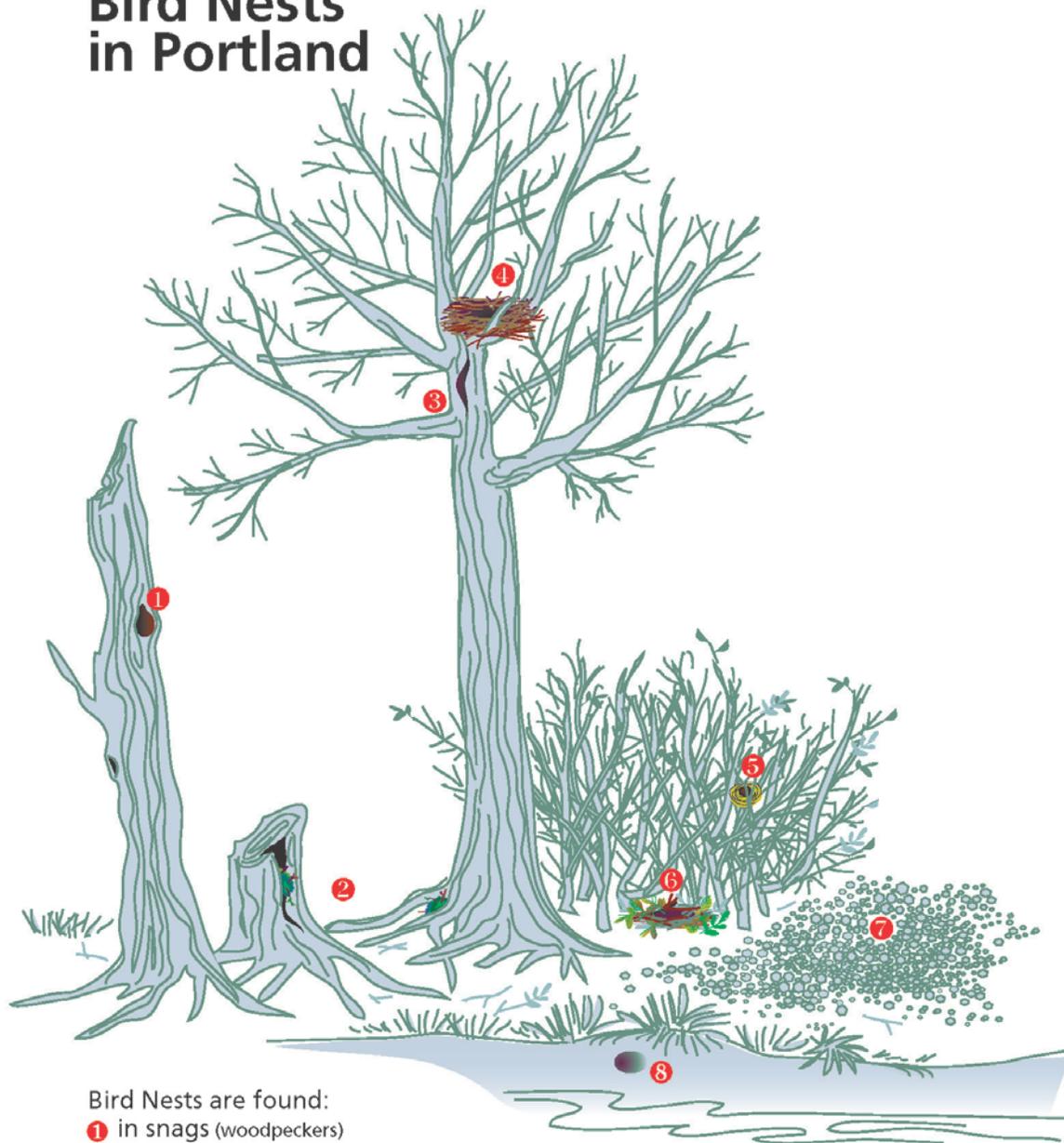
Cavity: Rather than concealing a nest in vegetation, dozens of local species use cavities. These are often in dead or dying trees, but can also be in the ground or in a variety of structures in the urban environment. Tree swallows, Bewick’s wrens and downy woodpeckers are common cavity nesters.

Streambanks: The northern rough-winged swallow and the belted kingfisher are “cut bank” nesters, meaning they use holes excavated in streambanks for nesting. Sometimes they even use holes on steep slopes of dirt stock piles.

Structures: Many birds use human-made structures for nesting. In addition to using bird boxes that are intended for such use, birds will nest on bridges, under house eaves, on building ledges, utility and light poles, on railroad tracks and even on gravel roads.

Appendix B provides a list of Portland area birds and the types of habitats they use for nesting.

Bird Nests in Portland

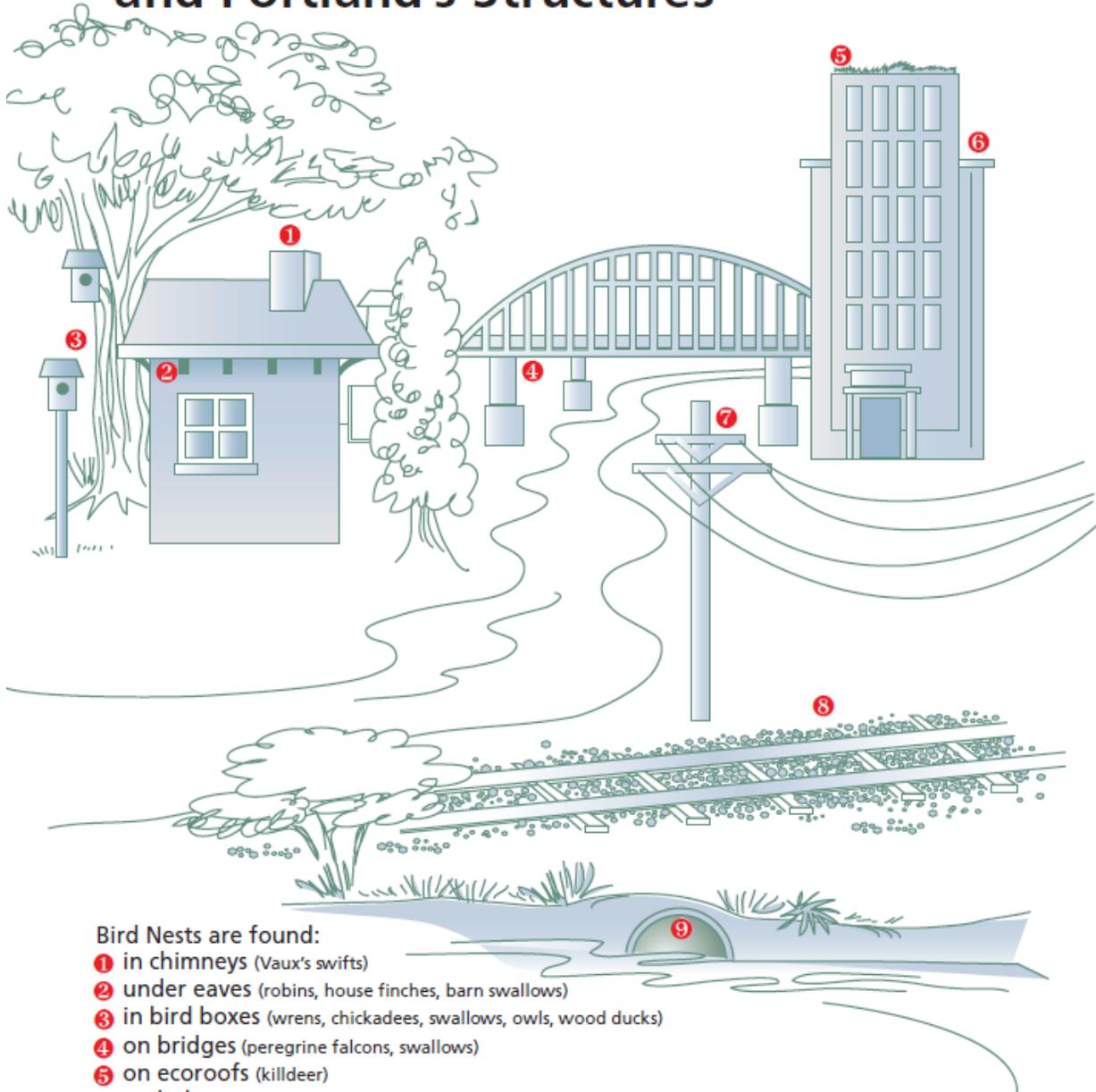


Bird Nests are found:

- ① in snags (woodpeckers)
- ② in log and stump crevices, and around roots (winter wrens)
- ③ in tree crevices (chickadees, brown creepers)
- ④ in tree branches (jays, crows, herons)
- ⑤ in shrub branches (hummingbirds, warblers, song sparrows)
- ⑥ on ground under shrubs (spotted towhees)
- ⑦ in open gravel (killdeer)
- ⑧ in streambanks (kingfishers)

WS 1013 Feb 2010 © Environmental Services City of Portland

Bird Nests and Portland's Structures



Bird Nests are found:

- ❶ in chimneys (Vaux's swifts)
- ❷ under eaves (robins, house finches, barn swallows)
- ❸ in bird boxes (wrens, chickadees, swallows, owls, wood ducks)
- ❹ on bridges (peregrine falcons, swallows)
- ❺ on ecoroofs (killdeer)
- ❻ on ledges (red-tailed hawks, mourning doves, crows)
- ❼ on utility and light poles (ospreys, Canada geese)
- ❽ on railroad tracks and gravel roads (killdeer, spotted sandpipers)
- ❾ in culverts (barn swallows)

4.0 GENERAL GUIDELINES

While many City activities and projects can potentially impact nesting birds, especially construction and maintenance, this guidance focuses on stream enhancement and revegetation projects, mowing, removal and maintenance of structures, and water-level management. Any projects that include removal of live trees or standing dead trees (snags), native or non-native invasive vegetation removal, grubbing and clearing may disrupt bird nesting. Assessing bird use in the project area prior to construction and altering the timing of plant removal are recommended.

Here are some general guidelines to help you plan project activities (*for a summary overview, please refer to page 21 of this document*):

When to Plan Disturbance (see Appendix C):

August 1 – January 31 is the best time to plan for tree removal, invasive plant species management, and grubbing and clearing.

When to Avoid Disturbance (see Appendix C):

February 1 – April 15 is the early nesting season. Disturbance to vegetation, especially trees, should be avoided during this time.

April 15 – July 31 is the primary nesting season. Disturbance to vegetation should be avoided during this time.

Note: If birds are not present during nesting season, vegetation removal and other disturbance activities may proceed.

4.1 What If Work Must Occur During Avoidance Periods?

If work must occur in the recommended avoidance time frames, the project area and specific vegetation impacted should be surveyed for nesting birds. Appendix D is a Bird Nesting Assessment Form that can be used. If an active nest is found, avoid it until the young have fledged. “Active” nests are defined as those with eggs or young.

4.2 Who Conducts A Nesting Bird Survey?

BES and Parks personnel who can identify bird species are encouraged to fill out the Bird Nesting Assessment Form. However, because some teams may not have the technical expertise or time to conduct bird surveys, there are several other options:

Terrestrial Ecology Enhancement Team (TEES) members may be called upon. The services of an on-call contractor may be used (this is encouraged for projects that cover large areas or large numbers of trees).

5.0 SPECIFIC GUIDELINES

Below are some recommended guidelines for four broad types of actions—stream enhancement projects, invasive plant species removal, other vegetation removal, and other management activities. These are summarized in matrix format in **Appendix E**.

5.1 Stream Enhancement Construction Projects

Since many City projects have in-water work windows from June 1 to October 31 (see **Appendix C**), the bird nesting period can best be avoided if:

Vegetation removal and erosion control occurs prior to February 1
or
 All construction activities begin after July 31.

If vegetation disturbance, removal or other work must occur during nesting season, please confer with the Terrestrial Ecology Enhancement Strategy (TEES) team for project-specific guidance.

5.2 Invasive Species Management

There are a number of programs and efforts that are specifically aimed at removing invasive plant species (e.g., BES Watershed Revegetation Program, BES Early Detection and Rapid Response Program, Parks' Protect the Best Program, Parks' Volunteer Stewards, Parks' Ecologists). It is important to plan invasive species removal to coincide with times best for eradication *and* to avoid disturbance to nesting birds. The following recommended guidelines will help avoid disturbance to nesting birds:

Blackberry – One of the most beneficial invasive plants for native birds. Heavily used by a myriad of species for nesting, foraging and winter cover.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Blackberry spraying and removal is generally fine EXCEPT for areas with willow flycatchers (such as Johnson Creek, Columbia Slough and Powell Butte areas). The willow flycatcher is a sensitive species in serious decline and a late nester, often until the end of August.
- Early Nesting Season (February 1 – April 15) – Blackberry spraying and removal is OK. Watch for Anna's hummingbirds which are early nesters and defend their territory with displays that are easily heard and seen.
- Primary Nesting Season (April 15 – July 31) – Avoid major spray and removal. Maintenance management and volunteer efforts are OK, but watch for song sparrow, spotted towhee and California quail nests, which are on ground or in blackberry plants. AVOID if present.
- Remember: Willow flycatchers' nesting season extends through August. Therefore, avoid April 15 – August 31 in riparian and wetland habitats

Clematis – Growth form provides the type of cover many nesting birds are seeking. Although not well-documented, it is likely that many local species are placing nests in or under clematis clumps

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Air gapping and root grubbing is OK.
- Early Nesting Season (February 1- April 15) - Air gapping and root grubbing is OK. Be sure to leave vines in trees to decompose in case there is an early tree nester.
- Primary Nesting Season (April 15 – July 31) – Air gapping is OK. Avoid root grubbing and pulling vines down. Watch for nearby active nests on the ground and in shrubs.

Garlic Mustard – There is no known use of garlic mustard by nesting birds. However, garlic mustard is typically treated with spot spraying or hand pulling in the nesting season, and there may be nests nearby in other plant species.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Spraying and hand pulling is OK.
- Early Nesting Season (February 1- April 15) - Spraying and hand pulling is OK. Watch for ducks, killdeer or other ground nesters when treating garlic mustard along streams or along parking areas.
- Primary Nesting Season (April 15 – July 31) – Spot spraying and hand pulling is OK. Watch for nests low to the ground. If a nest is found, leave the surrounding vegetation.

Hawthorne – Cedar waxwings and American robins are two species that commonly build open cup nests in hawthornes.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Generally removal is OK. However, if removing hawthornes in willow flycatcher areas such as Powell Butte, avoid removal **until after August 31**.
- Early Nesting Season (February 1- April 15) – Girdling is OK. Avoid tree removal.
- Primary Nesting Season (April 15 – July 31) – Avoid removal.

Holly and Laurel – Although these invasive trees are a threat to native habitats, many birds will use them to build nests and raise young.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is the best time for intensive first treatments to areas with dense holly and laurel stands.

- Early Nesting Season (February 1- April 15) – Removal is likely OK. Watch for nesting behavior and avoid if observed.
- Primary Nesting Season (April 15 – July 31) – Avoid intensive first treatments. If removal is required, visually inspect smaller trees (i.e., under 10 feet) for small cup nests. If there are larger specimens to be removed, a more thorough survey is recommended. Watch for robin and other nests and avoid if present.

Ivy: Ground Ivy – There are no native birds known to exclusively use ground ivy, but typical ground and low shrub nesters are spotted towhees and song sparrows. Pulling ivy in the primary nesting season could disturb native vegetation, or the presence of a group of people for an extended period of time could cause nest to be abandoned.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Foliar spray and hand pulling is OK
- Early Nesting Season (February 1- April 15) – Foliar spray and hand pulling is OK.
- Primary Nesting Season (April 15 – July 31) - Avoid pulling and foliar spraying if possible. Hand pulling can take place, but with caution. Look and listen for winter wrens, and watch for nesting birds nearby. If there is an active nest in the area, do not work in there.

Ivy: Tree Ivy – There are no native birds known to exclusively use tree ivy, though there are many that use branches on the infested tree such as robins and vireos. Pulling ivy down after cutting could pull active nests down.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Air-gapping is OK.
- Early Nesting Season (February 1- April 15) - Air-gapping is acceptable, but leave ivy in trees to decompose slowly.
- Primary Nesting Season (April 15 – July 31) - Air-gapping is acceptable, but leave ivy in trees to decompose slowly. Watch for nearby active ground and shrub nests and avoid if present.

Knapweed, Tansy, and Thistle – Grassland birds will use non-native, weedy areas for nesting.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – Spot spraying is OK.
- Early Nesting Season (February 1- April 15) – Spot spraying is OK, but watch for killdeer nests on the ground. Birds will flush and perform a loud distraction display. Avoid area if present.
- Primary Nesting Season (April 15 – July 31) - Spot spraying of herbicides is acceptable any time, but watch for Savannah sparrows, common yellowthroats, American goldfinches and nests in nearby shrubs and grasses. Avoid if present.

Knotweed – Use by native birds is not well-known.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is a good time for foliar spray or injection.
- Early Nesting Season (February 1- April 15) – This is a good time for foliar spray or injection.
- Primary Nesting Season (April 15 – July 31) – Treatment is likely OK, but watch for nearby nests.

Purple Loosestrife – Wetlands are important to many native nesting birds, and therefore, actions to control purple loosestrife may have the potential to affect them.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is a good time to treat loosestrife.
- Early Nesting Season (February 1- April 15) – Herbicide application is OK until March 1. Watch for ducks in wetlands, as they tend to breed early – typically in March.
- Primary Nesting Season (April 15 – July 31) – Avoid vegetation management. If mid-summer treatment is advised, watch for red-winged blackbirds and American goldfinch nests in plants, and watch for ducks on the ground.

Reed Canarygrass – Common yellowthroats, mallards and cinnamon teal have been documented nesting in reed canarygrass at a wetland adjacent to the Columbia Slough. Growing and treatment season for reed canarygrass is March through August, which may conflict with nesting birds, since it's typically mowed in May and June.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is a non-conflict time to cut, spray or grub.
- Early Nesting Season (February 1- April 15) – Typical treatment (hand-spraying) is OK in March and April. Watch for nesting ducks such as cinnamon teal.
- Primary Nesting Season (April 15 – July 31) – Avoid vegetation management. Conduct nest survey if mowing is advised.

Yellow Flag Iris – Red-winged blackbirds have been known to nest in patches of yellow flag iris.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is a good time for herbicide application and mechanical removal.

- Early Nesting Season (February 1- April 15) – Herbicide application and mechanical removal is OK until March 1. Watch for duck nests along the shore after March 1, and avoid if present.
- Primary Nesting Season (April 15 – July 31) – Avoid vegetation management. Watch for red-winged blackbird and duck nests along the shore and in reeds.

5.3 Other Vegetation Management

At times, it is necessary to remove non-invasive, non-native—or even native—trees, snags, shrubs and ground cover. If so, the following recommendations should be followed.

Live Tree Removal (Native and Non-Native) – Native, as well as non-native, live trees can host nesting birds any time from February 1 to August 31. Many of the early nesters are larger birds (e.g., herons, raptors) with larger nests that are easier to detect early in the season prior to leaf-out.

Management Recommendations:

- Non-nesting Season (August 1- January 31) – Tree removal and girdling is OK.
- Early Nesting Season (February 1 – April 15) – Avoid tree removal, but girdling is OK. If trees must be removed, watch for early nesters: owls, hawks and Anna’s hummingbird (and killdeer on the ground). Scan canopies for any possible nests; if any are found seek assistance to determine if they are active.
- Primary Nesting Season (April 15 – July 31) – Avoid tree removal, but girdling is OK.

Snag Removal – Snags (standing dead trees) and standing dead wood play critical roles for many bird species. Snags attract insects, which are a vital source of food for woodpeckers and others birds. They provide perches, and are often the only source of cavities for cavity-nesting birds. In general, the following steps are recommended:

- Leave snags when possible.
- If there is a public safety concern, trim offending branch(es), leaving as much of the snag as possible.
- If all branches are unsafe, trim branches and leave the trunk.
- If the trunk is very tall and considered unsafe, leave 20 – 40 feet.
- If removal is unavoidable and there are no nearby trees appropriate for girdling, consider auguring the removed dead tree trunk into the ground. Use the tree branches for terrestrial habitat elements within the project site so that food sources and perch sites remain in the area.

Management Recommendations (if a snag must be removed, or if there is a public safety issue):

- Non-nesting Season (August 1 – January 31) – This is the best time for snag removal.
- Early Nesting Season (February 1- April 15) – Watch for early snag nesting birds such as owls, and avoid removal if possible.
- Primary Nesting Season (April 15 – July 31) – Avoid snag removal if possible.

Shrub Removal (Native and Non-Native) – Low, dense shrub cover is vitally important nesting habitat and supports more breeding birds than trees do in the Portland area. Birds will nest at a variety of heights in the shrub layer. For example, spotted towhees build nests from ground level up to about 15 feet.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is the best time for vegetation removal.
- Early Nesting Season (February 1- April 15) – Watch for early nesters such as Anna’s hummingbirds in shrubs; they often produce loud visual displays near their nests. Watch for killdeer which nest on open ground and make loud displays to distract predators from the nest. Be aware of ducks or other birds flushing suddenly off the ground.
- Primary Nesting Season (April 15 – July 31) – Avoid vegetation impacts and removal.

Grassland Mowing and Ground Cover Removal (Native and Non-Native) – Many species only build their nests on the ground. Some will build below dense shrub cover (e.g., Wilson’s warbler), while others will conceal their nest in grass (e.g., Savannah sparrow, Western meadowlark). Still others will build an exposed nest on gravel or bare ground (e.g., horned lark, killdeer). Ground nesters are vulnerable to a variety of disturbances.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – This is the best time for ground cover removal or disturbance like road building.
- Early Nesting Season (February 1- April 15) – Proceed with caution: Be aware of killdeer, often calling loudly and feigning injury when you are near their nest. Be aware of ducks or other birds flushing suddenly off the ground.
- Primary Nesting Season (April 15 – July 31) – Avoid mowing and removal of ground cover.

Controlled Burn – This is a useful technique for controlling some plant species and encouraging native grasses. Some birds, such as horned larks and Western meadowlarks, nest in grasslands, however.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – OK to burn.

- Early Nesting Season (February 1- April 15) – OK to burn.
- Primary Nesting Season (April 15 – July 31) – Avoid burning.

5.4 Other Management Activities

Several activities that can affect nesting birds do not involve vegetation treatment or management. These include removing structures and manipulating water levels.

Removing and Maintaining Structures – Some birds use structures for winter roosting, but may also use them for nesting. Removing structures and maintenance activities (e.g., pressure-washing, painting and repair work) is another activity that can disrupt nesting birds. Osprey nests are often found on artificial structures near water. Barn owls, cliff swallows, barn swallows and Vaux’s swifts are examples of protected species that readily use buildings for nesting. From February 1 to July 31, building demolitions should include a survey for nesting birds.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – OK to remove structures, but if birds are using the building for winter roosting, flush the bird from the building and allow them an opportunity to exit (e.g., make loud noises). If removing a roost chimney used by Vaux’s swifts, wait until October 10 or later until birds migrate south for the winter.
- Early Nesting Season (February 1- April 15) – Survey for owls, which nest on beams and platforms in old buildings. If present, wait until the young are fully fledged.
- Primary Nesting Season (April 15 – July 31) – Survey for nests of birds such as cliff and barn swallows, which make mud nests in eaves and on ledges. Survey for swifts in chimneys and for house finches in eaves and cavities. Avoid structure removal if possible, or wait until the young fledge.

Manipulating Water Levels – Lowering water levels or flooding areas can have impacts on nesting birds such as waterfowl, red-winged blackbirds, common yellowthroats and marsh wrens, which nest in wetlands. Birds such as kingfishers make nests in streambanks which could be flooded by high water.

Management Recommendations:

- Non-nesting Season (August 1 – January 31) – OK to manipulate water levels.
- Early Nesting Season (February 1- April 15) – Consider ducks and other waterfowl which are early nesters (as early as March 1). Duck nests are near or on the ground in wetland habitats.
- Primary Nesting Season (April 15 – July 31) – If inundating wetlands, consider impacts to red-winged blackbirds and other species, which nest in reed canarygrass, cattails and tall reeds.

6.0 SENSITIVE AREAS

Certain habitats within the City are recognized by state and federal agencies as being ecologically important and sensitive to disturbance. They are also home to unique nesting species that can be overlooked. These “Special Status Habitats” include wetlands, grasslands, oaks, interior forests (especially late-successional conifer forests), bottomland hardwood forest and riparian habitats, and aquatic habitats (e.g., lakes, rivers and streams). The Special Status Habitats and the Special Status Bird Species most closely associated with them are presented in **Appendix F**.

Specific habitats of concern are wetlands and grasslands, which are often home to ground nesting birds, including Western meadowlarks, rails and other species. Riparian areas – the forest along streams and rivers – host a diverse array of nesting species using all four nesting habitats: ground, shrub, tree and cavity. It is important to be particularly vigilant in these areas to avoid impacts to nesting birds.

7.0 SPECIAL CONSIDERATIONS

7.1 Species

There are some species that—because of their status or unusual nesting season—deserve special consideration. The following guidelines (which are also summarized in **Appendix E**) will help avoid disturbing these birds:

Willow flycatchers are a Special Status Species, and are listed by the State of Oregon as Sensitive-Vulnerable. These small songbirds are among the latest nesting species in the City, often extending their breeding activities to the end of August. They occur in riparian and wetland habitats in most of the City’s watersheds, sometimes choosing to build nests in Himalayan blackberry, an invasive plant species. If Willow flycatchers are known or suspected in the project area, the primary nesting season window should be extended to August 31.

Anna’s hummingbirds are early nesters. Females build tiny nests of lichens and spider webs placed on small branches of shrubs and trees. They can lay eggs as early as mid-February. Nests are very difficult to find, but the presence of a territorial male from February to May is an indication that a nest is nearby and vegetation disturbance should be avoided.

Killdeer lay their eggs in gravel areas on the ground and out in the open. Vacant lots, gravel access roads, margins of farm fields, and street shoulders in open grassy areas are likely to have killdeer nests. They are early nesters, usually laying eggs in March and April. Due to the location of their nest, they are highly vulnerable to disturbance. Killdeer are often conspicuous and if they are observed in a project area March to May it should be assumed

there is a nest nearby. Once a nest is located it can usually be flagged or fenced with exclusion zone fence and avoided.

Great-horned owls are very early nesters, often laying eggs in January and February. In our area, they use stick nests in trees and can often be found by conducting an early season nest survey of the project area.

Bald eagles nest high in trees from January 1 to September 1. As of 2016, there are 19 bald eagle nest sites in the Portland area. Bald eagles and their nests are protected by a special set of federal regulations. Most eagle nests in Portland are in West Hills natural areas, along Columbia Slough, and along the Columbia and Willamette Rivers. Contact a biologist/ecologist with Portland Parks or Environmental Services to determine if there is an eagle nest in or near your project area.

7.2 Other Things To Keep In Mind

Every project is unique and presents its own set of challenges. Here are just a few things to keep in mind as you plan your project:

- Impacts on neighboring properties

- Aesthetics and public perception

- Contractor schedules, permits and funding deadlines

- Human safety

Every project has the potential to inform and educate others!

8.0 WHAT IF YOU FIND AN ACTIVE NEST ON A PROJECT SITE DURING PROJECT IMPLEMENTATION?

What should you do if you have followed the above guidelines, have planned activities to avoid disturbance to nesting birds, and you find an active nest during project implementation? “Active” nests are those with eggs or young in them. **Attachment H** will help you make the most appropriate decision.

9.0 WHAT IF YOU FIND A BABY BIRD OUT OF ITS NEST?

It is normal for many bird species such as scrub jays, robins, crows and owls to leave the nest and spend as many as 2-5 days on the ground before they can fly. Parents will care for them during this period. Unless a bird is injured, it is important that it NOT be taken into captivity, since this will deny them the opportunity to learn survival skills (e.g., finding food, identifying predators, flying) from their parents.

Attachment G will help you make the right decision, should you find a baby bird during project implementation.

SUMMARY OF RECOMMENDATIONS FOR AVOIDING IMPACTS ON NESTING BIRDS DURING CONSTRUCTION AND REVEGETATION PROJECTS

BEST

You have at least a year to plan your project.

- Plan your project at least a year in advance.
- Plan disturbance to occur during the non-nesting season (August 1 – January 31) or complete site preparation prior to April 15.
- Refer to specific guidelines in this document for different kinds of actions/projects.

NEXT BEST

*You do not have time to plan ahead
and work must occur during the nesting season.*

- Refer to the specific guidelines in this document for different kinds of actions/projects.
- Survey for nesting birds, using the Bird Nesting Assessment Form in this document (**Appendix D**).
- If survey reveals nesting birds, avoid action until young have fledged.
- If survey reveals no nesting, proceed with action.
- If the survey found no evidence of nesting, but a nest is found during project implementation, refer to **Appendix G**.

Appendix A

Average Arrival Dates for Birds in the Portland Metro Area

(Note: Many local species, such as the winter wren, are not listed here because they are year-round residents.)

<u>Average Arrival</u>	<u>Species</u>
Feb 09	Tree Swallow
Feb 25	Rufous Hummingbird
Mar 03	Violet-green Swallow
Mar 04	Turkey Vulture
Mar 16	Osprey
Mar 19	Orange-crowned Warbler
Mar 21	Cinnamon Teal
Apr 02	Cliff Swallow
Apr 04	Common Yellowthroat, Northern Rough-winged Swallow
Apr 05	Black-throated Gray Warbler
Apr 08	Brown-headed Cowbird, Barn Swallow
Apr 12	Cassin's Vireo, Vaux's Swift
Apr 13	Purple Martin
Apr 16	Yellow-headed Blackbird
Apr 18	Chipping Sparrow
Apr 19	Hammond's Flycatcher, Wilson's Warbler
Apr 20	House Wren
Apr 22	MacGillivray's Warbler
Apr 24	Pacific-slope Flycatcher
Apr 26	Warbling Vireo, Western Tanager, Western Kingbird, Bullock's Oriole
Apr 27	Black-headed Grosbeak, Yellow Warbler
Apr 29	Calliope Hummingbird
May 01	Swainson's Thrush
May 02	Olive-sided Flycatcher, Western Wood-Pewee
May 05	Lazuli Bunting
May 13	Yellow-breasted Chat
May 14	Willow Flycatcher
May 28	Eastern Kingbird
May 31	Red-eyed Vireo
Jun 08	Common Nighthawk

Appendix B

Nesting Birds by Habitat in Portland

Note: For nesting habitat, trees are generally defined as greater than 7m (~20 feet) and shrubs are less than 7m (~20 feet). The categories below are based on typical nest sites; however some “shrub nesters” will nest in trees and likewise some “tree nesters” can chose a site closer to the ground.

* On the City of Portland’s “Special Status Species” List, meaning the species has been listed by the U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, or another entity because it is rare, in decline or otherwise of special concern.

Tree Nesting Birds in Portland

American Crow	Great-horned Owl
Bald Eagle*	House Finch
Band-tailed Pigeon*	Mourning Dove
Barred Owl	Olive-sided Flycatcher*
Black-headed Grosbeak	Osprey
Black-throated Gray Warbler*	Pine Siskin
Bullock’s Oriole*	Purple Finch*
Cedar Waxwing	Red Crossbill*
Common Raven	Red-shouldered Hawk
Cooper’s Hawk	Red-tailed Hawk
Double-crested Cormorant	Sharp-shinned Hawk
Eastern Kingbird	Steller’s Jay
Evening Grosbeak	Western Kingbird
Golden-crowned Kinglet	Western Tanager
Great Blue Heron*	

Shrub Nesting Birds in Portland

American Goldfinch	Pacific Slope Flycatcher*
American Robin	Red-winged Blackbird
Anna’s Hummingbird	Rufous Hummingbird*
Brewer’s Blackbird	Scrub Jay
Brown-headed Cowbird	Song Sparrow
Bushtit*	Swainson's Thrush*
Cassin’s Vireo	Warbling Vireo
Green Heron*	Western Wood Pewee*
Hutton’s Vireo*	Willow Flycatcher*
Lazuli Bunting	Yellow Warbler*
Lesser Goldfinch	Yellow-breasted Chat*
MacGillivray's Warbler	Yellow-headed Blackbird

Ground Nesting Birds in Portland

American Bittern*	Orange-crowned Warbler*
American Coot	Pied-billed Grebe
Blue-winged Teal	Ring-necked Pheasant
California Quail	Ruddy Duck
Canada Goose	Savannah Sparrow
Chipping Sparrow*	Sora*
Cinnamon Teal	Spotted Sandpiper
Common Nighthawk*	Spotted Towhee
Common Yellowthroat*	Streaked Horned Lark*
Dark-eyed Junco	Turkey Vulture
Killdeer	Virginia Rail
Mallard	Western Meadowlark*
Marsh Wren	White-crowned Sparrow
Northern Harrier*	Wilson's Snipe
Northern Shoveler	Wilson's Warbler

Standing Snag and Live Tree Cavity Nesting Birds in Portland

American Kestrel*	Northern Flicker
Black-capped Chickadee	Northern Pygmy Owl
Barn Owl	Northern Saw-whet Owl
Barred Owl	Pileated Woodpecker*
Brown Creeper*	Purple Martin*
Bufflehead*	Red-breasted Nuthatch
Chestnut-backed Chickadee	Red-breasted Sapsucker
Common Merganser	Tree Swallow
Downy Woodpecker*	Violet-green Swallow
European Starling (non-native; not protected by laws; OK to destroy)	Vaux's Swift*
Hairy Woodpecker	Western Screech Owl
Hooded Merganser*	White-breasted Nuthatch*
House Wren*	Wood Duck*
House Sparrow (non-native; not protected by laws; OK to destroy)	

Ground Cavity Nesting Birds in Portland

Two wrens are “nook and cranny” nesters, using cavities on or near the ground in decaying logs, under logs, in root wad tangles, or in the ground at the base of shrubs:

Winter Wren*
Bewick's Wren

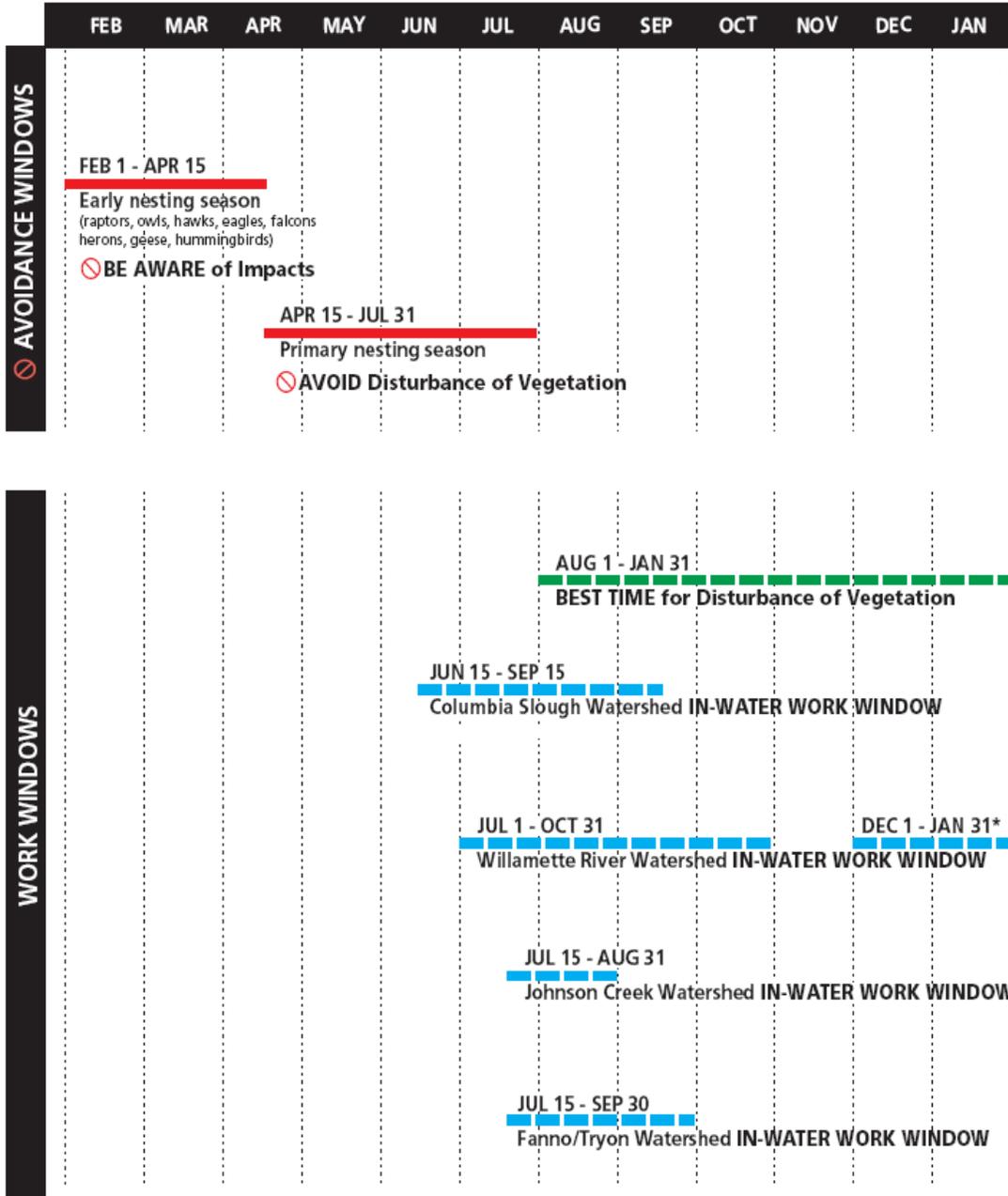
These two birds are “cut bank” nesters that use holes excavated in stream banks or even on steep slopes of dirt stock piles:

Northern Rough-winged Swallow

Belted Kingfisher

Appendix C

Bird Nesting Season and Work Windows



* The Oregon Department of Fish and Wildlife acknowledges the in-water work window for the Willamette, and therefore it is officially available. However the National Marine Fisheries Services currently is not approving the winter in-water work window in the Willamette. Realistically therefore it is difficult to get approvals for the winter period.

Appendix E

Vegetation and Other Management Recommendations *

**Ideally, all vegetation disturbance/removal should be scheduled to occur between August 1 and January 31. If work cannot occur in this window, please consider the following recommendations. For questions and additional guidance in following these recommendations, contact a member of the TEES Team.*

Stream Enhancement Construction Projects		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
Vegetation removal	Refer to tables, below.	Refer to tables, below.
Construction activities	Refer to tables, below, if vegetation will be disturbed.	Refer to tables, below, if vegetation will be disturbed.

Invasive Species Management		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
<p>Blackberry Removal</p> <p><i>A beneficial invasive plant for native birds. Heavily used by a myriad of species for nesting, foraging and winter cover.</i></p>	<p>First treatment for overgrown areas – foliar spraying (mash and spray) and mechanical removal – OK</p> <p>Watch for Anna’s hummingbirds, which are early nesters, and defend their territories with displays that are easily seen and heard.</p>	<p>Avoid major spray and removal.</p> <p>Maintenance management and volunteer hand removal work are OK, but watch for active nests (spotted towhee, song sparrow, California quail) and avoid if present. Nests are mostly cups of fine plant material in blackberry, or on the ground.</p> <p>In August, watch for willow flycatchers, which are found especially in Johnson Creek, Powell Butte and Columbia Slough areas; avoid if present. Willow flycatchers sit out prominently and call “fitz-bew” (easy to learn with some practice). Avoid blackberry removal in August in willow flycatcher territory.</p>
<p>Clematis Removal</p> <p><i>Growth form provides the type of cover nesting birds are seeking. Likely that many local species nest in or under clematis clumps.</i></p>	<p>Air gapping and root removal (grubbing) – OK</p> <p>Leave vines in trees to decompose in case there is an early tree nester.</p>	<p>Air gapping – OK</p> <p>Avoid root grubbing and pulling down vines.</p> <p>Watch for winter wrens, spotted towhees and other nearby active ground and shrub nests; avoid if present.</p>
<p>Garlic Mustard Removal</p> <p><i>There is no known use of garlic mustard by nesting birds, but there may be nests in nearby plants.</i></p>	<p>Spot spraying – OK</p> <p>Hand pulling – OK</p> <p>Watch for early nesters (e.g., killdeer, ducks) and nests low to the ground</p> <ul style="list-style-type: none"> ▪ Killdeer nest on the ground in gravel. Loud adult display to distract predators from nest is a good sign to watch for. ▪ If nest is found, leave surrounding vegetation. 	<p>Spot spraying – OK</p> <p>Hand pulling – OK</p> <p>Watch for nearby active ground and shrub nests. Avoid if present.</p>

Invasive Species Management		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
<p>Holly and Laurel Removal</p> <p><i>Many birds use these for nesting and raising young. In the fall and winter, berries provide food for many species, including American robin and varied thrush.</i></p>	<p>Removal (by cut and stump treatment) – likely OK.</p> <p>Watch for nesting behavior and avoid if observed.</p>	<p>Avoid intensive first treatments.</p> <p>If removal is required, visually inspect small trees (<10') for small cup nests. If there are larger specimens to be removed, a more thorough survey is recommended.</p> <p>Watch for active robin nests and avoid if present.</p>
<p>Ivy: Ground Ivy Removal</p> <p><i>No native birds are known to exclusively use ground ivy, but typical and ground and low shrub nesters are spotted towhees and song sparrows.</i></p>	<p>Foliar spraying and hand pulling – OK</p>	<p>Avoid pulling and foliar spraying if possible. Pulling ivy can disturb native vegetation, and the presence of people for an extended period of time can cause nearby nests to be abandoned.</p> <p>Hand pulling OK with caution. Watch for birds. If an active nest is found, do not work in that area.</p> <p>Look and listen for winter wrens.</p>
<p>Ivy: Tree Ivy Removal</p> <p><i>No native birds are known to exclusively use tree ivy, though many use branches on infested trees, such as American robins and vireos.</i></p>	<p>Air gapping – OK</p> <p>Leave ivy in tree – pulling down ivy might result in pulling down nests.</p>	<p>Air gapping – OK</p> <p>Leave ivy in trees.</p> <p>Watch for nearby active ground and shrub nests. Avoid if present</p>

Invasive Species Management		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
<p>Knotweed Removal</p> <p><i>Use by native birds is not well-known.</i></p>	<p>Foliar spraying and injection – OK</p>	<p>Treatment is likely OK, but watch for nearby nests prior to treatment.</p>
<p>Purple Loosestrife Treatment</p> <p><i>Used by red-winged blackbirds and American goldfinches for nesting. Also, ducks may nest on the ground nearby.</i></p>	<p>Herbicide application and mechanical removal – OK prior to March 1.</p> <p>Avoid cutting, spraying and grubbing after March 1.</p> <p>Watch for ducks in wetlands, as they tend to breed early (typically in March).</p>	<p>Avoid cutting and spraying.</p> <p>If mid-summer treatment is advised, watch for red-winged blackbirds and American goldfinch nests in plants.</p> <p>Also watch for ducks on the ground.</p>
<p>Reed Canarygrass Removal/Spray</p> <p><i>Common yellowthroats, mallards and cinnamon teal have been documented nesting in Reed canarygrass in the Slough.</i></p>	<p>Typical treatment (hand spraying) in March and April – OK. Watch for early nesting ducks, and avoid if present.</p>	<p>Avoid any vegetation management. Conduct nest survey if mowing is advised.</p>
<p>Yellow Flag Iris</p> <p><i>Red-winged blackbirds have been known to nest in patches of this plant.</i></p>	<p>Herbicide application and mechanical removal – OK until March 1.</p> <p>Watch for duck nests along shore and in reeds after March 1 and avoid if present.</p>	<p>Avoid herbicide application and mechanical removal.</p>

Other Vegetation Management		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
<p>Live Tree Removal (native and non-native)</p> <p><i>Trees can host nesting birds any time between February 1st – August 31st. Many early nesters are larger birds (e.g., herons and raptors).</i></p>	<p>Tree removal – Avoid</p> <p>Tree girdling – OK, and preferred to removal, if equally effective for control.</p> <p>If trees must be removed: Watch for early nesters: owls, hawks, Anna’s hummingbirds, and killdeer – Avoid if present</p> <ul style="list-style-type: none"> ▪ Raptors have large stick nests—easy to see before trees leaf out. ▪ Killdeer nest on the ground in gravel. Loud adult display to distract predator from nest is a good sign to watch for. ▪ Anna’s hummingbirds have tiny camouflaged nests, but males defending their territory are detected visually and audibly. 	<p>Tree girdling – OK</p> <p>Tree removal – Avoid</p>
<p>Snag Removal</p> <p><i>Snags (standing dead trees) play critical roles for many bird species. Snags attract insects, which are a vital source of food for woodpeckers and other birds. They provide perches, and are often the only source of cavities for cavity-nesting birds.</i></p>	<p>Watch for early snag nesting birds such as owls, and avoid removal if possible.</p>	<p>Avoid snag removal if possible.</p>

Other Vegetation Management		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
Shrub Removal (native and non-native) <i>Shrubs support more breeding birds than trees do in the Portland area.</i>	For construction access or other purposes – OK, but watch for early nesters and nesting behavior. For example: <ul style="list-style-type: none"> ▪ Killdeer nest on the ground in gravel. Loud adult display to distract predators from nest is a good sign to watch for. ▪ Anna’s hummingbirds have tiny camouflaged nests, but males defending their territory are detected visually and audibly. ▪ Be aware of ducks or other birds flushing suddenly off the ground. 	Avoid.
Grassland Mowing and Ground Cover Removal (native and non-native) <i>Many species build nests only on the ground. Some will build below a dense, shrub cover, while others conceal their nest in grass.</i>	For construction access or other purposes – OK Watch for nests (e.g., Wilson’s warbler, savannah sparrow, western meadowlark, horned lark) and nesting behavior. For example: <ul style="list-style-type: none"> ▪ Killdeer nest on the ground in gravel. Loud adult display to distract predators from nest is a good sign to watch for. ▪ Be aware of ducks or other birds flushing suddenly off the ground. 	Avoid mowing and removal of ground cover.
Controlled Burn	OK	Avoid

Other Management Activities		
Action	February 1 through April 15 Early Nesting Season	April 15 through July 31 Primary Nesting Season
<p>Removing and Maintaining Structures</p> <p><i>In addition to winter roosting, structures are used for nesting.</i></p>	<p>Watch for owls on beams and platforms in old buildings. Delay removal until young are fully fledged.</p>	<p>Watch for:</p> <ul style="list-style-type: none"> ▪ mud nests of cliff and barn swallows in eaves and on ledges ▪ Vaux's swifts in chimneys ▪ house finches in eaves and cavities <p>Avoid removing structure until birds have fledged.</p>
<p>Manipulating Water Levels</p> <p><i>Lowering or raising water levels can impact waterfowl and red-winged blackbirds in wetlands, and kingfishers along streambanks.</i></p>	<p>Watch for duck and other waterfowl nests after March. Avoid water manipulation if birds are present and activity could impact nests.</p>	<p>Avoid inundating wetlands if red-winged blackbirds are nesting in cattails and tall reeds.</p>

Appendix F

City of Portland Special Status Bird Species Most Closely Associated with Special Status Habitats

Wetlands

Wetlands are covered or saturated with water during all or part of the year. Permanently wet habitats include backwater sloughs and marshes, while seasonally wet habitats include forested and/or scrub shrub wetlands, emergent marsh, headwater seeps and springs, and wet prairies. Marshes (including emergent marshes) occur in depressions (topographic low areas), fringes around lakes and along slow-flowing streams, especially in valley bottoms. Marshes are seasonally or continually saturated and have water-adapted plants such as sedges, rushes, cattails, and floating vegetation. Marshes can have mucky soils resulting in water with high mineral content. Off-channel habitat (oxbow lakes, stable backwater sloughs, and flooded marshes) is created as rivers and streams change course. In these areas, water moves slowly, providing quiet aquatic habitats important for fish and wildlife. In these off-channel wetland areas, vegetation around the fringe often includes shrub and tree species, such as spirea, ninebark, rose, dogwood, willow, and ash.

Closely Associated Special Status Bird Species: American bittern, great blue heron, green heron, wood duck, bufflehead, northern harrier, sora, dunlin, short-eared owl, common yellowthroat

Aquatic Habitats – Lakes, Rivers and Streams

Freshwater aquatic habitats include rivers, streams, ponds, lakes, springs, seeps and reservoirs. They occur above the influence of tides and salinity fluctuations. Freshwater aquatic habitats typically contain water year-round (whereas wetlands may dry out through the season).

Closely Associated Special Status Bird Species: great blue heron, green heron, wood duck, bufflehead, hooded merganser, bald eagle, dunlin, Vaux's swift, purple martin, yellow warbler

Grasslands

Willamette Valley grasslands, or upland prairies, are dominated by grasses, forbs, and wildflowers. Grasslands have well-drained soils and often occur on dry, south facing slopes or shallow-soiled balds. These grassland habitat types are often associated with low-density tree cover (5-30%) savannahs. Historically prairies were maintained by the Native American practice of setting frequent low-intensity fires. With fire suppression (or in abandoned pastures), many such areas have succeeded to forest. The dominant vegetation of these native grasslands were perennial bunchgrasses such as Roemer's fescue and California oatgrass, with abundant and diverse herbaceous plants. Scattered, open-growth trees such as Oregon white

oak, Douglas fir, or ponderosa pine within the grassland characterize a savannah. Uncommon now, such savannahs and grasslands once covered about 1/3 of the Willamette Valley.

Closely Associated Special Status Bird Species: northern harrier, American kestrel, streaked horned lark, vesper sparrow, western meadowlark

Oak Woodlands

Oak woodlands are characterized by an open canopy dominated by Oregon white oak. In general, the understory is relatively open with shrubs, grasses and wildflowers. Oak habitats can be found in drier landscapes, such as south facing slopes. In Portland, oak woodlands are found in small isolated pockets.

Closely Associated Special Status Bird Species: band-tailed pigeon, western wood-pewee, Hutton's vireo, white-breasted nuthatch, black-throated gray warbler, chipping sparrow, Bullock's oriole

Bottomland Hardwood Forest (Riparian Habitats)

Riparian habitats are those adjacent to rivers and streams or occurring on nearby floodplains and terraces. Riparian habitats are shaped and maintained through seasonal flooding, scour, and soil deposition. Riparian habitats vary from sparsely vegetated areas to cottonwood gallery forests. Plant composition is influenced by elevation, stream gradient, floodplain width, and flooding events. Floods replenish nutrients, recharge groundwater, and reset successional processes. Riparian vegetation is mostly dominated by deciduous trees and shrubs, such as big leaf maple, red alder, black cottonwood, Oregon ash, red-osier dogwood, and numerous willow species.

Closely Associated Special Status Species: great blue heron, green heron, wood duck, hooded merganser, bald eagle, band-tailed pigeon, downy woodpecker, pileated woodpecker, willow flycatcher, red-eyed vireo, brown creeper, Swainson's thrush, orange-crowned warbler, yellow warbler, black-throated gray warbler, common yellowthroat, Wilson's warbler, yellow-breasted chat, Bullock's oriole

Interior Forest (especially Late-successional Conifer Forests)

Late successional conifer forests are defined by plant species composition, overstory tree age and size, and forest structure. They include characteristics such as multi-layered tree canopy, shade-tolerant tree species growing in the understory, large-diameter trees, and a high volume of dead wood such as snags and logs. Douglas fir is generally the dominant species, but other species found in these forests, at various stages of succession, include western hemlock, western red cedar, big leaf maple, vine maple, and red alder.

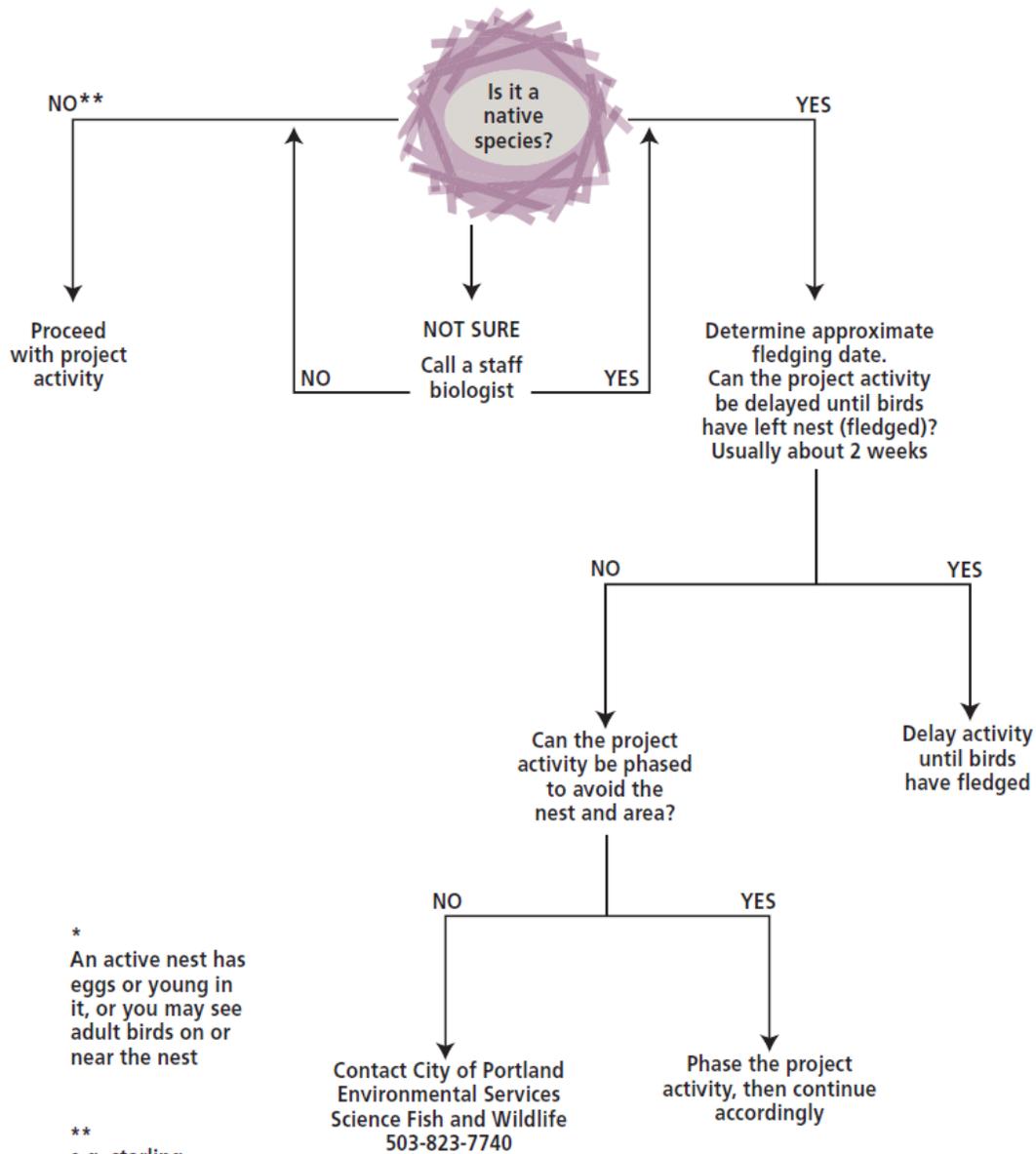
Closely Associated Special Status Bird Species: band-tailed pigeon, pileated woodpecker, olive-sided flycatcher, Hammond's flycatcher, Pacific-slope

flycatcher, brown creeper, winter wren, Swainson's thrush, varied thrush, black-throated gray warbler, hermit warbler, Wilson's warbler, red crossbill

Note: There are several species are Special Status Bird Species found in Portland that are associated with several habitat types. In some cases, they may be more closely associated with a specific feature that occurs in several habitats, rather than the vegetation of the habitat itself. These species include: merlin, peregrine falcon, common nighthawk, rufous hummingbird, bushtit, house wren, and Nashville warbler.

APPENDIX G

If you find an active* nest on a project site during project implementation



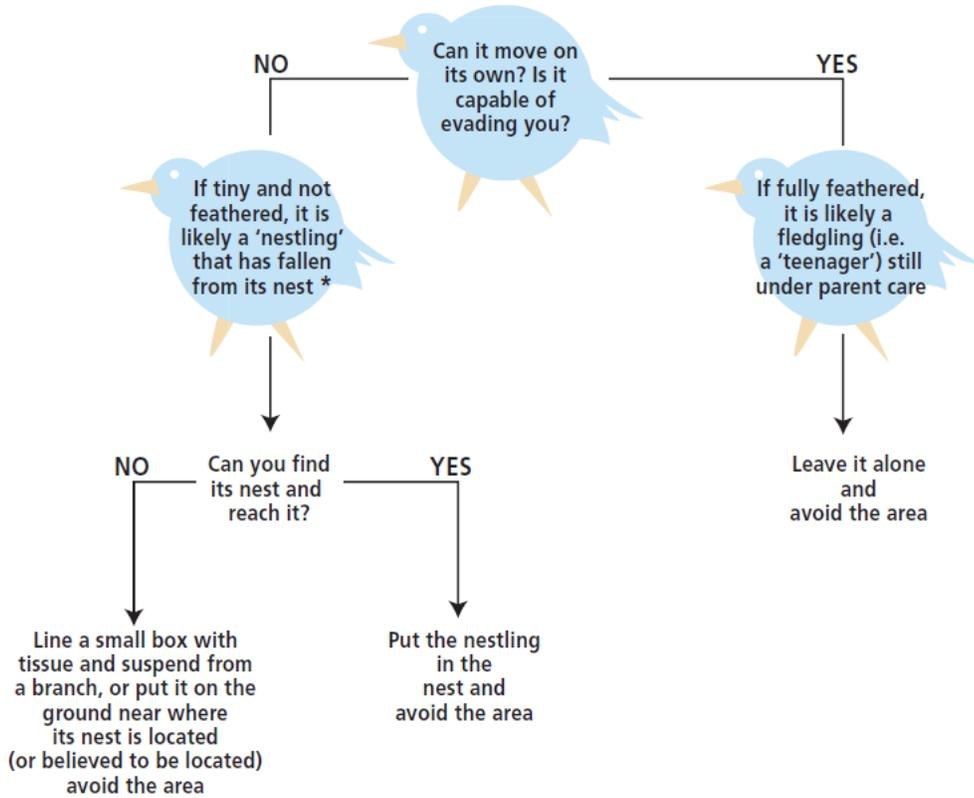
*
An active nest has eggs or young in it, or you may see adult birds on or near the nest

**
e.g. starling, house sparrow or rock pigeon

WS 1045 Sept 2010 © Environmental Services City of Portland

APPENDIX H

If you find a baby bird out of its nest on a project site



*
 If CLEARLY injured or KNOWN to be orphaned, you may take it to the Audubon Society of Portland Wildlife Center, 5151 NW Cornell Road, 9 am - 5 pm, 7 days a week

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Appendix I

ADDITIONAL THINGS YOU CAN DO TO HELP NATIVE BIRDS

ANY HABITAT TYPE

- Be aware of what birds are doing!
 - ♦ Are they carrying nesting material in their beaks and bills? If so, watch where they take it; you might be able to identify the specific tree or clump of bushes where a nest is being built. Avoid disturbing that area.
 - ♦ Are they carrying insects in their beaks and bills? If so, watch where they take them; they are probably feeding baby birds. Avoid disturbing that area.
- Minimize disturbance to large habitat patches to the extent possible. Some species require interior habitats and have large territories.
- Maintain as much connectivity as possible—between habitat patches and to water sources. Migratory birds (as well as other native animals) need corridors for safe travel, foraging, nesting, raising young, hiding from predators, gene flow between populations, and for other life functions.
- Use native tree, shrub and other plant species in restoration projects, and provide a diversity of species and age classes.
- Birds nest in a variety of places—on the ground to the tops of trees. Different species nest in different areas. Therefore, leave herbaceous plants for ground-nesting species, shrubs for “open-cup” nesters, dead trees and snags for cavity-nesters, and trees for canopy-nesters.
- Let seed-bearing plants and dead tree snags stand through the winter to provide habitat, perches, food and shelter.
- Consider leaving dead standing wood (snags). If this presents a safety concern, leave as much of the snag as possible. A trunk that is 20 – 30 feet high can be an important food source, perch, and/or nesting site. If the entire snag must be removed, consider placing part of the tree in another area for wildlife to use. This can make the landscape visually interesting!
- When possible, girdle invasive trees to create snags, rather than removing them. (Note: This approach may not be effective control for some invasive tree species).
- Reduce lawn cover; when possible allow leaves and twigs to decompose on-site.
- Seek natural alternatives to, and reduce the use of, pesticides, herbicides and fertilizers, when practical.

- Seek to minimize people/wildlife conflicts. For example:
 - ♦ Site trails, picnic areas and garbage cans away from nesting habitat.
 - ♦ Hold outdoor concerts and other public events in natural area parks after birds have fledged.
 - ♦ Provide wildlife viewing opportunities at safe distances from wildlife.
- If a site lacks water, consider putting in a water feature, such as a small pond.
- During project implementation, reduce hazards such as landscape netting and other litter, in which birds can become entangled.
- If you come across a baby bird on the ground, don't attempt to return it to the nest; just avoid them, allowing their parents to attend to them. Be careful to not trample vegetation around the bird or the nest, since that can alert predators to their presence.

GRASSLAND HABITATS

- Large open fields with several kinds of grasses of varying heights and densities are ideal. Grasses provide places for nesting, hiding, and feeding; and more variety means they will be attractive to more species that have different nesting and foraging needs.
- Wildflowers attract different insects than do grasses. A variety of native wildflowers means a variety of insects—and that will benefit insect-eating birds.
- It's OK to leave some patches of bare ground. Bare ground is important for some birds for dusting and foraging—and sometimes nesting.
- Create singing perches. Singing perches are important for defending territories and attracting mates. Singing perches should extend above the surrounding plants so that males can be seen and heard. A few shrubs or solitary trees (<10% cover/area) will help males establish breeding territories. Fence poles, wires, brush and rock piles also work well.
- Mowing is OK if timed to allow for nesting to occur and young fledged.
- Consider fire as a management tool to help restore and maintain this important habitat type.
- Some species that may benefit: Western meadowlark, American kestrel, Savannah sparrow, American goldfinch, Oregon vesper sparrow.
- Want more information? Take a look at *Landowner's Guide to Creating Grassland Habitat for the Western Meadowlark* and *Oregon's Other Grassland Birds* (a publication of the Oregon Department of Fish and Wildlife).

RIPARIAN AREAS

- Maintain a vegetative riparian buffer zone of native species along streams (at least 100 feet wide, if possible).
- Maintain snags along stream edges for species such as the belted kingfisher. This is important for nesting as well as perching.
- Maintain or create a dense riparian shrub layer of native plants, which will benefit song sparrows, and several kinds of warblers.
- Because breeding and migratory bird densities in cottonwood habitats are generally the highest of all habitat types in North America, retain all large cottonwood trees. They are important to cedar waxwings, western wood-pewees, brown creepers, and finches—as well as larger birds that need big trees for nests (e.g., bald eagles, great-horned owls, and great blue herons).
- Avoid locating walking and biking trails within the riparian area—both to minimize direct disturbance to birds, but also to reduce the amount of vegetation that is removed.
- Some species that may benefit: belted kingfisher, great blue heron, willow flycatcher, Western wood-pewee, yellow warbler, Bullock’s oriole, purple martin.
- Want more information? Take a look at *Riparian Areas: Fish and Wildlife Havens* (a publication of the Washington State University Extension’s Woodland Fish & Wildlife Bulletin Series, <http://WoodlandfishandWildlife.org>).

FORESTED HABITATS

- Retain existing large coniferous and deciduous trees and large snags for nesting. But retain smaller snags, too, if possible, since these provide important features for many species—for example, perches for resting and from which to hunt insects, branches that are used for nest-building.
- Create snags through topping and girdling of some green trees. Green replacement tree snags are as important as existing snags because eventually they will replace snags that fall over.
- Retain existing down logs, especially large ones.
- Retain berry and nectar-producing trees and shrubs, and plant additional ones.
- Retain shrub patches.
- Consider creating brush piles, which can provide cover and serve as signing perches.

- Manage for a diversity of native tree species, understory plants and ground cover. Vegetative diversity is usually more important to birds than are plantings of one species.
- Where it's not possible to protect larger trees or create snags, nest boxes might provide some short-term artificial cavities for some species. A useful book is *Birds in Nest Boxes* by Charlotte Corkran (Naturegraph Publishing, Inc. 2004).
- Species that will benefit: pileated woodpecker, hairy woodpecker, Western screech owl, pygmy owl, Vaux's swift, red-breasted nuthatch.
- Want more information? Take a look at:
 - ♦ *Managing Small Woodlands for Cavity Nesting Birds* October 1991 (a publication of the World Forestry Center).
 - ♦ *Rainforest Birds: A Land Manager's Guide to Breeding Bird Habitat in Young Conifer Forests in the Pacific Northwest* – Scientific Investigations Report 2006-5304 (a publication of the U.S. Department of the Interior, the U.S. Geological Survey and the American Bird Conservancy).
 - ♦ *Managing Forest Habitats for Migrant Songbirds* (a publication of the Washington State University Extension's Woodland Fish & Wildlife Bulletin Series, <http://WoodlandfishandWildlife.org>).

HIGHLY-URBANIZED AREAS

- Don't underestimate the value of retaining even single mature big-leaf maple trees or oaks for birds! Big-leaf maples are among the earliest to leaf-out in the Spring, and therefore one of the first trees to support herbivorous insects—an important food for early spring forest migratory birds, such as yellow-rumped, hermit and Townsend's warblers.
- Plant native shrubs, including fruit, seed and nectar-producers.
- Connect small habitat patches to other small habitat patches by planting vegetated "corridors".
- Some species that will benefit: warblers, spotted towhee, house finch, Bewick's wren, song sparrow.