

# Forest Park Wildfire Risk Reduction Project

## Project Summary – December 2023



Forest Park connects habitat between Portland and the Oregon coast.



A trail in Forest Park.



A fire danger sign in Forest Park.

### Contacts

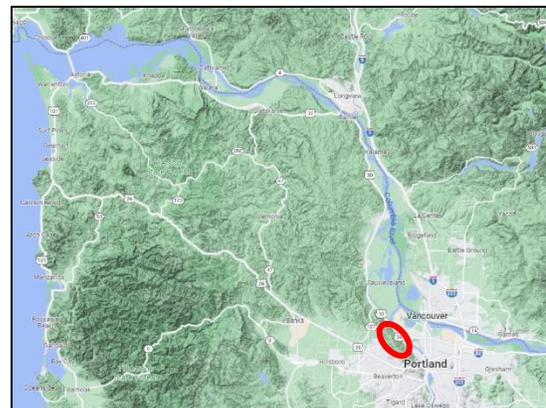
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### Project overview

This wildfire risk reduction project is a **Hazard Mitigation** project funded by the Federal Emergency Management Agency (FEMA). It is implemented by Portland Parks & Recreation (PP&R) and Portland Fire & Rescue, with support from the Oregon Office of Emergency Management, and in partnership with Forest Park Conservancy. The project focuses on wildfire risk reduction activities and outreach around a 500-acre area of Forest Park adjacent to the Linnton and Springville neighborhoods. The total project cost is \$572,232, with \$429,174 in federal funding. The project began in June 2021 and is scheduled to end in January 2024.

### About Forest Park

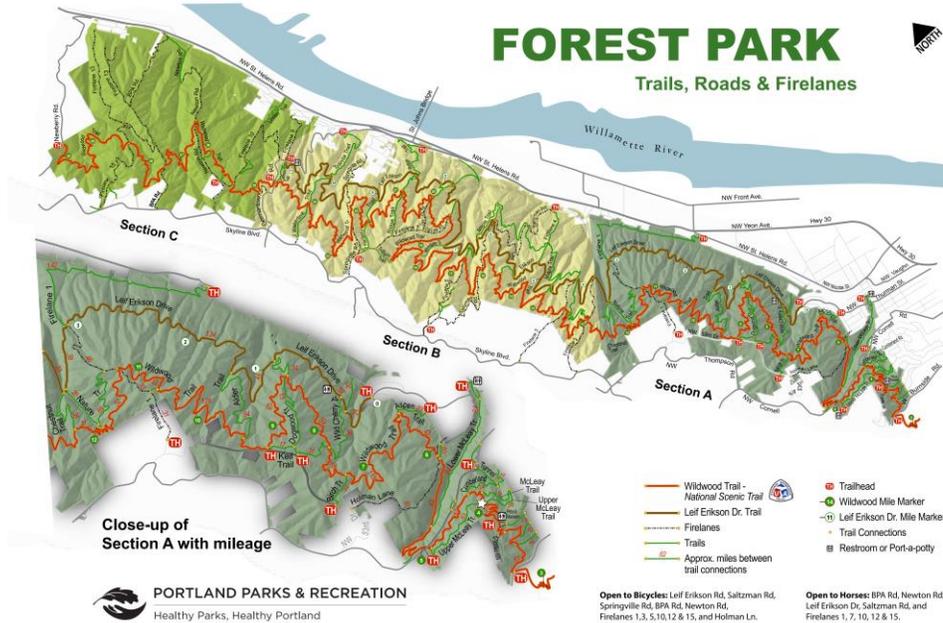
Forest Park is a 5,200-acre natural area stewarded by the City of Portland, Oregon. It is reportedly the largest



Location of Forest Park within Northwestern Oregon.

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forested city park in the nation at approximately 8 miles long and 1 mile wide. The park includes a mountain ridge extending from the Oregon Coast Range down to Portland between the Willamette River and the Tualatin Valley. The park contains many steep slopes and small streams that flow towards the Willamette River. It contains approximately 80 miles of recreational trails and service roads.



*Map of Forest Park's trails, roads, and firelanes.*

The forest is a mix of conifer and deciduous trees, similar to Oregon coastal forests, and is mostly comprised of Douglas fir, hemlock, cedar, and big leaf maple.



*Dense vegetation within the park.*



*The park's mixed tree canopy.*



*Native plants at ground level in the park.*

Forest Park has a long, narrow shape that results in a large amount Wildland Urban Interface (WUI) - which is a term for the interface of developed areas with large naturally vegetated areas.

In the WUI, there are a lot of fuels in the defensible space around homes, defined as the 100ft distance around a structure (or 200ft on steep slopes) where fuel management is recommended to protect the structure. Dense vegetation with invasive weeds that act as fine and ladder fuels along the perimeters also increase wildfire risk in the park,



*Location of Forest Park within Portland metropolitan area.*

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particularly along the eastern side due to steep slopes and the prevalence of possible ignition sources.



*Examples of dense vegetation posing wildfire risk adjacent to structures within the Forest Park WUI.*

### Project location

The project work is focused on high priority areas of Forest Park near the neighborhoods of Linnton and Springville, on the slopes between the Willamette River and Forest Park. The project includes fuel reduction and habitat restoration in the park to help reduce wildfire risks and improve the health of the forest in the area.

This location was chosen because it is on steep, densely vegetated slopes that are exposed to seasonal winds, and because of the significant interface with adjacent neighborhoods and infrastructure. These are all factors that increase wildfire risk.

Forest Park is completely within the City of Portland's Wildfire Hazard Zone. It is designated as high/extreme wildfire risk, with neighboring communities designated as Communities at Risk in Multnomah County's 2011 Community Wildfire Protection Plan. This area was also identified as a priority project area in the City of Portland's 2008 Wildfire Risk Reduction analysis.

### Project design and methods

The City of Portland's goals for management of the park are described in the Natural Resources Management Plan for the park, and primarily center around natural resource protection while providing for sustainable recreation and education opportunities. This requires a balance between wildfire risk reduction and natural resource protection. Project design was informed by technical guidance from the Oregon Department of Forestry as well as local wildland fire experts. The project targets areas with a high build-up of fuels – both



*Map of FEMA-funded wildfire risk reduction project in Forest Park.*

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on the ground and as ladder fuels. Much of the WUI contains areas with a high build-up of fuels. Due to conditions on the ground, the highest priority for fuel reduction work was in parkland surrounding the neighborhoods.

The project targeted three categories of fuels: invasive plants, ladder fuels and dead wood.

*Invasive plants or weeds* are generally species not local to the region that grow well and cause problems in the location where they are growing. In this area, invasive plants change the structure and functions of the forest habitat and add fuels in the WUI.

In Forest Park, problematic invasive plants include ivy growing on the ground and in trees, holly and laurels, clematis vines, and non-native blackberry. The project methods were designed to reduce the presence of invasive plants to improve health of the forest and to reduce fuels. The goal is not eradication, but reduction to a level that the invasive plants no longer present a significant threat as a fuel source or impact ecological health.



*Example of invasive plants, including English ivy and holly, growing on and amongst native plants.*



*Ladder fuels in Forest Park.*

*Ladder fuels* are any fuels that can connect fire on the ground up to the tree canopy, which can include large shrubs/small trees in the intermediate zone of the forest, low branches (both live and dead) on native or non-native trees, and vines growing up trees. Low intensity ground fires are less of a concern for forest ecology, and for fire fighters – but if a fire can travel on fuels from the ground up into the large tree-tops, it can result in a catastrophic crown fire. The project methods were designed to create at least a 6ft gap between the ground and the fuel to sever the vertical connectivity between ground fuel and tree tops.

*Dead wood* - Trees sometimes naturally let lower branches die and either retain or shed them. Live or dead trees also naturally fall in the forest, or sometimes dead trees stay standing for a long time. This can result in dead wood fuel on lower sections of trees or suspended in the mid-canopy, contributing to ladder fuels that should be addressed. Healthy forests include dead wood, providing critical habitat for most of the species of plants and animals in the forest and they recycle nutrients – they act as fuels depending on their location and structure. Dead wood like logs or branches lying low and flat in contact with the ground are not a very high-risk fuel because they are more likely to stay damp and smolder and not spread the fire to the canopy. In addition, they are more accessible to fire fighters. In many cases, dead wood can be cut into pieces and laid flat on the forest floor instead of being removed. The project methods were designed to reduce the amount of dead lower branches on trees, standing dead trees, or fallen dead wood that is positioned such that it constitutes a ladder fuel – in the spaces directly around neighborhoods. By focusing this



*Dead wood in Forest Park.*

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work in defensible space around communities and not throughout the forest at large, priority fuel loads can be reduced while preserving the ecological benefits of decomposing wood.

**Implementing the project**

Project work began in the winter of 2021. The first step was surveying and mapping the location of the target vegetation and marking the project boundary between private land and the park. Contractor Rosario Franco Forest Management then cut large areas of tree ivy with machetes or saws and stripped ivy off the trees from 6ft down to the ground. The vine stumps were treated with herbicide.



*Restoration crews made significant progress treating tree ivy within the project area.*

Invasive laurel and holly trees were cut with chainsaws, delimbed, chopped into 3ft-long pieces, and scattered on the forest floor. Stumps of the cut trees were treated with herbicide.



*Views of the project area after restoration crews worked to remove invasive plants and treat tree ivy and other ladder fuels.*

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*Restoration crews work to reduce the prevalence of non-native woody shrubs and other invasive plants.*

Ground ivy in the forest and blackberry was treated with herbicide applied by backpack sprayers. Ground ivy was treated with the goal to reduce prevalence to below 20%.



*Example of restoration work within the project area before (left) and after (right).*



Next, chainsaw crews cut standing or hanging dead wood around the neighborhoods. Dead wood was cut, chopped, and scattered (similar to weedy trees). Ivy and blackberry in the drainages and trail buffers were cut or hand-pulled.



*Restoration crews used chainsaws to treat dead wood within the project area.*

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*Example of defensible space improvements from the Linnton neighborhood area before (left) and after (right).*

The goal is to create areas of defensible space adjacent to neighborhoods by disconnecting ladder fuels through the removal of tree ivy and mid-story invasive plants, from the ground up to 6 feet. Low-growing natives like sword fern, Oregon grape, and trillium are left to flourish in the understory.

**Project considerations**

- Budget – planning, implementation, and maintenance costs can be extensive, and vary widely depending on goals and site conditions: ~\$800-\$1,500/acre.
- Environmental regulations can limit work like cutting trees and other vegetation management, as well as herbicide use.
- PP&R adheres to a Salmon-Safe certified Integrated Pest Management program that limits herbicide use products, timing, and use in stream buffer zones.
- PP&R also adheres to bird protection best management practices that limit vegetation disturbance during nesting season (spring-summer).
- During wildfire season, power tool use and other work is limited due to ignition risks.
- Fuel disposal – prescribed fire or burning fuels on site may not be an option due to public concern, safety, and air quality. Off-site disposal is expensive or may not be feasible.
- Boundary issues – site boundaries are complex and the GPS that the PP&R team had available for this project was only accurate to about 30ft, so locating site boundaries and private property boundaries can be challenging. Due to this, boundaries were created with a generous buffer to private property, with direct landowner collaboration.



*Example of restoration work within the project area.*

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**Recommendations for project managers of wildfire risk reduction projects on public land**

- Use appropriate methods for the project location habitat type.
- Focus on ladder fuels, invasive removals, and dead wood management in defensible space of most vulnerable communities.
- Fuel reduction on public land is important, but similar work is needed on private land.
- Timing is important: vegetation work should be implemented in the winter outside of bird nesting or wildfire season; field inspections, assessments, work planning, outreach, and communications in the summer and fall.
- To ensure accurate property boundary identification, consider outreach to neighbors via direct outreach or through community groups.
- Ongoing maintenance is required; investment must be continuous and will likely increase as climate change continues to worsen.



**PORTLAND PARKS & RECREATION** <sup>SM</sup>

Healthy Parks, Healthy Portland



**Forest Park  
Conservancy**



**FEMA**

