Fire-Resistant Landscapes

Joe Jennings, 2012, 2022
WSU King County Extension Master Gardener Program
WSU Extension
Master Gardeners of King County

• Mission
  • 50 years of service engaging university-trained volunteers to empower and sustain diverse communities with relevant, unbiased, research-based horticulture and environmental stewardship education.
  • https://extension.wsu.edu/king/gardening/
• 600+ Certified Master Gardener Volunteers
• Online and In-person Education
• 13 Demonstration Gardens
• 37 Plant Advice Clinics
• Ask a Master Gardener
  • ask-a-mastergardener@live.com
Master Gardener Foundation of King County

- A 501(c)(3) nonprofit which raises funds for the financial support of the WSU Extension Master Gardener program in King County.
- www.mgfkc.org/
Summary

- Wildfire danger in King County is increasing because of climate change and human risk
- 350,000 people are at risk
- Fire-Resistant landscapes reduce life and property risk
- How to get started with a Fire-Resistant landscape at your home
Key Terms

High Fire Danger Days
Wildland Urban Interface (WUI)
Home Ignition Zone
Landscape Zones
Fire Resistant Landscape
High Fire Danger Days

• Very High Fire Danger Days
  • When fire can spread rapidly and quickly increase in intensity

• Extreme Fire Days
  • When all fires are potentially dangerous
Wildland Urban Interface (WUI)

Areas where human development meets with undeveloped wildland and vegetative fuels that are both fire dependent and fire prone.

Source: Dept. of Homeland Security, FEMA, US Fire Administration, 2022
Home Ignition Zones

The areas between a structure and an oncoming wildfire,

Where nearby vegetation and landscape have been modified,

To reduce a wildfire’s ability to increase intensity and spread.

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Landscape Zones

• Landscape Zone 1
  • 0-5’ from the house

• Landscape Zone 2
  • 5-30’ from the house

• Landscape Zone 3
  • 30-100’ from the house

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Landscape Zones Objectives

Landscape Zone 1
• 0-5’ from the house
• Prevent ignitions

Landscape Zone 2
• 5-30’ from the house
• Stop fire spread

Landscape Zone 3
• 30-100’ from the house
• Reduce fire intensity

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Fire-Resistant Landscape

How to use drought-tolerant, ecologically and location appropriate plants, materials

Design and maintenance

To prevent the spread of fire to your home.

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Before and After Fire-Resistant Landscaping

Before

After
Wildfires

- Most fires occur in summer and early fall.
- 85% of King County wildfires are started by people
- 70-90% of wildfire burned houses are caused by embers

Source: Jim Kropf, WSU Pierce County Extension Director, 2/25/23
Sloping hills affect fire

Fire moves faster uphill
Causes pre-heating of areas
Fire Ladders

- A fire ladder is vegetation that allows fire to spread up from the landscape into a tree or structure.
- Common ladder fuels include tall grasses, shrubs, and tree branches, both living and dead.
Fire Resistant Landscapes

Getting Started

• Evaluate
  • Take 100’ string
  • Mark 5’, 30’
  • Walk around the structure to see the zone lines
• Identify major concerns in each zone
  • What can you do?
  • What will you need help for?
• Phase the work from LZ-1 to 3
Landscape Zone 1 – 0-5 Feet

- **Objective**
  - Avoid ignitions

- **Focus**
  - Create the most fire-resistant zone surrounding your home
    - Non-combustible, non-ignitable mulch
    - Herbaceous perennials and annuals
    - Sod grasses

- Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Landscape Zone 2 – 5-30 Feet

- Objectives
  - Reduce fire spread
- Focus
  - Proper spacing of woody vegetation
  - Create 'islands' of plantings
  - Lean – Clean – Green
    - Lean – sparse and spread-out woody vegetation
    - Clean – dead material removed
    - Green – hydrated during fire season

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Landscape Zone 3 – 30-100 Feet

- Objective
  - Manage for low fire intensity

- Focus
  - Trees well spaced, pruned, no ladder fuels
  - Shrubs cared for and clean
  - Dead fuels removed
  - Surface and ground fuels low accumulation

- Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Getting Started in Zone 1

- Remove
  - Combustible debris
  - Dead or dry plants, grass, weeds, trees, and branches
  - Dead or dry leaves and pine needles
  - Struggling plants

- Replace wooden fences and gates attached to house
  - Metal gates or Hardie Board
Getting Started in Zone 1

• Move To Zone 3:
  • Woodpiles and lumber
  • Gasoline generators
  • Propane tanks
  • Jute or other natural fiber door mats – Remove or take inside

• Move To Zone 2 or 3
  • Wood trellises, gazebos, and sheds
  • Plastic garbage and recycling bins
  • Garden tools and brooms
  • Patio furniture and cushions

• Do immediately
  • Or wait until Red Flag Days
Upgrade Zone 1, then 2, then 3

- Limb Up Trees to 10’
- Thin and dead wood removal
- Remove fire ladders
- Remove and/or replace highly flammable plants and trees
- Properly space plants and trees
- Transition mulches
- Check irrigation so plants are properly hydrated
### Vegetation categories best fits

<table>
<thead>
<tr>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Covers</td>
<td>Shrubs</td>
<td>Big Shrubs</td>
</tr>
<tr>
<td>Herbaceous Perennials and Annuals</td>
<td>Small Trees</td>
<td>Large trees</td>
</tr>
<tr>
<td>Vines</td>
<td></td>
<td>Native/Adaptive grasses</td>
</tr>
<tr>
<td>Turf Grasses</td>
<td></td>
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</tr>
</tbody>
</table>

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Comparison

• Highly Flammable Plants
  • Contain fine, dry, or dead material within the plant.
  • Leaves, twigs, and stems contain volatile waxes, terpenes, or oils.
  • Leaves are aromatic, strong odor when crushed.
  • Sap is gummy, resinous, and strong odor.
  • May have loose or papery bark.

• Less Flammable Plants
  • High moisture content
  • Low oil or resin content
  • Drought resistant
  • Well adapted
  • Open, loose branching habit

Source: Jim Kropf, WSU Pierce County Extension Director, 2/25/23
Landscape Zones 1-2 “Be Careful List”

- Trees
  - Pine
  - Firs
  - Larch
  - Spruce
  - Douglas fir
  - Yew
  - Arborvitae
  - Hemlock
  - Cedar/Juniper

- Shrubs
  - Bitterbrush
  - Sagebrush
  - Mugo pine
  - Arborvitae
  - Juniper
  - Yew

- Grasses
  - Pampas grass
  - Cheat grass
Plant Recommendations

• PNW 590: Fire Resistant Plants for Home Landscapes

• Fire Resistant Plants for Chelan/Douglas County Washington: A step-by-step guide for choosing the right plant for the right place

• Fire Resistant Plants for the Puget Sound Basin

• Fire Resistant Plants for Home Landscapes
  • https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw590.pdf

• Beware of ARBORVITAE Plant Torches
Zones 1-2-3 Plant spacing

Source: Al Murphy, Chief of Community Protection and Assistance, Retired, 2/27/23
Strategies for homes on hillsides

- Stucco siding
- Fire resistant roof, minimal overhang
- Concrete wall to deflect heat, house set back from top of slope
- Fuel reduced, some plants for stability
- Trees trimmed and widely spaced

Landscaping and structure designed for fire safety. Illustration: EBMUD
Mulch

• ZONE 1: 0-5 feet
  • Scoria (cinders, volcanic rock)
  • Use non-combustible mulches
  • 1-2’ deep

• ZONE 2: 5-30 feet
  • Use composted wood chips or medium bark nuggets
  • 2 inches deep.

• ZONE 3: 30-100 feet+
  • Use larger, composted or non-composted wood chips or bark nuggets
  • 3 inches deep
Wrong Combustible Mulches for Zones 1-2

Bark
Rubber
Pine Needles
Leaves
Water

• Keep plants well hydrated.
• Keep irrigation system in good condition
• For well owners, consider purchasing an emergency generator to operate the pump during a power failure.
Thinning and dead wood removal

- Limb up trees 6 to 10 feet from the ground or up to one-third of their height
- Remove dead or diseased branches
- Cut back woody, twiggy or overgrown shrubs that accumulate dry material
- Cut back vines and low-growing groundcovers
- Consult with an arborist
  - Tree removal
  - Thin and reduce tree canopies

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Fire Ladders Remedies

- Prune low limbs up to a minimum of 6 feet, and potentially as high as 10 feet (but no more than $\frac{1}{3}$ of the height of the tree).
- Trees on slopes require the limbs to be pruned higher or spaced further apart.
- Shrubs and tall grass need to be cut to prevent fire spread.
- Woodpiles, wooden fence posts, and structures can also be considered ladder fuels.
Maintenance

- Develop a schedule for maintenance based on your landscape (monthly, quarterly, annual)
- Remove
  - Combustible debris
  - Dead or dry leaves and pine needles
  - Struggling plants
- Mow grass before 10 am and not on hot or windy days
- Use equipment properly to keep from sparking a wildfire
King County Resources

• King County Alerts

• Contacts
  • AskOEM@kingcounty.gov
  • 206-296-3830
  • Toll Free 1-800-523-5044

• Fire Resistant Gardening/Master Gardeners of King County
  • https://mgfkc.org

• King County Conservation District Wildfire Preparedness Program
  • https://kingcd.org/programs/better-forests/wildfire-resiliency/

• Fire Wise USA
  • https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA
Wildfire danger in the Wildland Urban Interface (WUI) is increasing

In King County, 350,000 people live in the WUI

Fire-Resistant Landscape reduces life and property risk

Plan, implement and maintain Landscape Zones at your home
Join KC Master Gardeners

• Visit our home page
  • https://extension.wsu.edu/king/gardening/become-a-master-gardener/

• Applications for the 2024 class will open in September 2023

• Program Contact
  • Sarah Moore, KCMG Program Coordinator
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    • king.mg@wsu.edu
Thank you

Joe Jennings, 2012, 2022
WSU Extension Master Gardener Volunteer
Contact info
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