

HEDGEROWS

Plantings that Enhance Biodiversity, Sustainability
and Functionality

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Learning Objectives

- Understand the functions and benefits of hedgerows
- Be able to apply basic concepts of hedgerow design to different situations
- Learn how to incorporate pollinator benefits into hedgerow design
- Identify resources for plant selection for hedgerow goals

What are hedgerows?

- Living fences!
- Shelter belts
- Windbreaks
- Conservation buffers



Photo from University of California, Berkley

History of Hedgerows

- “Hagas” or hedges originated from planting the hawthorn tree in medieval Europe which supported a thriving wildlife population and food for humans



Hedgerows were also originally planted to mark ownership and provide a barrier to prevent the movement of stock such as sheep and cattle.



The "patchwork quilts of the English countryside," serve as historic and contemporary boundary lines. *Photo: Sam Abell, National Geographic*



An aerial photo taken above Forest Grove shows hedgerows bordering the urban growth boundary and used as buffers between fields.

History of Hedgerows

- Hedgerows were uncommon in the early US
- 1930's USDA Shelterbelt Program briefly supported planting trees for windbreaks and soil erosion
- Today, interest has surged in sustainable farming methods



This well established windbreak provides excellent protection to the farmstead behind it.
Photo from NRCS

Functions & Benefits

- Hedgerows can serve many functions that benefit wildlife, humans and our environment
- They can be designed and tailored specifically to fit your need, timeline, budget and environmental conditions

Photo from Pacific Horticulture Society





This young hedgerow bordering a field features native plants that provide habitat for beneficial insects and pollinators.

Photo: Janet Donnelly, Oregon State University

Enhance ecological biodiversity in managed landscapes

- Can be designed to attract a wide variety of mammals, birds, reptiles, amphibians, and insects
- Create more edges or “ecotones” which increase species diversity
- Serve as wildlife corridors or habitat islands
- Provide shade and help block wind currents
- Provide habitat for wildlife to feed, nest and care for their young

Provide habitat for beneficial insects & pollinators

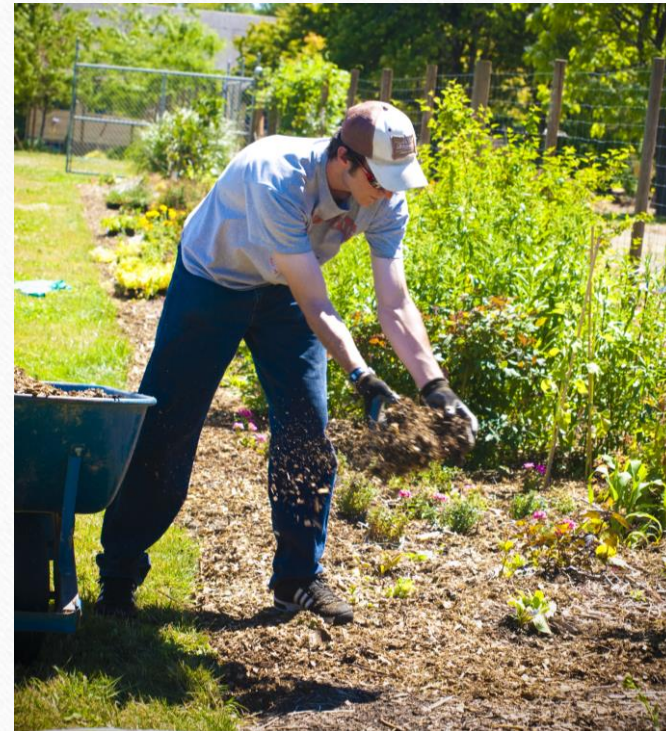
- Planting a variety of flowering trees, shrubs, forbs and plants provides insect habitat, nectar and pollen sources
- Over 75% of successful production of food requires pollination – increasing pollinator habitat improves fruit set, size and quality as well as general biodiversity
- Pollinator plant recommendations...
- Wind can also disturb pollination

Facilitate water conservation

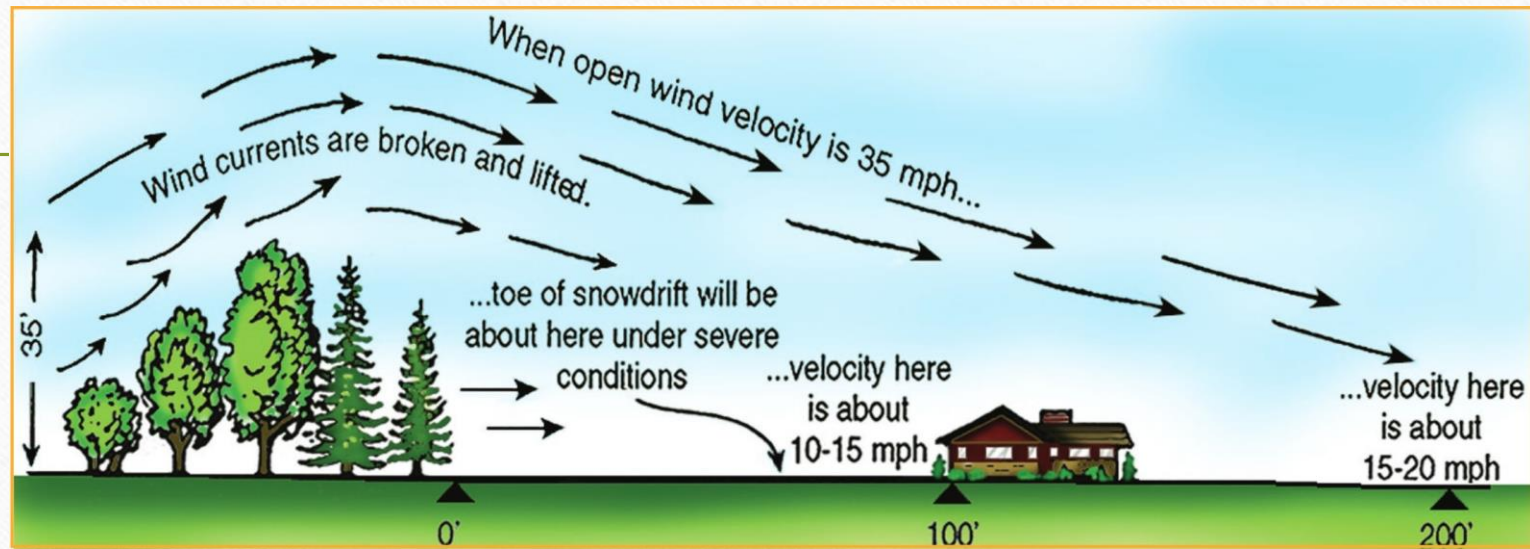
- Retain water and reduce evaporation by reducing wind speed
- Catch and store water in root systems
- Slow rate of runoff

A horticulture student helps maintain the hedgerow at the Oak Creek Center for Urban Horticulture at OSU.

Photo: Hannah O'Leary, Oregon State University



Provide windbreaks



- Wind can accelerate soil and moisture loss and impeded with pollination
- Hedgerows can reduce wind speed up to 75%
- Windbreaks help protect topsoil and crops

Help manage invasive weeds

- Weeds will always take over bare spaces
- Planting desirable plants bordering managed landscape will prevent weeds and invasive from getting established
- Hedgerows planting along road and between fields will prevent weed seeds from blowing in

Control erosion & improve soil health

- Rain, irrigation, clean cultivation and vacant field borders can all increase erosion potential in an agricultural system
- Hedgerows can reduce soil erosion by blocking wind and reducing soil and nutrient loss by run-off
- Act as a barrier to filter out pollutants by increasing surface water infiltration and improving soil structure around plantings

Support aquatic habitat

- Hedgerows have been proven to be effective in providing shade to riparian areas which keeps water temperatures at healthy levels
- They also can help filter out surface run off such as fertilizer and pesticides and keep them out of the waterways where they can be harmful to aquatic species



Create borders & privacy screens

- In more suburban environments hedgerows act as living fences that can create borders and add privacy
- Consider spacing when selecting plants
- Plant multiple species in order to help protect against any one single pest

Reduce noise, dust, chemical drift

- As hedgerows mature and become more dense they can create barriers to reduce noise and dust and chemical drift in the air
- Particles filter slowly through them instead of depositing clouds of pollutants on
- Can help alleviate neighbor conflicts in agriculture areas

My property in Willamette Valley



Diversity farm income

- Trees, shrubs and herbaceous plants in a hedgerow can also serve as sources of income
- Potential products: nuts, flowers, berries, leaves, flowers, seeds, bark, propagated plant materials for nursery and greenery for floral materials
- Plantings that shelter bees can encourage higher pollination rate
- Game birds such as quail, pheasant and sage grouse utilize hedgerow habitat and can add managed hunting as a potential income source

Hedgerow applications

- Small and large farms
- Small acreages
- Large urban/suburban lots
- Agroforestry
- Wetlands



Photo from NRCS

Suburban lots

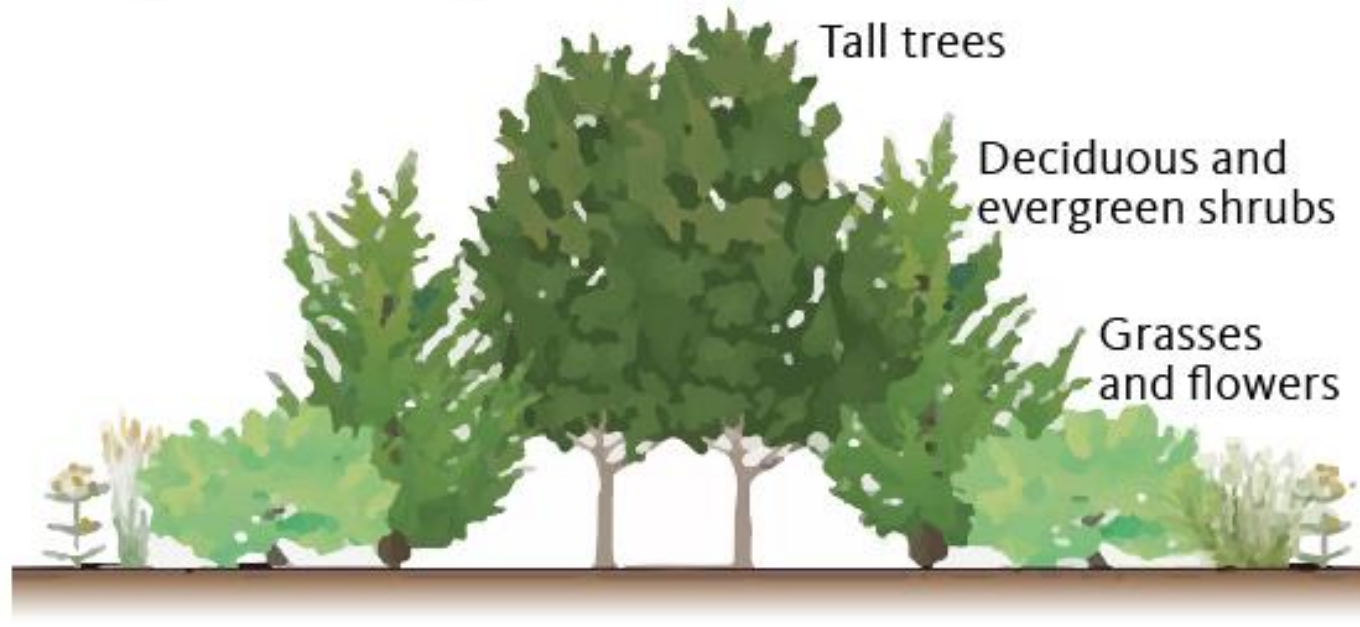


Hedgerow Design

- What functions of design are your priority? What is the application?
- What are the ecological and environmental conditions? Size and location?
- Single line of trees provide benefit, but four or more rows of plants are optimal
- If possible, place tallest at maturity in center row with shorter plantings on outside
- When possible, orient rows perpendicular to prevailing winds
- Follow land contours and create meandering lines

Hedgerow Design

Hedgerow design



Plant selection

- In general, plant a wide variety of multi-tiered plants for maximum habitat
- Avoid varieties that are susceptible to common pests and are non-invasive
- When selecting plants, consider the conditions plants need to survive in specific habitats
- Place plants together that have similar soil, water, sun and drainage needs
- Plant selection resources: see publications at end of presentation

Oregon Coast

- **Tall Hedges**

- Ceanothus
- Pacific Wax Myrtle
- Escallonia
- Viburnum
- Rhododendron

- **Low Hedges**

- Hebe
- Salal
- Japanese Holly
- Evergreen Huckleberry

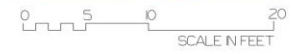


POLLINATOR HEDGEROW, 100 X 40 FT

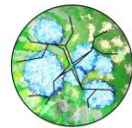
Designed by Donna Schmitz, Resource Conservationist. Drawn by Signe Danler, Surrounds Landscape Design.



CHOKECHERRY



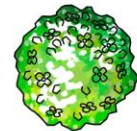
KEY TO PLANTS



BLUE ELDERBERRY



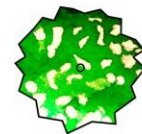
DOUGLAS SPIREA



MOCK ORANGE



OREGON GRAPE



SERVICEBERRY



CANADA GOLDENROD



EVERGREEN HUCKLEBERRY



NOOTKA ROSE



PACIFIC NINEBARK



SNOWBERRY



COYOTE BRUSH



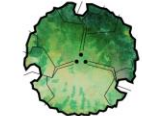
POLLINATOR BLEND
Self-heal, Oregon sunshine,
Cinquefoil, meadow
checkermallow, spike primrose,
popcorn flower...see website
for full list.



OCEANSPRAY



RED FLOWERING CURRANT



VINE MAPLE

Courtesy of Benton County Soil and Water Conservation

Soil preparation

- Key to plant survival
- Establish planting areas on smaller sites by sheet mulching
- For larger scale sites, till ground in spring and plant an early cover crop
 - Late summer – till or disc in cover crop and replant with overwintering cover crop
 - Till again following spring and install first planting for hedgerow
 - Space out enough to mow in between plantings until hedge fills in

Planting time & irrigation

- Ideal time to install new plantings is fall to allow roots to become more established and take advantage of winter rains
- Early spring is also a good time to install plants
- At time of planting, apply amendments such as compost or manure
- Will need to provide supplemental irrigation for the first 2 -3 years
 - Can use swales, furrows, soak hose/drip irrigation or hand watering or extend crop irrigation to hedgerow

Cost of establishment

- What are your goals and timeframe?
- Map out plantings in installments and plant in phases
- The larger the plant the sooner it will reach maturity
- Utilize native plant and seedling sales from SWCD or Small Woodlands Assoc.
- Research government programs available to landowners for hedgerow installment

Managing Hedgerows

- Keeping out weedy plants that take over new plantings
 - Leave alleys for mowing, cultivating and mulching
 - Fill in bare spaces with low growing, shade tolerant plants
- Deterring destructive wildlife
 - Protect plants from beaver, nutria, voles and mice with plastic tubing or wire around trees



Programs to help with hedgerow establishment

- **Conservation Reserve Enhancement Program**

- Administered through the USDA Farm Service Agency and local Soil and Water Conservation districts

Environmental Quality Incentives Program

- Administered through the USDA Natural Resources Conservation Service via local field

Xerces Society



Publications & Additional Resources

- [A Guide to Hedgerows: Plantings That Enhance Biodiversity, Sustainability and Functionality](#), Oregon State University Extension Service
- [Western Oregon & Washington Hedgerow Planting \(422\) for Pollinators](#), Xerces Society
- [A Hedgerow for Pollinators](#), Benton County SWCD
- [Designing and Installing an Agricultural Hedgerow to Restore Native Pollinator Habitat](#), Washington State University Masters Thesis