

LET'S GET INTO THE WEEDS



King County

NOXIOUS WEEDS

| With Skye Pelliccia

AGENDA

What is a noxious weed?

Plant lifecycles & roots

Weed control timing

Weed control methods

Some weed ID & controls





**ARE ALL WEEDS
BAD ALL THE TIME?**

... nope!





**SO WHAT... THE
“WEEDS” ARE
STILL PLANTS
AREN'T THEY?**

**LET NATURE
TAKE ITS
COURSE!**

What is a weed?

English (common) holly

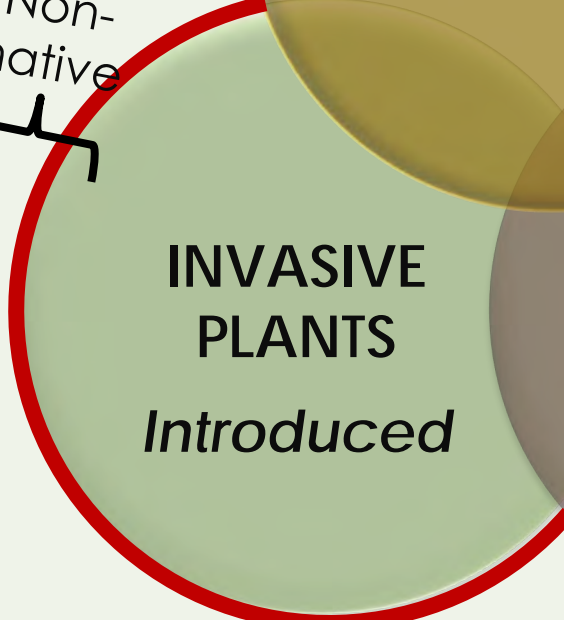


A legally defined weed

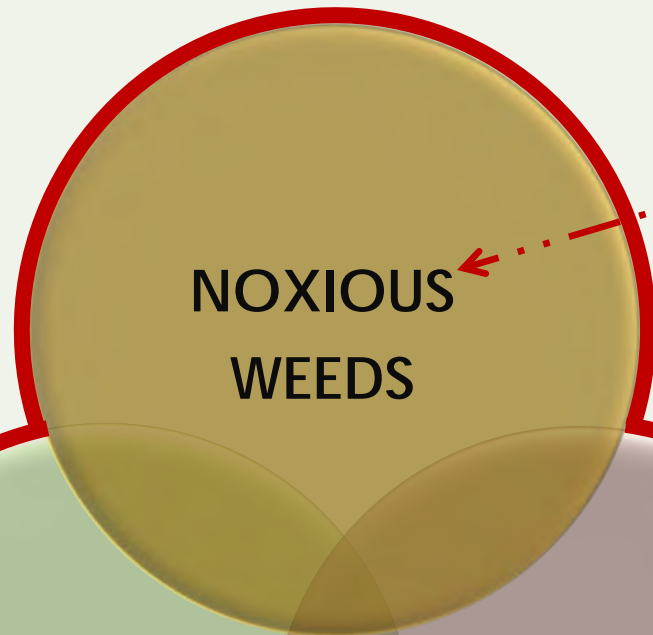


Ecosystem-based

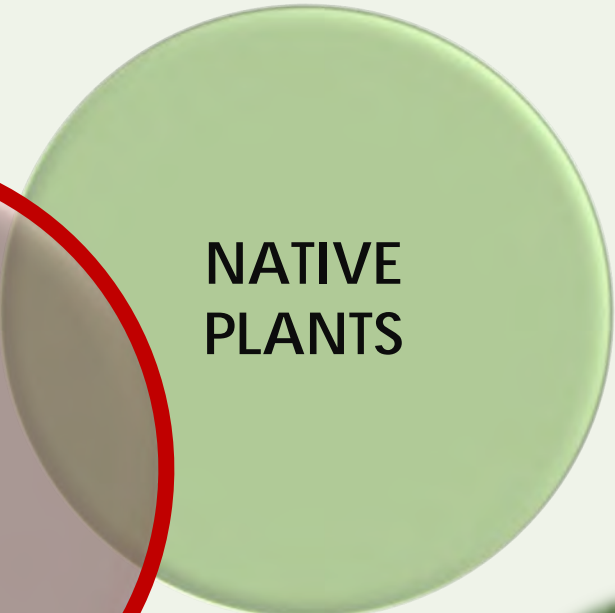
Non-native



Ecosystem-based



Personal/Subjective



Ecosystem-based



Cherry blossom



Horsetail

“WEEDS”

WHAT IS A NOXIOUS WEED?

A legally defined weed,
designated by state law

- I. Introduced to WA
- II. Spread beyond where planted
- III. Create harm in areas where introduced
- IV. Difficult to control

Fun fact: Creeping (Canada) thistle was defined as a noxious weed before Washington was a state!



Classes

LEAST abundant

A

REGULATED

Property owners required to control

B

NON-REG.

Property owners encouraged to control

C

MOST abundant



IF IT'S A NOXIOUS WEED, TRUST IT HAS AN IMPACT

If they're on the official list: *a board of experts agreed they have their individual impacts + must be: non-native, spread beyond where planted, & difficult to control*



Poison Hemlock - Class B
*Toxic to humans & livestock,
looks similar to edible carrot*



Common Ivy - Class C
*All habitats, major tree
impact, forms dense carpets*



Knotweed - Class B
*Salmon habitat disruption,
nitrogen imbalance, won't die*



Parrotfeather – Class B
*Clogs waterways, disrupts
aquatic habitat, flooding issues*




Garlic Mustard - Class A
*Allelopathic, early blooms,
can thrive in healthy shade*



Tansy Ragwort - Class B
*Toxic to livestock (horses esp.),
150k + seeds/plant*



Common Holly – Weed of Concern
*Creates new dynamic in forests that
natives struggle with, allelopathic,*



THE MOST EFFECTIVE WAY TO CONTROL A WEED IS TO UNDERSTAND THEM

Hot tips...

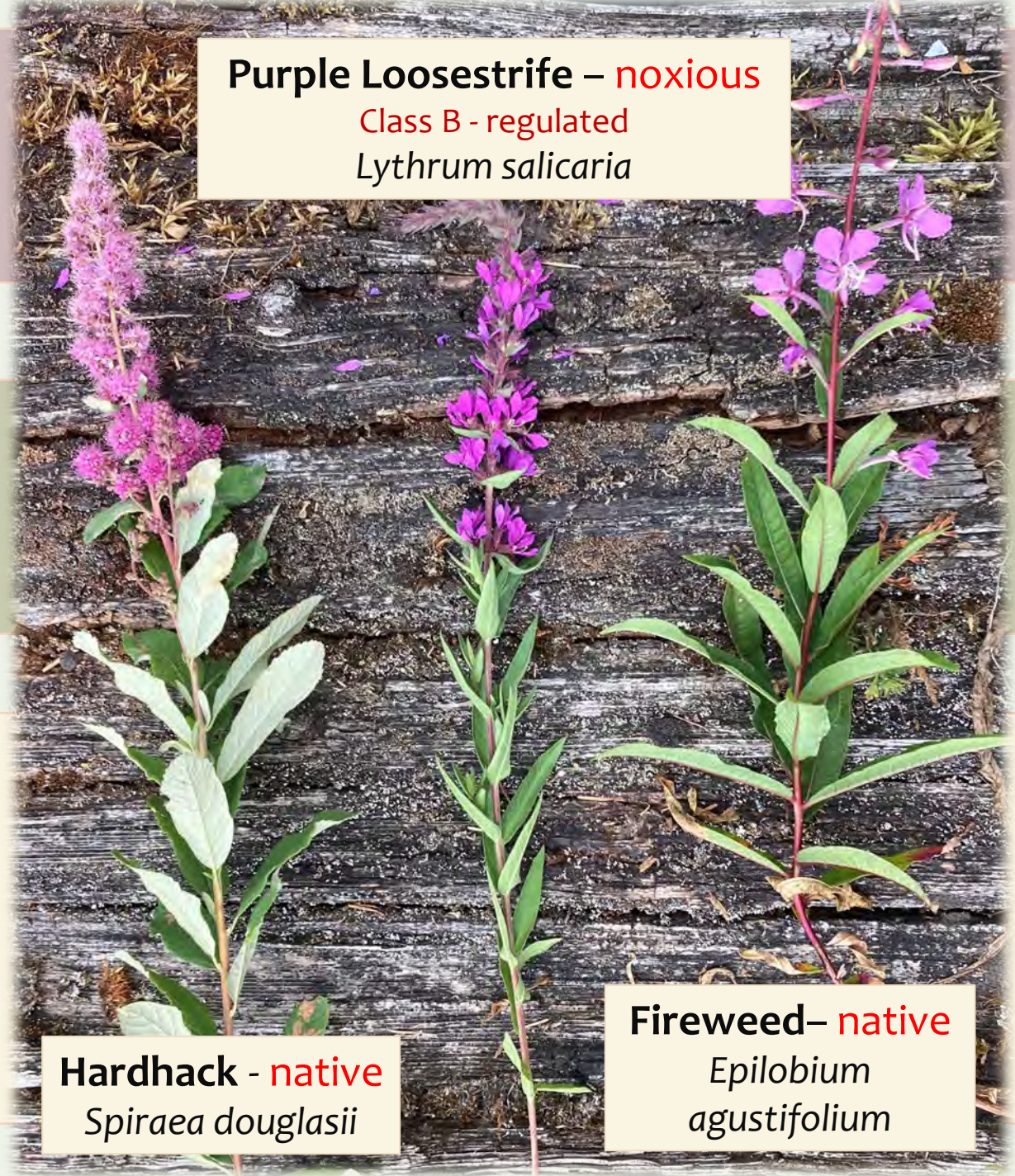
Understand the plant's lifecycle:

1. Know the plant's roots
2. Know how and when the plant reproduces

BE [A]WARE of LOOK-ALIKES!

Lots of plants look like
other plants!

The first step to successful
weed control:
making sure you have the
right weed!



Purple Loosestrife – **noxious**

Class B - regulated

Lythrum salicaria

Hardhack - **native**

Spiraea douglasii

Fireweed – **native**

*Epilobium
agustifolium*

NOT JUST ANY WEED, BUT THE RIGHT WEED TOO!

BULL THISTLE

Cirsium vulgare

- **Tap root**
 - Biennial



Save time and resources – learn your weeds!

CREEPING THISTLE

Cirsium arvense

- **Rhizomes**
 - Perennial



HOW LONG WILL IT
TAKE TO CONTROL
A
INFESTATION?

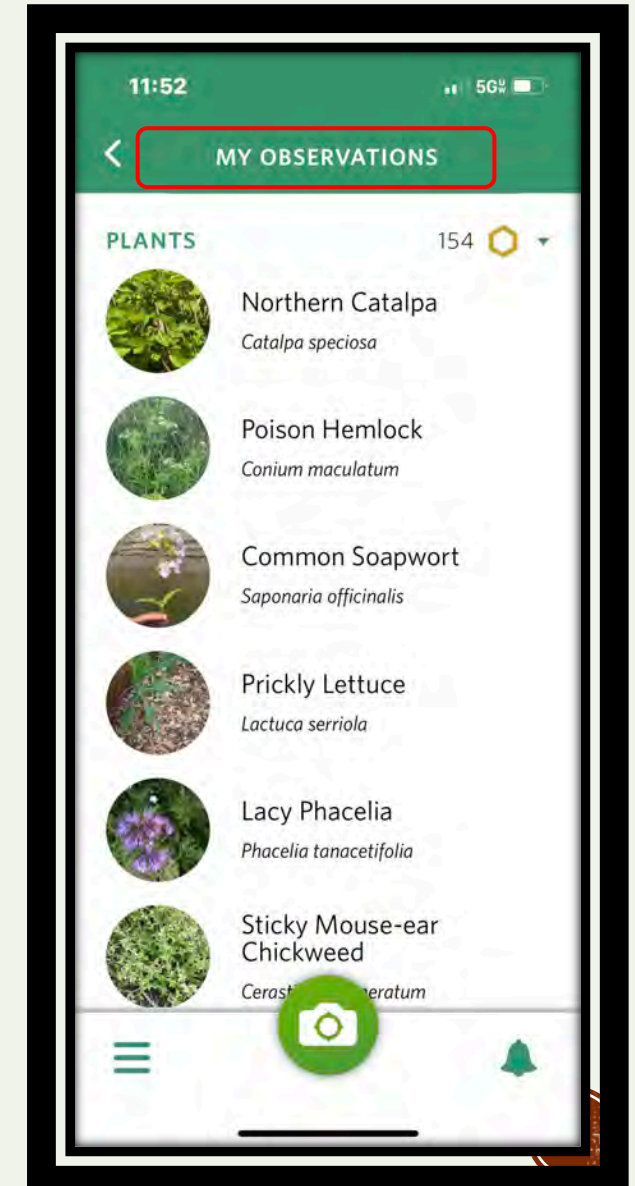
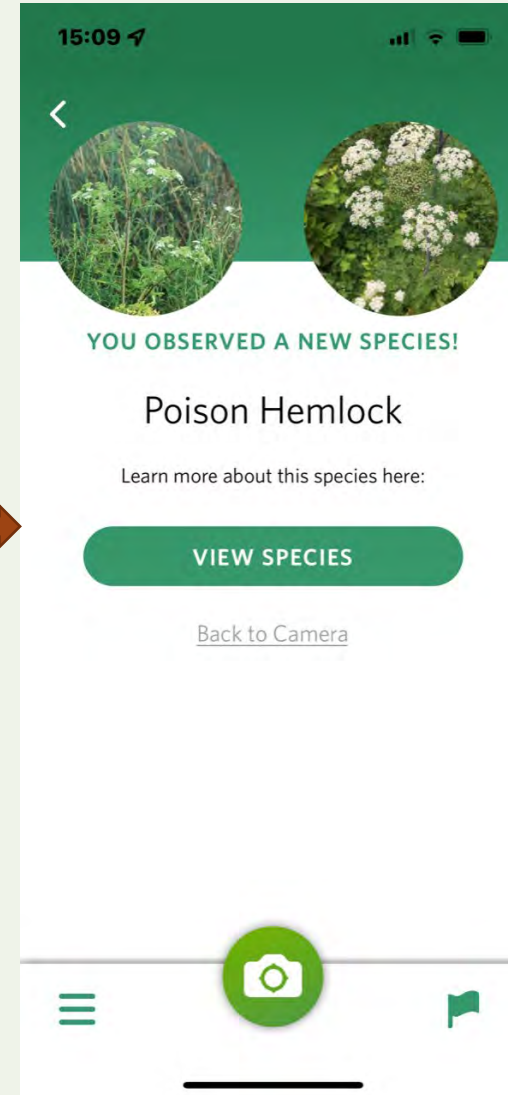


THE
BIGGER
THE ROOT
SYSTEM=
THE
LONGER
IT'LL TAKE

SEED BANK
ALSO MAKES A
DIFFERENCE

App recommendation: **Seek** by iNaturalist

Identify plants using
your phone camera





PLANT

Fireweed

Chamaenerion angustifolium

NATIVE

✓ You observed it on Jul 13, 2019

ABOUT

Chamaenerion angustifolium is a perennial herbaceous flowering plant in the willowherb family Onagraceae. It is known in North America as fireweed, in some parts of Canada as great willowherb, in Britain and Ireland as rosebay willowherb. In the United Kingdom it is also known as bombweed as a result of its rapid



PLANT

Purple Foxglove

Digitalis purpurea

INTRODUCED

✓ You observed it on May 26, 2019

ABOUT

...

(Source: Wikipedia)

RANGE MAP

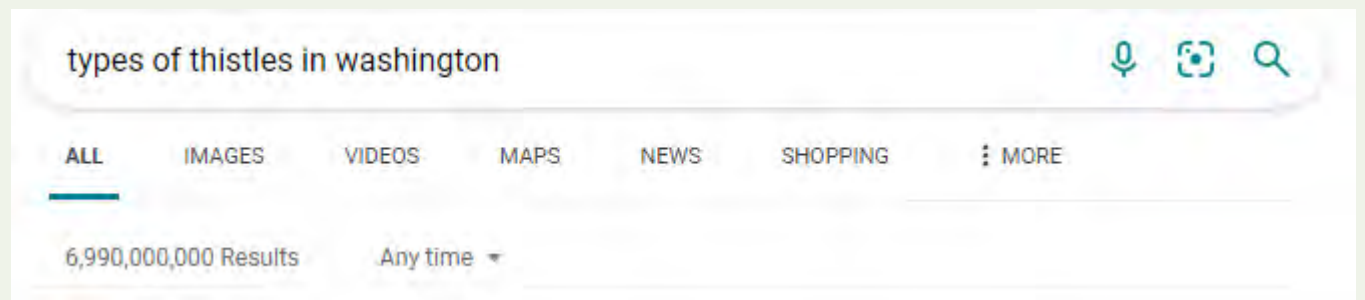
Introduced= non-native, could be a “weed”



THE INTERNET IS YOUR FRIEND!



Even if you can only figure out the plant family or genus, search it!



22 Different Types Of Thistle Plants (Including Photos) - Naturlist

<https://naturlist.com/thistle-plants>

22 Different Types Of Thistle Plants (Including Photos) Common Thistle. The common thistle is one of the most well-known and widespread thistle plants. Growing up to 5 feet tall in fields, ...

Missing: washington | Must include: washington

21 Types of Thistle Plants With How To Identify Them

<https://americangardener.net/types-of-thistles>

Jul 28, 2022 · Melancholy **Thistle** (*Cirsium heterophyllum*) Creeping/Canada **Thistle** (*Cirsium arvense*) Meadow **Thistle** (*Cirsium dissectum*) Marsh **Thistle** (*Cirsium palustre*) Woolly **Thistle** ...

Missing: washington | Must include: washington

Bull thistle identification and control - King County, Washington

<https://kingcounty.gov/.../noxious-weeds/weed-identification/bull-thistle.aspx>

Legal Status in King County, ... Identification Habitat and Impact



Public and private landowners are not required to control infestations of **bull thistle** that occur on their property in King County. **Bull thistle** is a Class C Noxious Weed in Washington, first listed in 1988. Because control is not required in the county, it is on the list of Non-Regulated Noxious Weeds for King County. For mor...

[See more on kingcounty.gov](#)

WHAT OUR PROGRAM CAN HELP WITH

We can! 😊

- ✓ Free educational resources & weed ID
- ✓ Guidance on noxious weed control
- ✓ Knotweed injector lending
- ✓ Connection to resources & small contractor list
- ✓ Weed vouchers for **regulated** weeds
- ✓ Help with controlling **regulated** weeds that are too much to handle on your own



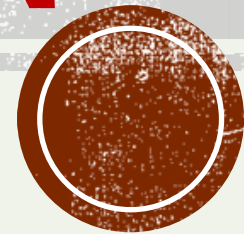
We can NOT 😞

- ✗ Weeding or enforcement of control of non-regulated noxious weeds
- ✗ (Confident) education on non-listed weeds
- ✗ Your neighbors weeds creeping into your property (unless they're regulated)



PLANT LIFECYCLES

GET TO KNOW YOUR **ROOTS &** **REPRODUCTION**



Both vary based on plant lifecycle and growing conditions



ANNUALS

< 1 year to do it all

Winter annuals seed in ~spring // Summer annuals seed in ~fall

Energy focused on seeds, not roots

✓ Weak root system

✓ Stellar seed production

❖ ID & control before flowers form

WIMPY ROOTS

LOTS OF SEEDS
HIGH GERMINATION



BIENNIALS

2-year life cycle

✓ 2 growth stages to always look out for

Energy focus on seeds, not roots, 2x grow time vs annuals

ROOTS

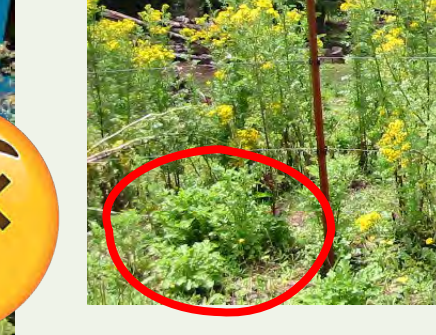
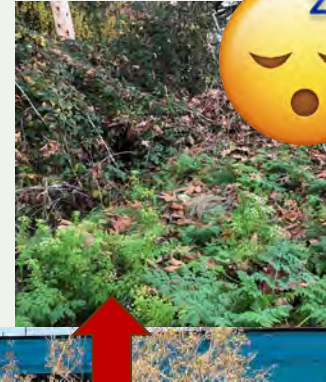


Fibrous (young)



Tap (mature)

- ❖ Know how to ID in both stages
- ❖ Prioritize 2nd year plants
- ❖ Cut plants/remaining root = can come back
- ❖ Control before flowers



Herbaceous



PERENNIALS

2+ year life cycle

Long lived/specialized roots keep plant alive thru seasons

Roots = their priority over seeds!

- ✓ Hardest root system, most noxious weeds are perennials
 - ✓ Most reproduce via seeds AND via fragments
 - ❖ Knowing plant's dormancy timing is helpful
- ❖ Some methods **MUST** be combined w/ others to be effective!

Woody (evergreen & deciduous)



PERENNIAL ROOTS

ADVENTITIOUS ROOTS



stolons/runners



tip rooting



stem nodes

BULBS



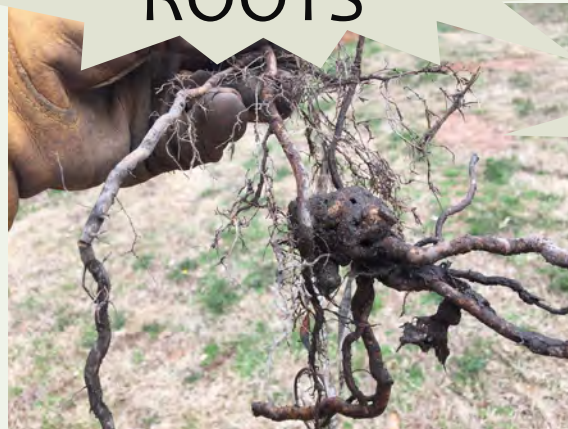
RHIZOMES



TUBERS

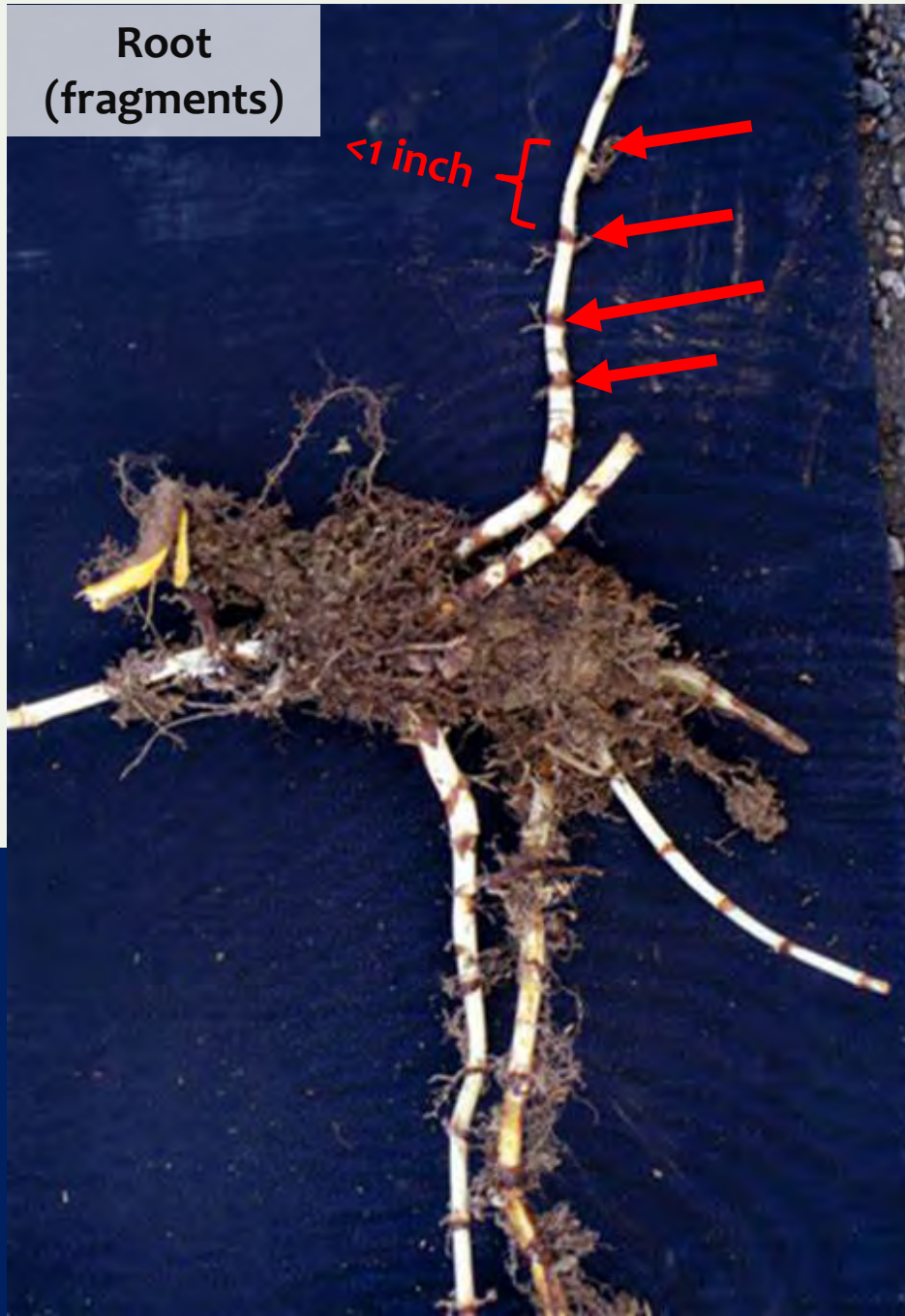
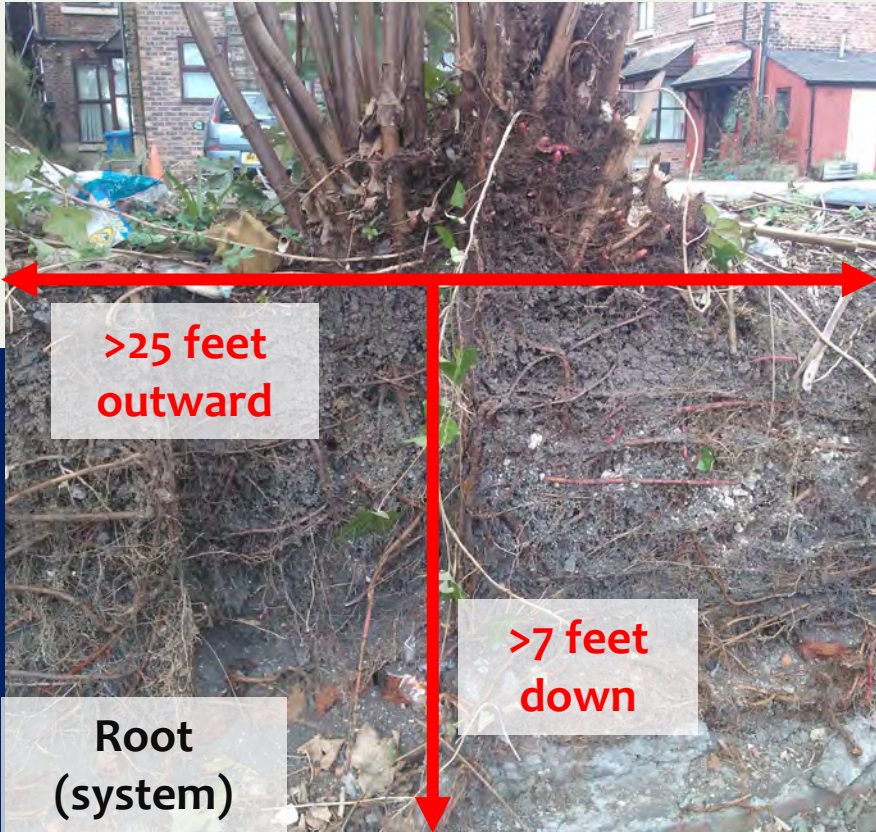


TUBEROUS
ROOTS



SUCKERS





FRAGMENTATION

A type of reproduction where plants form clonal colonies from parts of themselves

Control with care (& patience)

WHEN IS THE BEST TIME TO CONTROL A MATURE WEED?

- A. While they're dormant
- B. After they've flowered
- C. Pre-flower/budding

TIMING IS EVERYTHING

IDEAL WEED CONTROL, EITHER OF THESE:

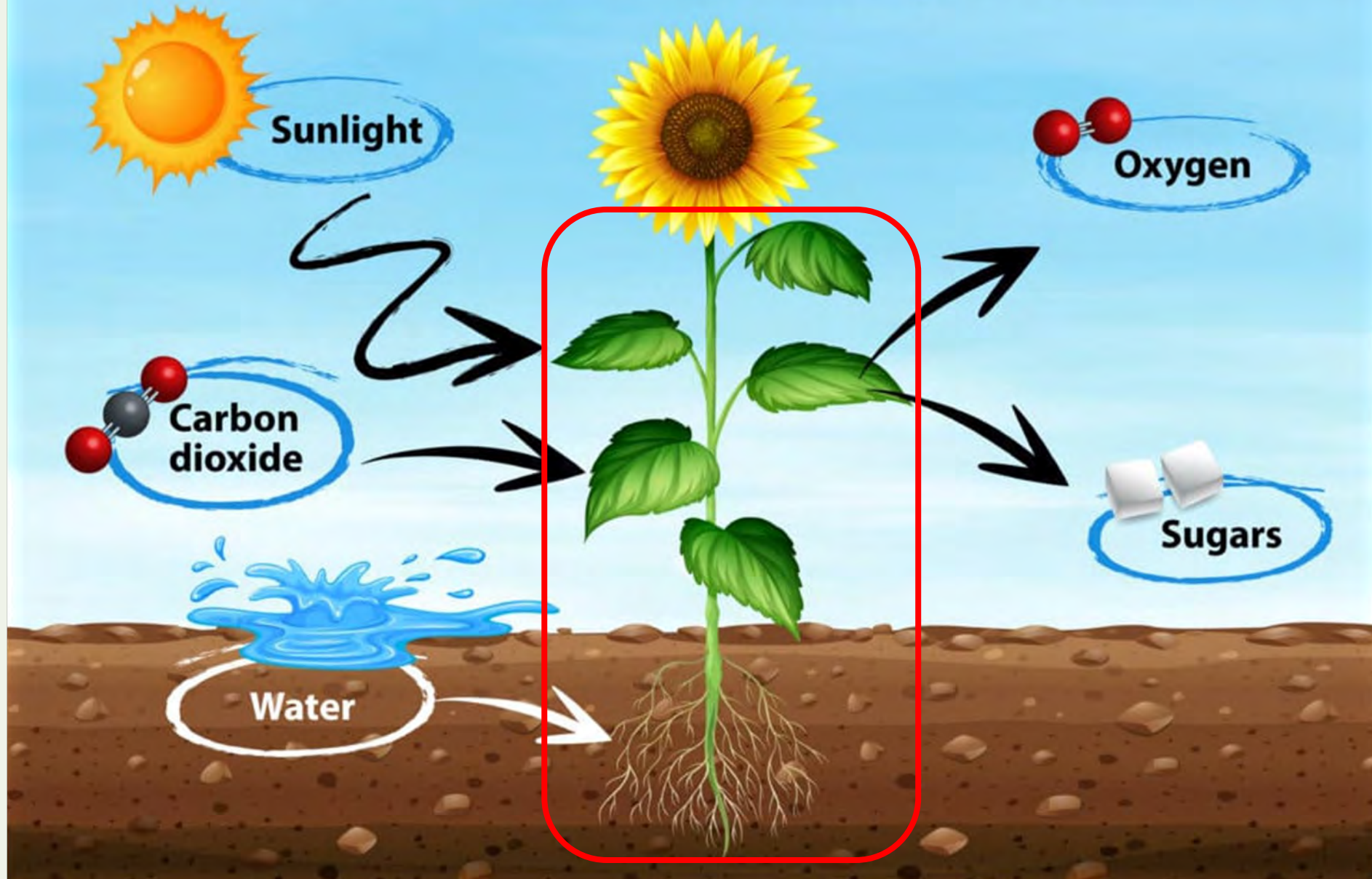
**Seedling//
New Growth**



**Budding//
Pre-flower**



Process of Photosynthesis



To my garden nerds
Please imagine this
sunflower is a
perennial not an
annual for the sake
of this exercise 😊

DORMANCY

- **Seasonal plant nap – plant hibernation**
- When plants feel stressed they go into a waiting state until conditions are right
- Protects energy → sends it to its roots to store (away from the elements)
- We prune during this time because plant has a lot of stored energy and is less likely to be shocked by sudden wounds/will heal fastest

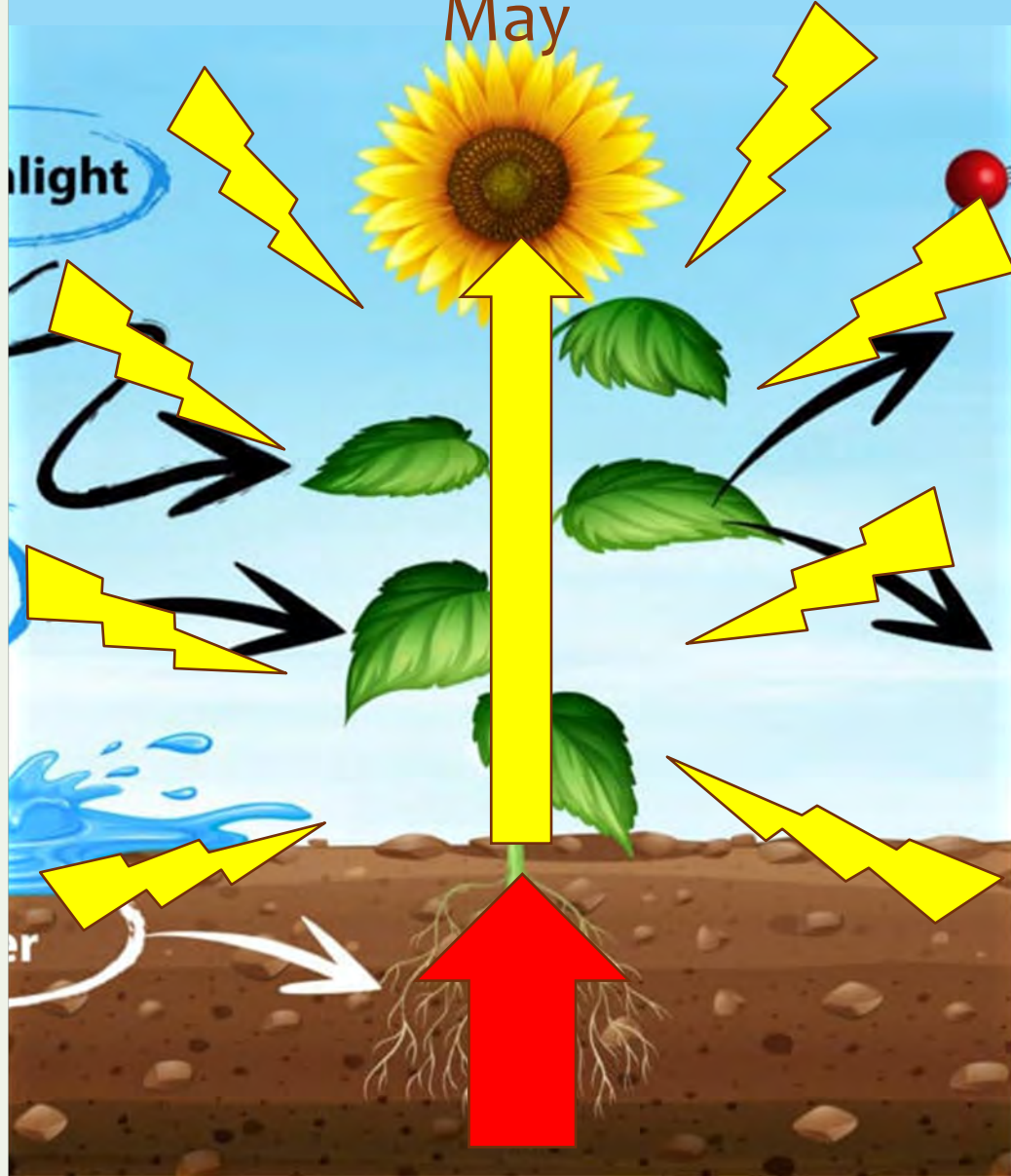
ACTIVE GROWTH

- Anytime the plant is not dormant
- Energy moves towards the surface and peaks when plants are blooming



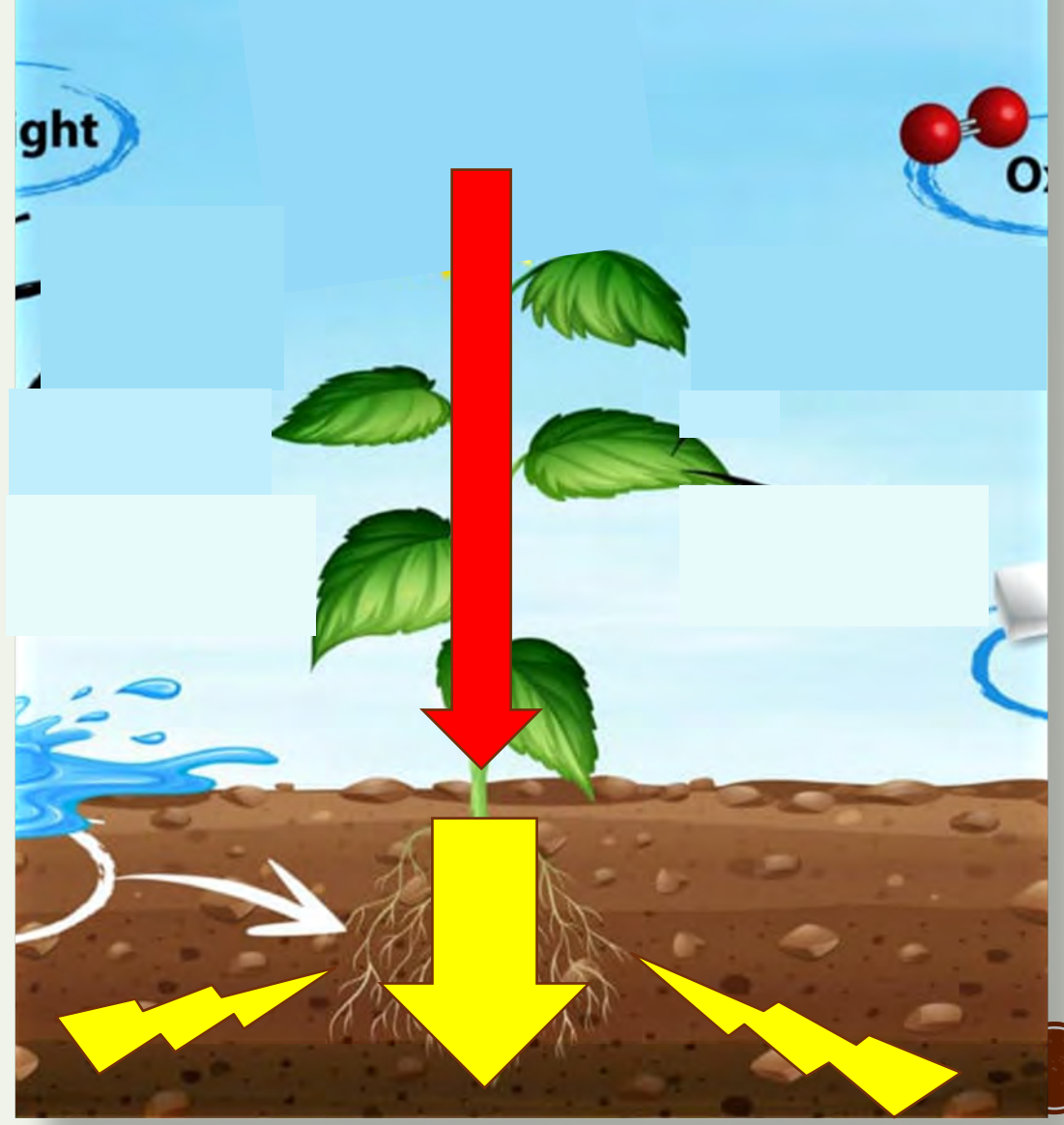
Actively growing

May

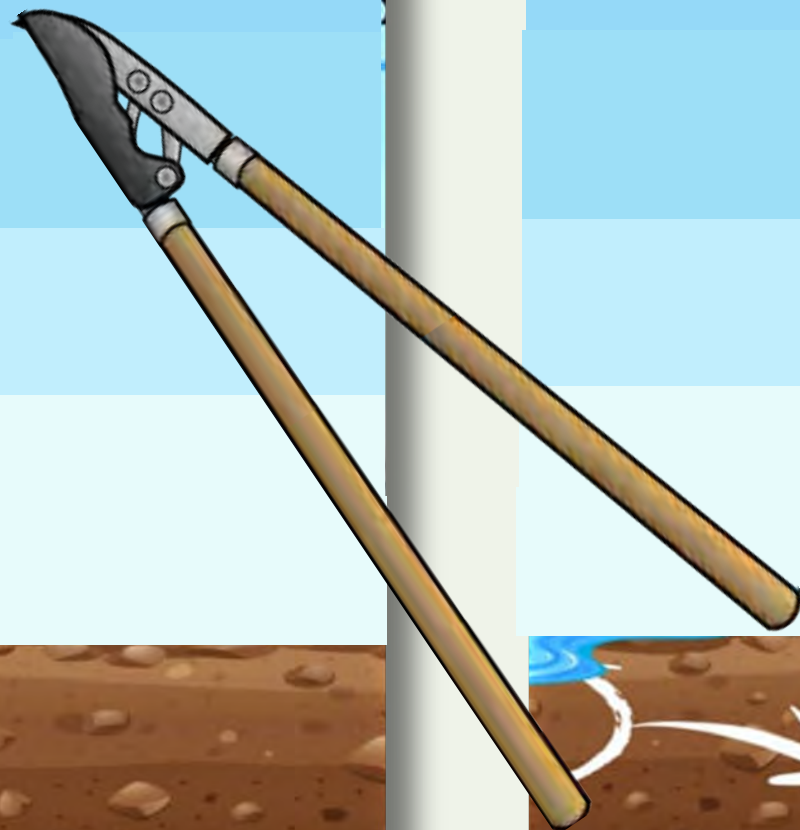


Dormant

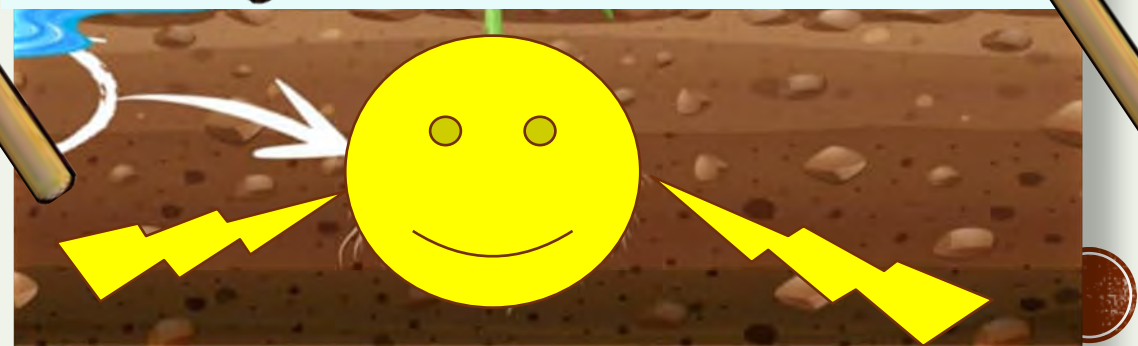
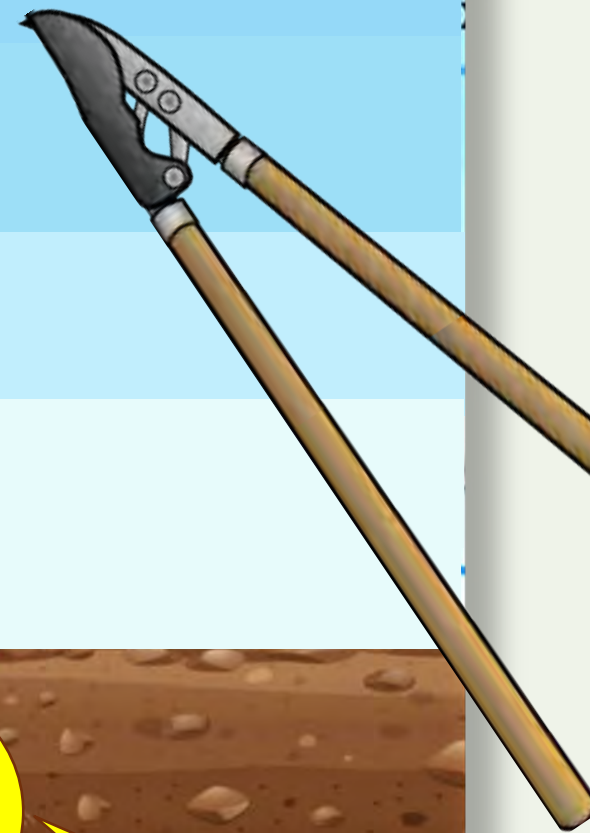
September



Cut down during its
active growing season



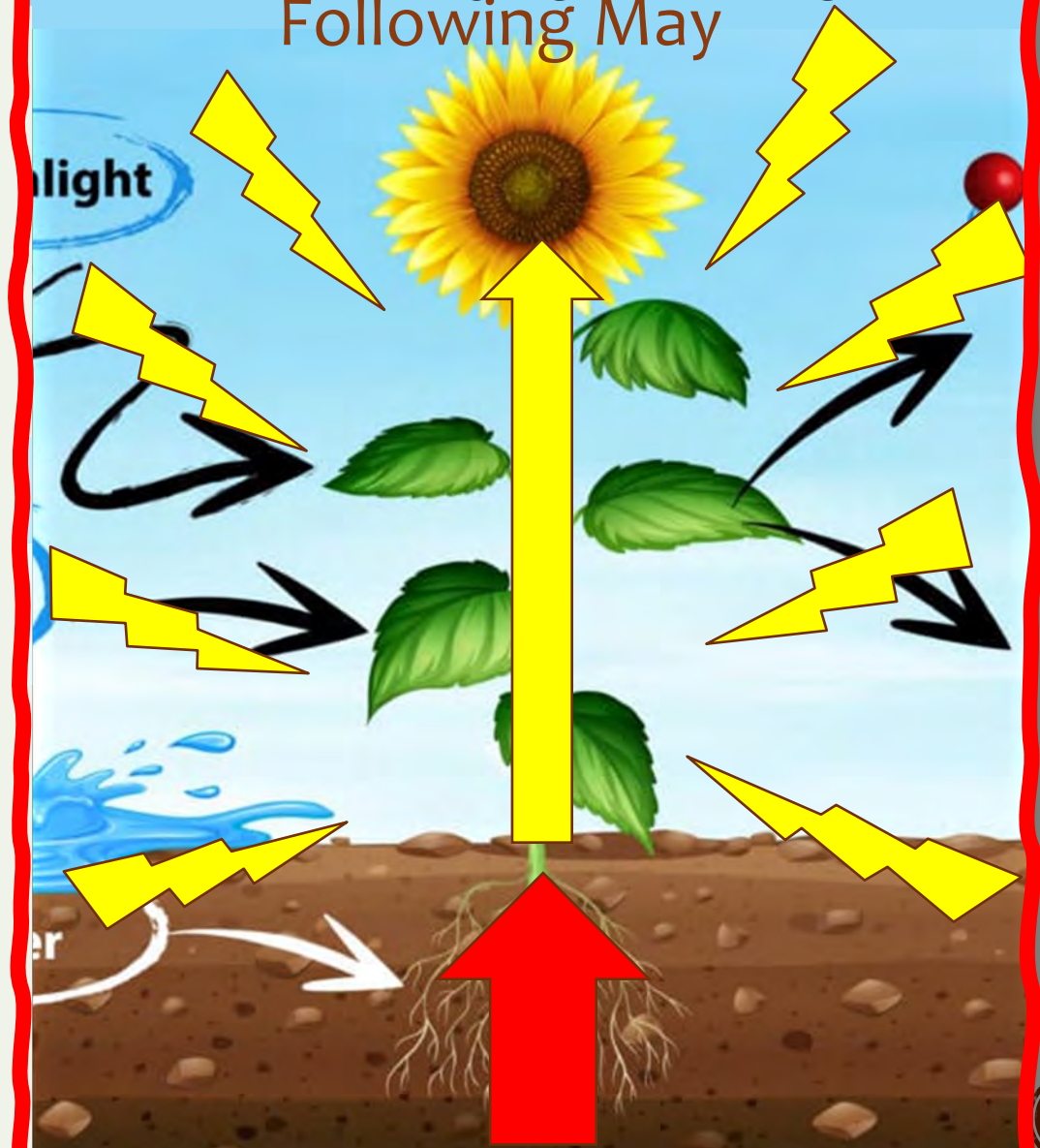
Cut down while **dormant**



Actively growing
Following May



Actively growing
Following May



WEED CONTROL METHODS

INTEGRATED PEST MANAGEMENT

1. Prevention
2. Manual Control
3. Mechanical Control
4. Chemical Control
5. Cultural Control

Most common method, but not always the most effective alone!



WEED CONTROL METHODS

1. Prevention

2. Manual Control

3. Mechanical Control

4. Chemical Control

5. Cultural Control

Right methods, right plants, mindful weeding: don't spread seeds, less soil disturbance, etc.



WEED CONTROL METHODS

1. Prevention
- 2. Manual Control**
3. Mechanical Control
4. Chemical Control
5. Cultural Control

Pulling, cutting, digging, etc.
without power tools

Small to medium infestations



WEED CONTROL METHODS

1. Prevention
2. Manual Control
- 3. Mechanical Control**
4. Chemical Control
5. Cultural Control

Power tools! Timing is important.

Medium to large infests



WEED CONTROL METHODS

1. Prevention
2. Manual Control
3. Mechanical Control
- 4. Chemical Control**
5. Cultural Control

Using herbicides (pesticides that target plants). Variety of application methods.

Always read the label!



SPRAYING

0.1 - 5% conc.



CUT & TREAT

40 - 100% conc.



EZ-ject

~80% conc.



PESTICIDE

Germicide

Insecticide

Fungicide

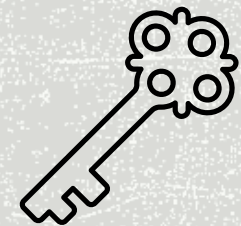
Herbicide

Bactericide

Rodenticide

PESTICIDES VS. HERBICIDES

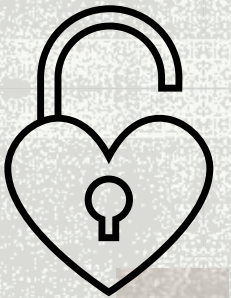
- Each type of **pesticide** targets a specific group
- **Herbicides** target plants
- Many different “modes of action”
- Switch up herbicides to avoid resistance



Herbicides



Animals



Plants

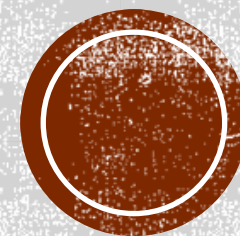
NEW GREEN GOBBLER
20% VINEGAR WEED KILLER

SATISFACTION GUARANTEED
100%
SATISFACTION GUARANTEED

KEEP OUT OF REACH OF CHILDREN
DANGER



WHAT ABOUT VINEGAR? SALT?
SHORT ANSWER: NO



Don't use them anywhere you want to keep other plants or healthy soil, dangerous for pets & kids

WEED CONTROL METHODS

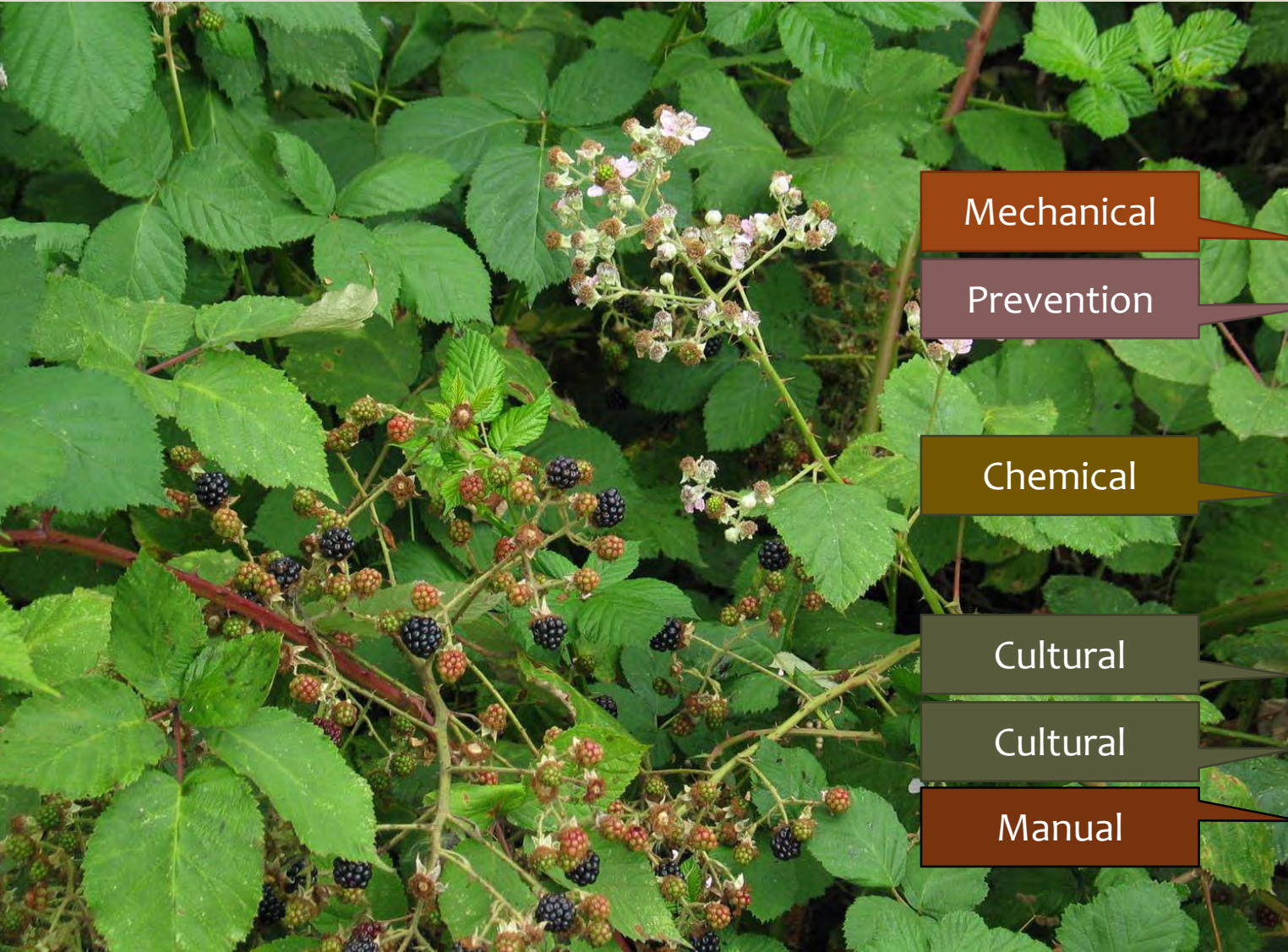
1. Prevention
2. Manual Control
3. Mechanical Control
4. Chemical Control
5. **Cultural Control**

Changing the plants environment so weeds are discouraged & desirable plants are encouraged.



Always used in combo with other methods.

IPM EXAMPLE: HIMALAYAN BLACKBERRY



Mechanical

Prevention

Chemical

Cultural

Cultural

Manual

Best management practice (BMP) for large patches where digging out all plants is unreasonable or where digging is a major hazard (steep slopes)

1. Mow/brush plants to ground level

- Clean tools of seeds after use

Wait until most plants are 2+ ft tall (need to have at least 2 sets of leaves)

2. Spray regrowth

Wait however long label indicates for herbicide to work (2 – 60+ days)

3. Sheet mulch (cardboard + heavy mulch)

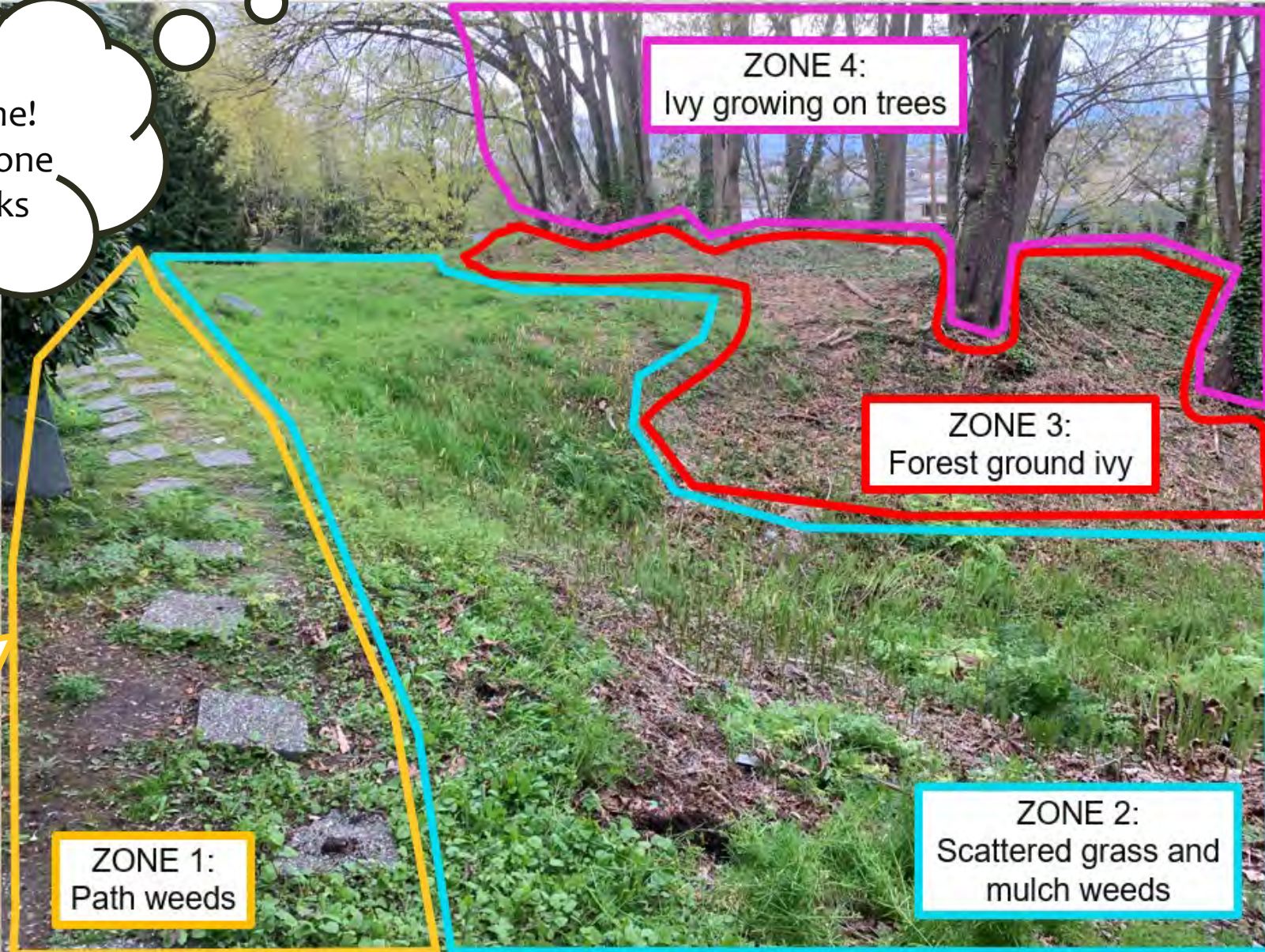
4. Plant native

5. Dig out regrowth as it appears (maintenance)



ZONING – BREAK UP THE WORK

One task at a time!
Can go zone-by-zone
or by similar tasks



WALKING PATH
1. Manual removal
or herbicide
2. Sheet mulch
3. Place pavers

ZONE 1:
Path weeds

ZONE 2:
Scattered grass and
mulch weeds

ZONE 3:
Forest ground ivy

ZONE 4:
Ivy growing on trees

Tree rings
(manual)

NATIVE FOREST
1. Manual removal
2. Fall sheet mulch
3. Native plants

GRASSY PLAY AREA
1. Selective
herbicide
2. Dirt + grass seed



DISPOSAL

Flowers or seeds?

Bag and garbage

Just greens?

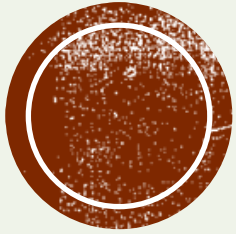
Most can compost:

- Municipal yard waste (we have vouchers for regulated noxious weeds!)
- On site – best to leave “high & dry” to prevent re-rooting
- Home compost – best to let dry first. Weeds that reproduce by fragments should not go here. No toxic weeds!

A FEW (NOXIOUS) WEEDS TO WATCH FOR

General weeding tips:

- Start from edges of infest (least dense weeds), move inward
- Choose the method based on your site, one species may need multiple methods depending on the landscape!
- Be patient and plan to follow up with maintenance in coming years.
- Plant or seed your site! Don't leave a blank canvas.



king county weeds best management practices



Q All

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<https://kingcounty.gov> > ... > [animals-and-plants](#) > [noxious-weeds](#) > [weed-control-practices](#) > ...

Best Management Practices (BMP's) - King County, Washington

King County's Best Management Practices (BMP's) help landowners control weeds using a variety of options that consider characteristics of the site and keep negative side effects to a minimum. The Noxious Weed Control Program follows county guidelines of Integrated Pest...



PNW WEED MAINTENANCE SEASONAL GUIDE

| | | WINTER | | | SPRING | | | SUMMER | | | FALL | | | |
|---|----------------------|--|---------|----------|--|----------------------------|-----|------------------------------|------|--------|--|---------|----------|-------------------------------------|
| | | December | January | February | March | April | May | June | July | August | September | October | November | |
| <i>Acer platanoides</i> NORWAY MAPLE | Life cycle | [Green bar: April to October] | | | | | | | | | | | | |
| | Manual or mechanical | Weed wrench smaller (<2" diameter) stems while soil is moist. Will require regular followup. | | | | | | | | | | | | |
| | Chemical | Cut stump w/ 50% triclopyr | | | | Cut stump w/ 50% triclopyr | | | | | | | | |
| <i>Aegopodium podagraria</i> GOUTWEED | Life cycle | [Green bar: April to September] | | | | | | | | | | | | |
| | Manual or mechanical | If handpulling, get all roots, and put in garbage | | | | | | | | | | | | |
| | Chemical | 4% glyphosate or 2% triclopyr | | | | | | | | | | | | |
| <i>Allianthus altissima</i> TREE-OF-HEAVEN | Life cycle | [Green bar: May to September] | | | | | | | | | | | | |
| | Manual or mechanical | Weed wrench smaller (<2" diameter) stems while soil is moist. Will require regular followup. | | | | | | | | | | | | |
| | Chemical | Preil only w/ 50-100% triclopyr. Cut stump/girdle is ineffective. | | | Preil only w/ 50-100% triclopyr. Cut stump/girdle ineffective on this species. | | | | | | | | | |
| <i>Alliaria petiolata</i> GARLIC MUSTARD | Life cycle | [Green bar: April to October] | | | | | | | | | | | | |
| | Manual or mechanical | When handpulling, get all roots. Avoid in late summer. Don't pull when seedpods are dry. | | | | | | | | | | | | |
| | Chemical | 2% glyphosate possible for rosettes | | | 2% glyphosate (1st treatment) | | | 1% triclopyr (2nd treatment) | | | Don't spray once seedpods start filling in | | | 2% glyphosate possible for rosettes |

STEM



- ✓ Hairless
- ✓ Purple splotches/streaks
- ✓ No ridges
- ✓ Hollow

POISON HEMLOCK

Conium maculatum

LEAVES



FLOWER

1st year - rosette



2nd year – bolting/flowering/dead



FLOWERING HEIGHT

LOOK-A-LIKES



6-12 ft

**POISON
HEMLOCK**



1-4 ft

**QUEEN
ANNE'S LACE**



2-4 ft

**BUR
CHERVIL**



1-3 ft

**ROUGH
CHERVIL**



THE FORBIDDEN CARROT: Poison Hemlock

EDIBLE LOOK-A-LIKES



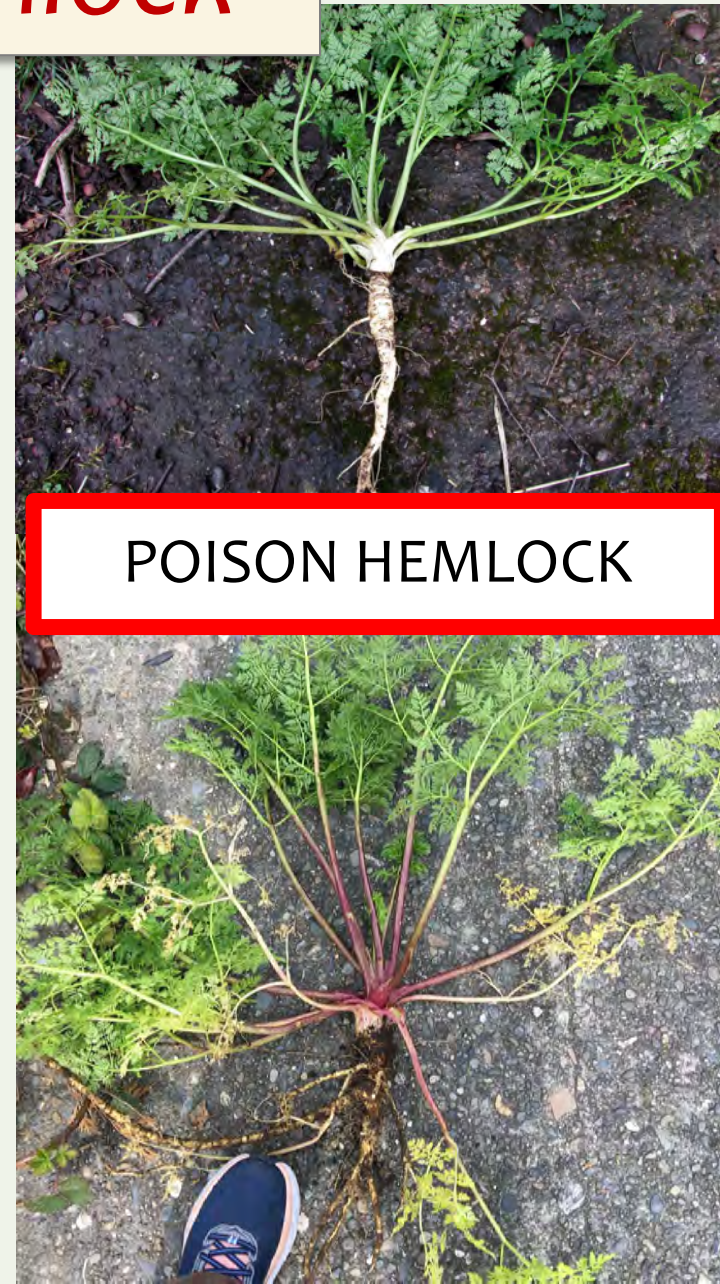
QUEEN ANNE'S LACE

GARDEN CARROT

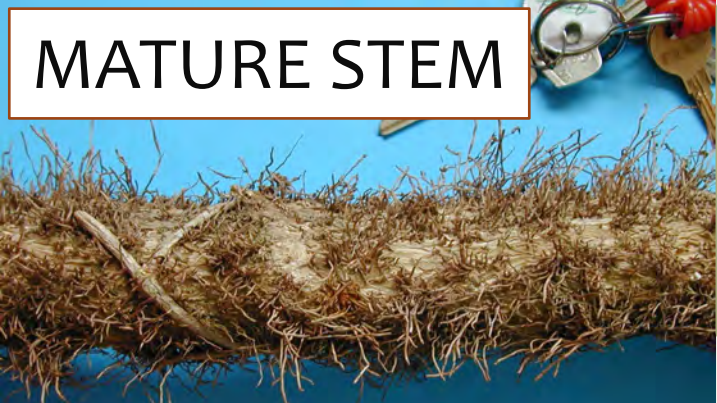
Impact: human & animal health

- Class B – selective reg.
- ****Landowners required to control on public lands****
- **NEVER MOW or BURN**
- Best to dig out or spray plants pre-flower. **WEAR PPE!**
 - (while bolting)
- **Dig out tap roots in soft soil**
 - Touching it will not harm you 😊
- Prioritize bolting plants, then rosettes if you have time
- Herbicide: spray in the spring
 - 2% triclopyr, 1% surfactant

POISON HEMLOCK



MATURE STEM



COMMON IVY

Hedera helix

“Rootlets”, not true roots
(no nutrient exchange)



SHALLOW ROOTS



LEAVES VARY (4 invasive cultivars)

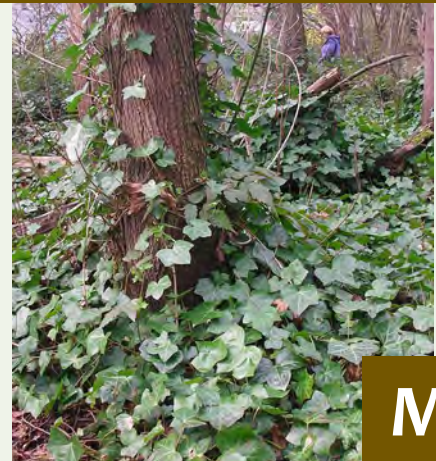
FRUIT/SEEDS



FLOWERS



Juvenile (1-10 yr): no flowers, less trees



Mature (10+): flowers growing vertically



Impact: trees, natural forested areas, inhibits native plants

Class C – non-regulated

- Control methods depend on where ivy is growing
- Evergreen vine
- Vines can attach to almost any surface with rootlets
- Shallow roots
- Can add tons of weight
- Leaves act as sails





STEP 1: **Kill upper growth** by cutting the vines all around the tree at about waist/shoulder height and removing from lower tree trunk



STEP 2: **Pull up ivy** about 3 ft from base of tree and maintain ivy-free area



STEP 3: **If there is time, pull out / dig up the ivy vines** on the ground

COMMON IVY CONTROL ON TREES



“Carpet ivy”

Ivy burrito! **Follow with sheet mulching.**

1. Cut rectangle with loppers
2. Pull with tiller, have second person cut connected vines, roll into burrito, compost

Ivy in landscaping/sparse

Hand pull! Get as much of the root as possible. Target desirable vegetation 1st. Follow with mulch.

RHIZOMES



HIMALAYAN BLACKBERRY

Rubus armeniacus

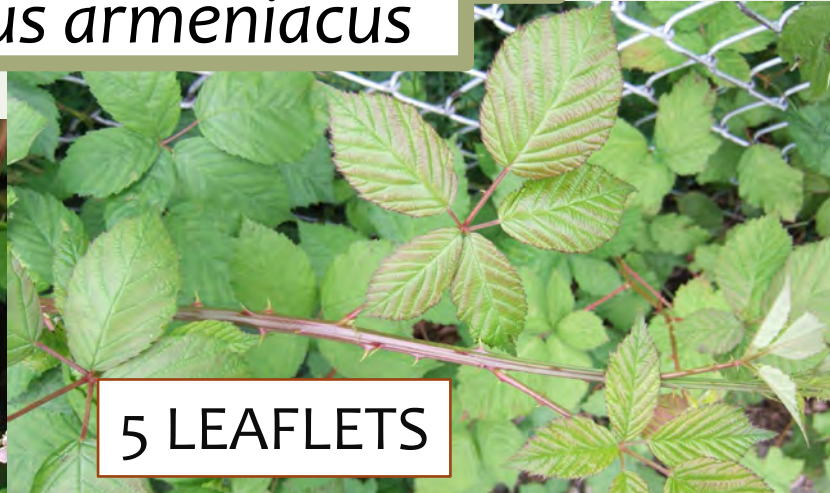
FLOWERS



Canes grow
upright, form
brambles



5 LEAFLETS



ROOT BALLS



BOXY STEM





BLACKBERRY CONTROLS

Class C – non-regulated

Can choose one of these control options

Can combine any of these with sheet mulching.

Plan for regrowth!

- **Cut down, dig out root balls (GRUBBING)**
- Cut stems, apply conc. herbicide to fresh cuts
- **Cut first, let canes grow to 2+ft, spray new growth in late summer or fall**
- Spray stand with herbicide (triclopyr pre-flower, glyphosate post)
- Cut several times a year for several years to exhaust the roots (will suppress, not eradicate)





LARGE & HYBRID BINDWEED

Calystegia sylvatica

Calystegia xlucana

(A.K.A. Morning Glory)

Class C – non-regulated

- Can reproduce from small fragments – do **not** put in home compost (only city)
- Rootless/hairless vines twine around anything
- Extensive rhizomes
- Small patches: persistent removal throughout the year, can follow large removal with sheet mulching

Lionel





YELLOW ARCHANGEL

Lamiastrum galeobdolon

Class B – non-regulated

- Shade tolerant
- Dig it ASAP when you see it, shallow rhizomes
- **Thick** sheet mulching works – cover entire area + 2-3 ft more on the edges



LEAVES



TANSY RAGWORT

Jacobaea vulgaris

- ✓ Wavy “dino-kale like” leaves, dark green color
- ✓ Younger stems purplish
- ✓ Bright yellow flowers with petals



FLOWER CLUSTER

1st year - rosette



2nd year – bolting/flowering/dead



TANSY RAGWORT CONTROL

Impact: agriculture & livestock



- **Class B - Regulated**
- **Toxic to livestock**
- Prioritize 2nd year plants
 - Pull bolting plants before they flower in spring
 - Too late? “Deadhead” flowering plants in fall – prevent seeds. Dig out rest.
 - Dig rosettes with extra time
- Follow up in spring and summer for new growth
- Herbicide spray in spring/summer for larger infests

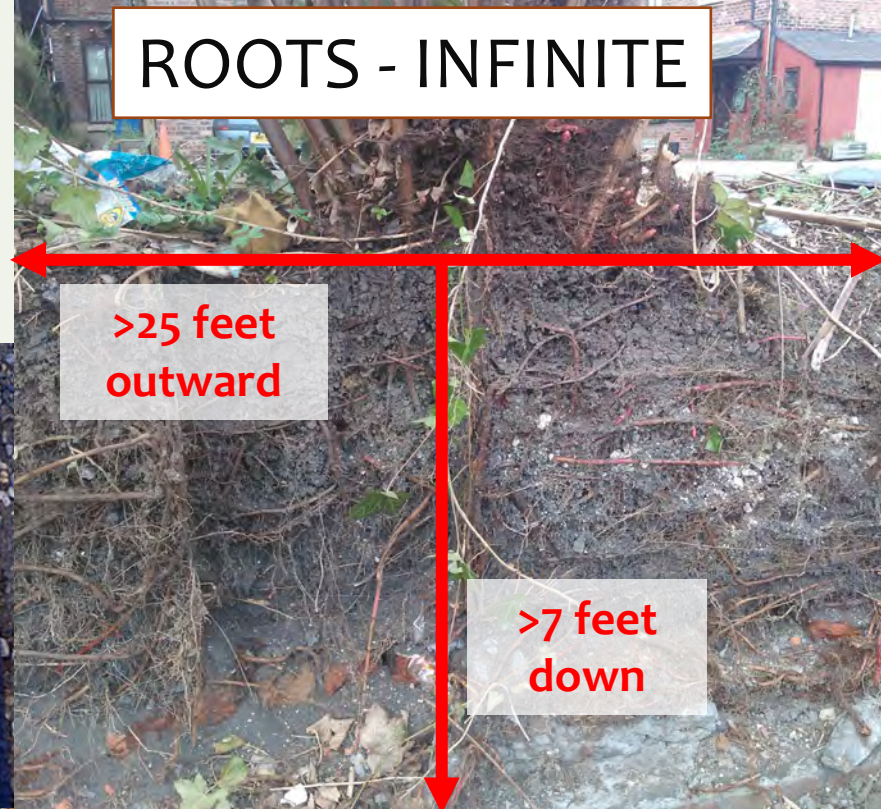
STEM



INVASIVE KNOTWEEDS

Genus: *Fallopia*

ROOTS - INFINITE



Every node can grow new plant:
✓ Every 1 inch of root fragment
✓ Every stem node

- ✓ Zig-zag
- ✓ Hollow

Spring: new or re-growth



Fall: die back (@ surface)



Summer: growth & flowers



Winter: dormancy



KNOTWEED CONTROL

Impact: salmon habitat,
riparian zone shorelines

- **Class B – selective (along main rivers up to high water line)**
- Herbicide is the most effective (near water – has restrictions)
- Do not dig or mow
- ****Can only dig if you know it is a new plant, not regrowth****

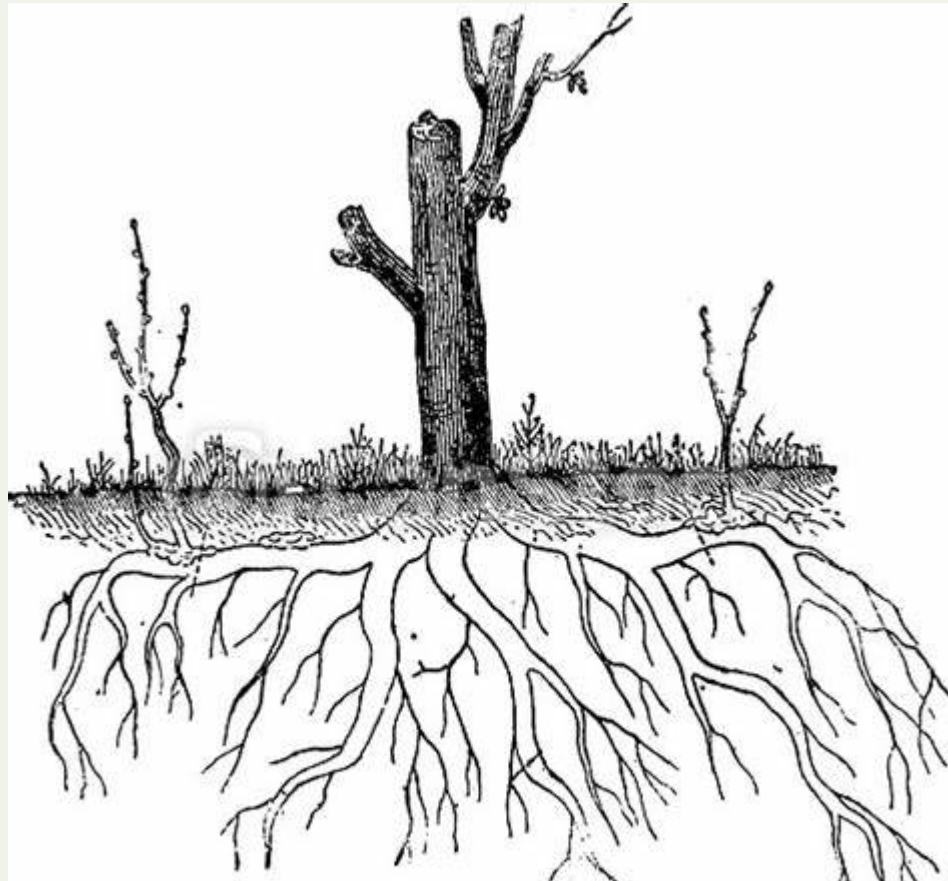
- **Spraying herbicide** → when plants are 2+ ft tall, but leaves not yellow (summer/early fall):
 - 1-2% Imazapyr 1st choice, glyphosate 2nd
- **Injecting herbicide** → July through October – when stems at least ½ inch wide with 2 nodes, until too woody
 - 50-100% Glyphosate

- Non-chemical control:
 - ✓ Cover loosely with heavy-duty erosion control fabric (5 +years)





WOODY INVASIVE SPECIES



Digging out mature woody species = impractical





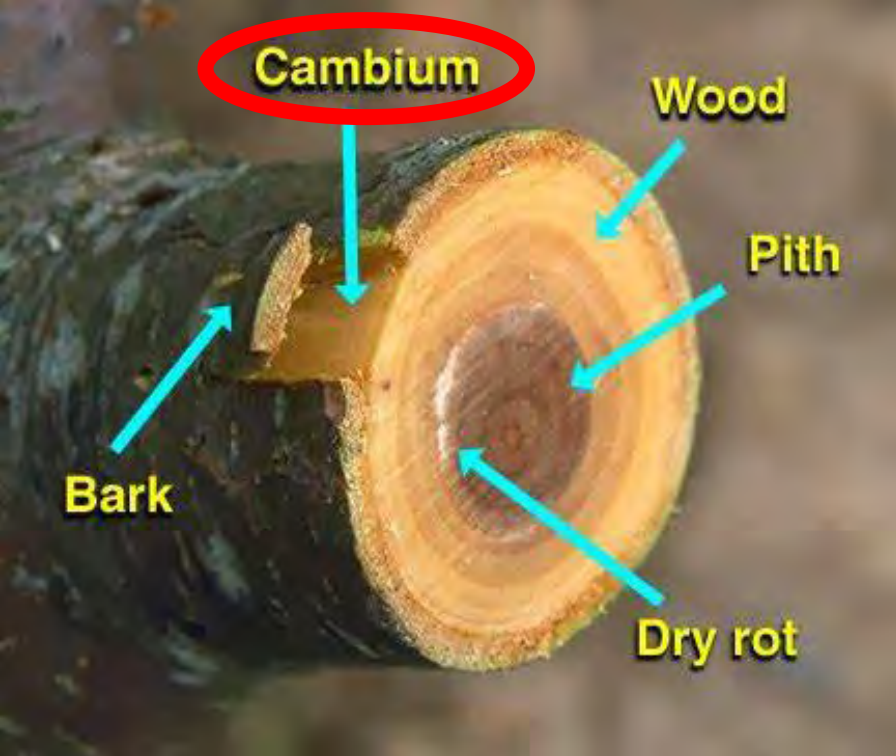
WOODY INVASIVE SPECIES



Scotch broom



Digging out mature woody species = impracticable



WOODY INVASIVE SPECIES



Spurge laurel



Suckers!

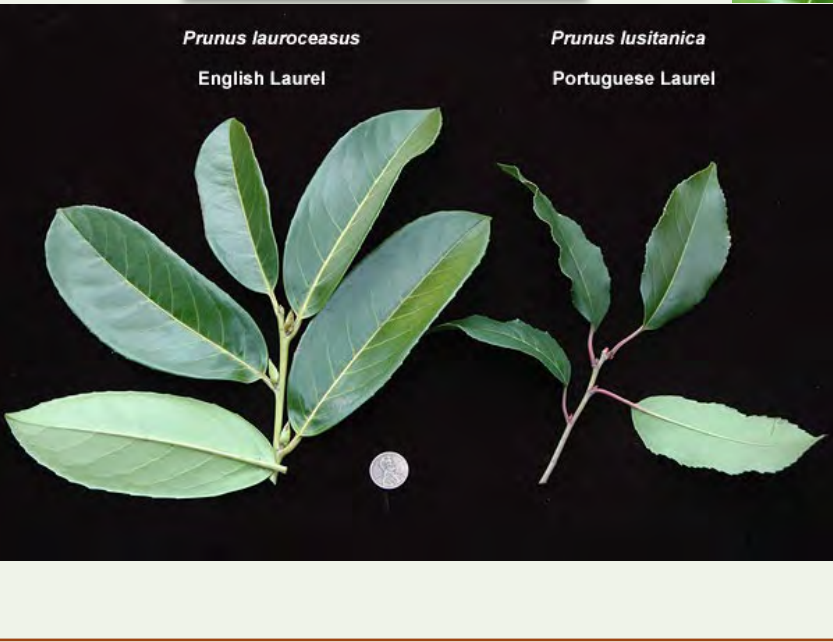
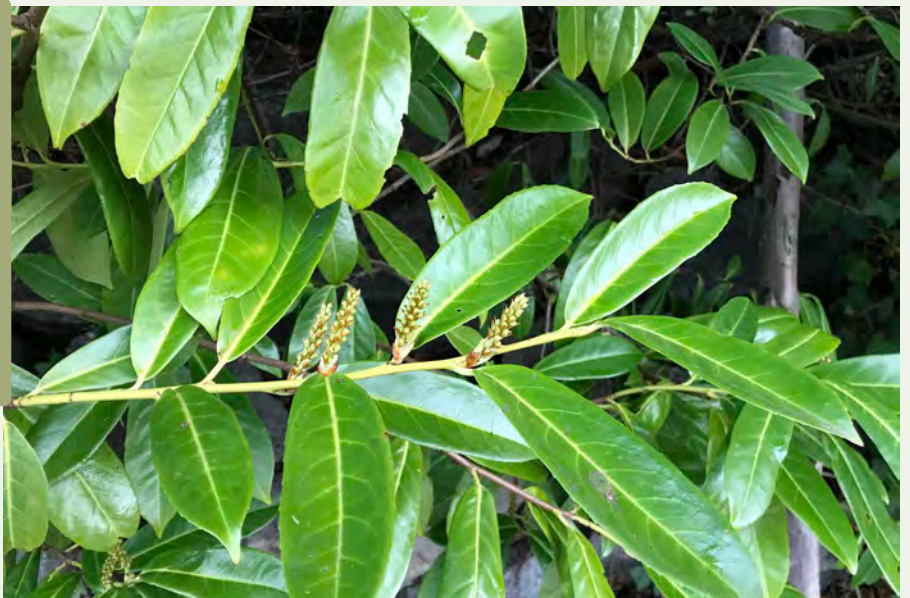


Digging out mature woody species = impractical

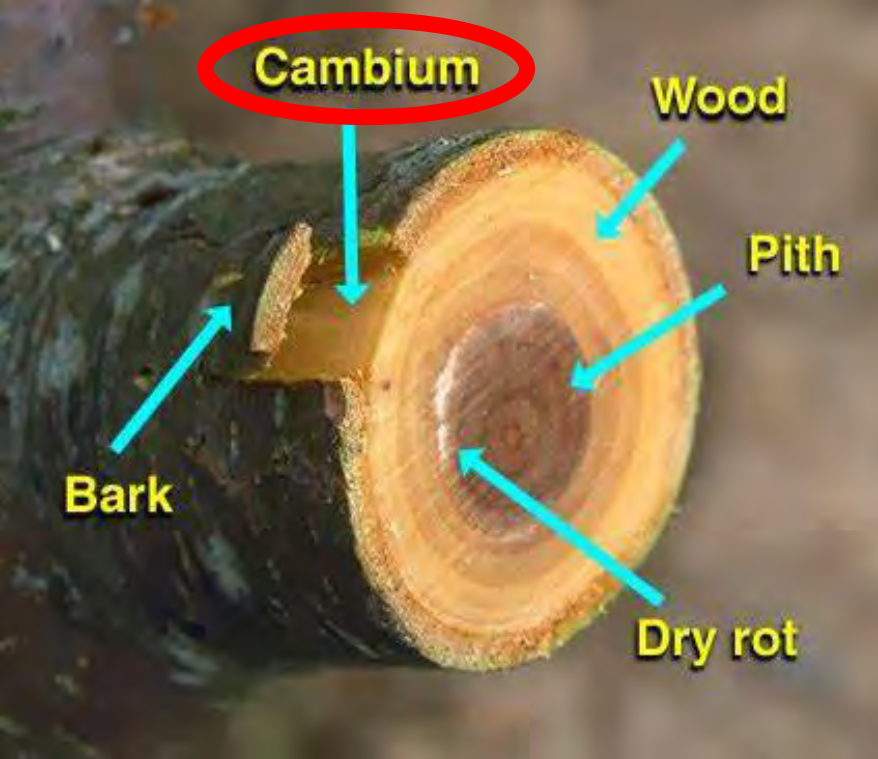


WOODY INVASIVE SPECIES

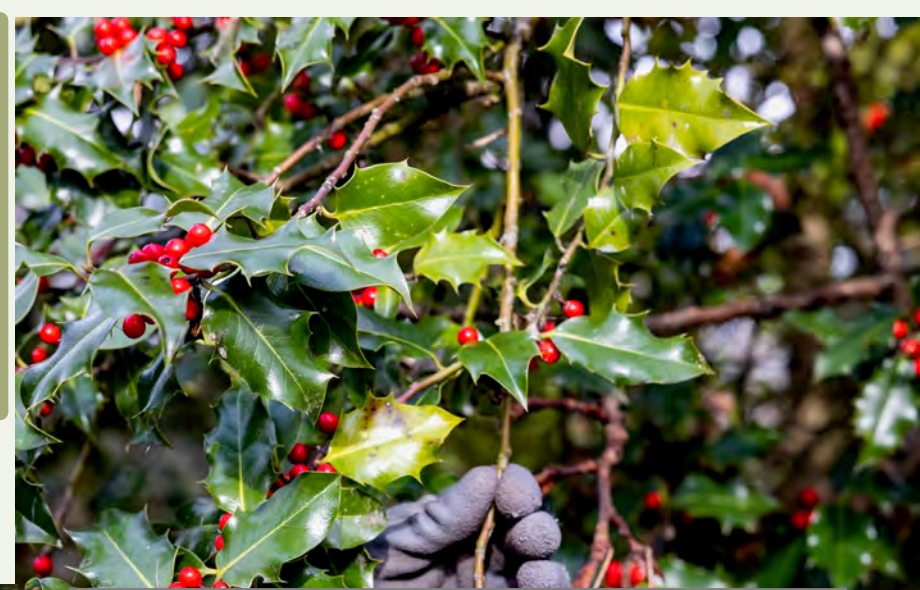
**Cherry
laurel**



Digging out mature woody species = impractical



WOODY INVASIVE SPECIES



Common holly



Suckers!



Oregon grape



Digging out mature woody species

New growth

Pull or dig out (weed wrench!)



Works for scotch broom

<2 inches wide



Cut & Treat



Works for blackberry

WOODY INVASIVE SPECIES

E.g. common holly or cherry laurel

Mature

Use any of options below. Cut & Treat "suckers".



EZ-Ject



Cut & Treat



Girdle

THANKS FOR YOUR TIME!

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...ANY
QUESTIONS?

