

Integrated Weed Management

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Sage Enviro

Green Gardening Program

What is a weed?

- An uninvited plant?
- A plant whose virtues have yet to be discovered?
- A flower in disguise?
- A plant out of place?

A weed is . . .

- “. . . merely a plant growing where we do not want it.”

~E.J. Salisbury, The Living Garden, 1935

- “. . . a plant that has mastered every survival skill except for learning how to grow in rows.”

~Doug Larson

- “. . . any plant that is objectionable or interferes with the activities or welfare of humans (economy, human health, and environment).”

~ Weed Science Society of America, 1994

“Weeds” are human constructs

- Consider time, space, perspective
- Weeds are not weeds everywhere
- Some native plants spread easily



Dalmatian toadflax, introduced in 1800s from Mediterranean.
Large plants produce ½ million seeds.

Weeds have good & bad traits

- Food, shelter for birds & beneficial insects
- Host diseases and pests
- Very successful plants

Words for “Weed”

- **NATIVE**: a species present prior to settlement by non-indigenous peoples
- **ALIEN OR “NON-NATIVE”**: a species introduced to and occurring beyond its known historical range

More Words for “Weed”

- **INVASIVE:** a species that demonstrates rapid growth and spread, invades habitats and displaces other species
- **NOXIOUS:** “organism of foreign origin . . . which can directly or indirectly harm human interests . . .”



Noxious Weeds

- Highly destructive & competitive
- Difficult to control or eliminate
- Threaten 2/3 of endangered species

Noxious Weeds

- Local, state, federal laws require control
- Class A, B, C weeds, depending on:
 - Distribution
 - Abundance
 - Level of threat
- Noxious Weed Control info & lists
 - King County: <http://dnr.metrokc.gov/weeds>
 - Washington: www.nwcb.wa.gov/index.htm

What is Integrated Weed Management?

- Goal
 - Maximize effective control
 - Minimize environmental, economic & social damage
- Uses a combination of methods
 - Cultural
 - Physical
 - Biological
 - Chemical
- More effective, less expensive

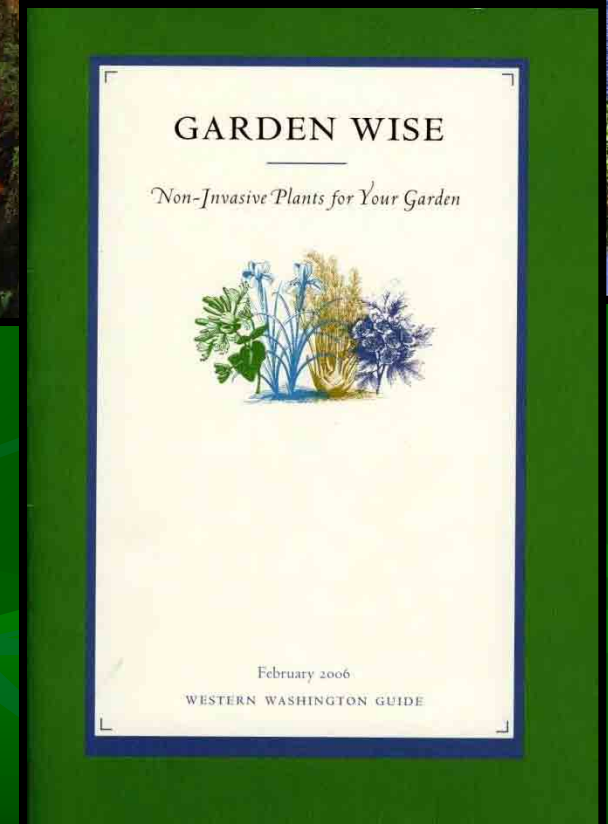
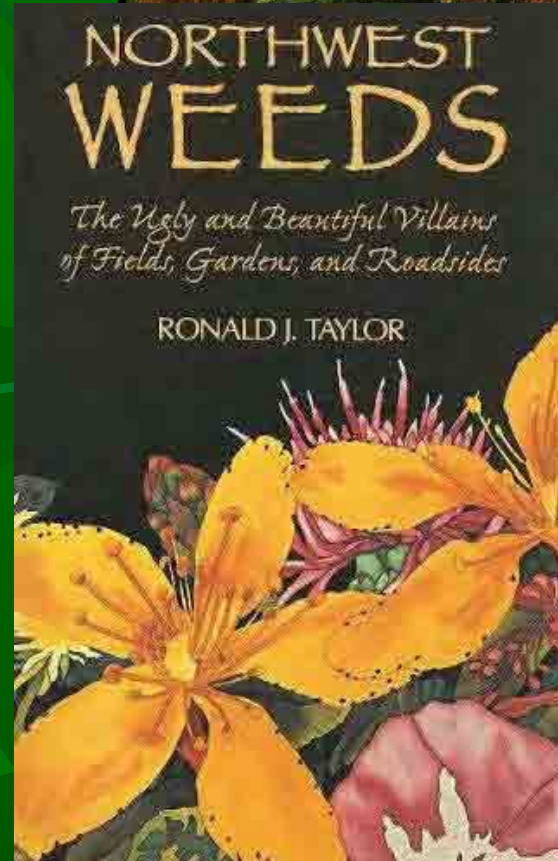
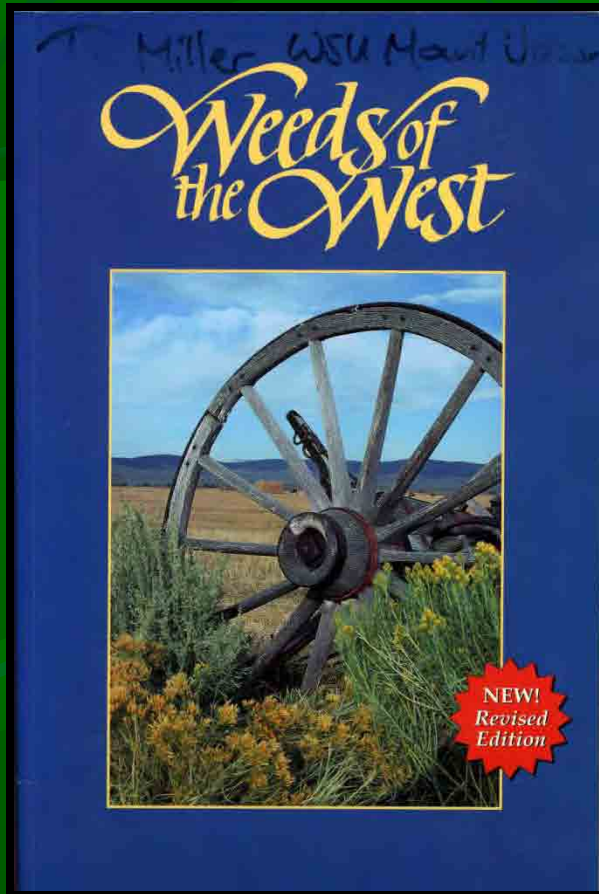
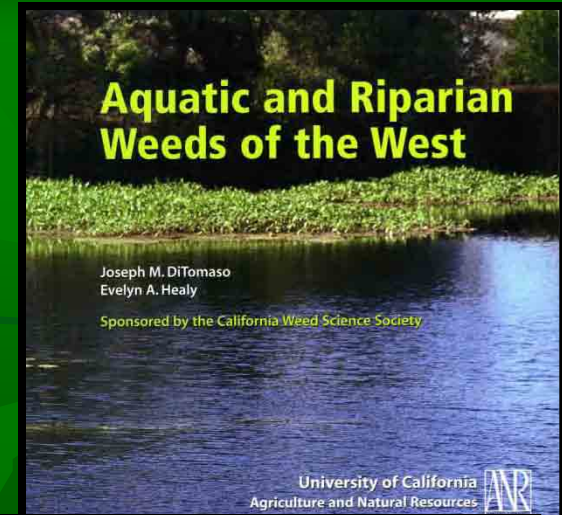
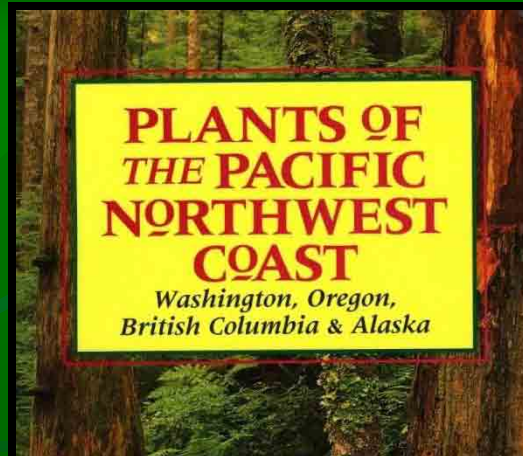
Steps in Integrated Weed Management

1. Identify weed species & biology
2. Set realistic goals
3. Prevent establishment of weeds
4. Manage weeds
5. Evaluate results

Step 1: Identify weeds

- Is its life cycle annual, biennial, or perennial?
- Does it spread aggressively?
- How best to manage this species?

Know your enemies!



Weed Life Cycle

- Best management strategy often depends on weed's life cycle
 - Annual
 - Winter or Summer
 - Biennial
 - Perennial
 - Simple or Creeping

Spreading Methods

Weed type	Spreads by
Annual & biennial	Seeds
Simple perennial	Seeds
Creeping perennial	Seeds, roots, rhizomes



Winter Annuals

(clockwise from upper right)

1. Common Groundsel*
2. Henbit
3. Little Bittercress
(shotweed)
4. Common Chickweed



*On KC Noxious Weed List

Summer Annuals

(clockwise from upper right)

1. Common Lambsquarters
2. Barnyardgrass
3. Pigweed
4. Smartweed



Biennials

(clockwise from upper right)

1. Tansy Ragwort*
2. Bull Thistle*
3. Common Burdock
4. Common Mullein



*On KC Noxious Weed List



Perennials (Simple)

(clockwise from upper right)

1. Scotch Broom*
2. Curly Dock
3. Plantains
4. English Lawn Daisy



*On KC Noxious Weed List

Perennials (Creeping)

(clockwise from upper right)



1. Stinging Nettle
2. Knotweed*
3. Canada Thistle*
4. Quackgrass



*On KC Noxious Weed List

Step 2: Set realistic goals

- What is a realistic goal?

NO	YES
100% control (except for some noxious weeds)	Reduce number of weeds to acceptable level

- Gardener (or client) must set own threshold level

Step 3: Prevent weed establishment

- Regulatory
 - Noxious weed boards
 - Quarantine
- Sanitation
- Prevent seed production

Be careful what you choose



This is a groundcover (?!)

Step 4: Manage weeds

- Start with least-toxic methods
- Protect health & environment
 - 2,4-D linked to cancer & other health effects
 - Common herbicides found in every local stream tested
 - Herbicides may harm beneficial insects, non-target plants

Mechanical Control

- Hand weeding (early)
- Hoeing
- Cultivation (tillage)
- Mowing
- Mulch (thick layers)
- Flame/heat



Cultural Control

- Manage watering (drip)
- Fertilize selectively
- Keep plants healthy (competition)
- Choose planting dates
- Rotate crops
- Use cover crops

Biological Control

- Diseases
- Insects
- Predators, animals



Only a few so far...
cinnabar moth larvae on tansy ragwort

Chemical Control

- ID weeds first
- Read the label! Label is the law
- Select proper chemical
 - Contact or translocated
 - Selectivity
- Use proper timing (life cycle)
- Spray with care

Step 5: Evaluate Results

- Record weed infestations
- List strengths & weaknesses of each approach
- Modify approaches as necessary

BETTY | Gary Delainey and Gerry Rasmussen



“But make no mistake: the weeds will win; nature bats last.”

~Robert M. Pyle

Acknowledgments

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