Pollinator Savvy Plant Care

City of Kirkland - Natural Yard Care

Integrated Pest Management

What is IPM?

“IPM is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks. “

National IPM Network

Why IPM?

- Pesticides are designed to kill organisms
- Increase in pesticide use -170% between 1964 and 1982.
- US crop production - 37% reduction each year by negative pest effects; a percentage that has stayed stable over the course of agriculture.
- Pesticide use puts non-target organisms at risk – including you, your family and pets
- 5% active Ingredient versus 95% inert ingredients
- Inert ingredients are not required to list and might be “trade secrets” and just as toxic or more so as active ingredient
- Risk to humans = toxicity of the material used and length and intensity of exposure to that material

IPM Resources

- Use your resources to learn about pesticides
  - Safety Data Sheets – aka Material Safety Data Sheet
  - Grow Smart, Grow Safe website
  - Washington Toxics Coalition
  - Northwest Center for Alternatives to Pesticides

Bees and Neonicotinoids

QUESTIONS TO ASK YOUR NURSERY

NORTHWEST CENTER FOR ALTERNATIVES TO PESTICIDES

NEONICOTINOIDS

Scientific studies have shown that a newer class of pesticides, called neonicotinoids (neonics for short), are a major factor in pollinator declines.

Both systemic and persistent, neonics continue to affect bees long after a spray through soil absorption.

Check with your nursery before buying plants to ensure that your bee-friendly flowers aren't killing pollinators.

QUESTIONS TO ASK

1. Are your plants or seeds treated with neonicotinoids?
2. Do you know which of your suppliers use them?
3. Would you consider removing neonicotinoid applications and treated plants from your shelves?

NEONICOTINOID PESTICIDE ACTIVE INGREDIENTS:

Acetamiprid, Clothianidin, Dinotefuran, Imidacloprid, Thiacloprid, Thiamethoxam

Is your nursery neonic free? Let us know!
INFO@PESTICIDE.ORG

For more information:
WWW.PESTICIDE.ORG

IPM Steps

- Prevention – create a healthy landscape
- Monitoring and Observation – be a detective and scribe
- Intervention – decide if you need to do something

Prevention

- MULCH – prevent weeds, conserve moisture, moderate soil temp
- IMPROVE SOIL – test, amend, fertilize, cover crop
- RIGHT PLANT, RIGHT PLACE – meet plant's needs
- SANITATION – remove diseased or pest infested plant materials
- PROVIDE AIR SPACE - overcrowding can cause disease issues
- WATERING – in morning, deeply, slowly and keep foliage dry
- ROTATE CROPS – tomato, onion and cabbage family plants
- PLANT DIVERSE GARDENS – get help managing pests
- FLOATING ROW COVER – use to keep out flying pests
- USE REFLECTIVE MULCHES – silver flashing deters flea beetle
- SLUG TRAPS – beer or yeast in containers

Protecting a crop with a floating row cover

Monitoring and Observation

- Observe your garden all year long
- Learn about your plant's needs - native habitat - mature size and shape - soil, sun and water needs
- Learn about life cycles of pests

  SIMPLE - Stink Bugs – egg to nymphs to adult

  COMPLETE - Imported Cabbage Worm Butterfly – egg to larvae to pupae to adult
- Learn about life cycles of weeds

  Annual, biennial and perennial weeds

  Tap roots versus fibrous roots
- Fungal, bacterial, viral diseases
- Pests versus beneficial insects
- Keep a notebook

Identifying Issues

The clue?

The weather that preceded the observation of this damage.

Look Alikes

air pollution

drought

winter injury

salt damage

Which One is the Pest?

Ground Beetle

Root Weevil

Intervention

- Assess your tolerance levels for any given issue
- Review plant placement guidelines
- Assess for a problem plant that needs to be removed
- Review your plant care practices
- Treat the issue

Treatment Options

Cultural – adjust watering, prune for air flow, fertilize, check trunk flare, check soil moisture

Mechanical – hand remove the pest and dispose of, pull the weeds before they go to seed**,** use preventative measures like slug traps

Biological – beneficial insects or pesticides derived from bacteria, fungi or other biological source
Btk or *Bacillus thuringiensis* subspecies *kurstaki* - controls tent caterpillar

Chemical - use as a last resort and use lowest toxicity products first

Chemical Treatment

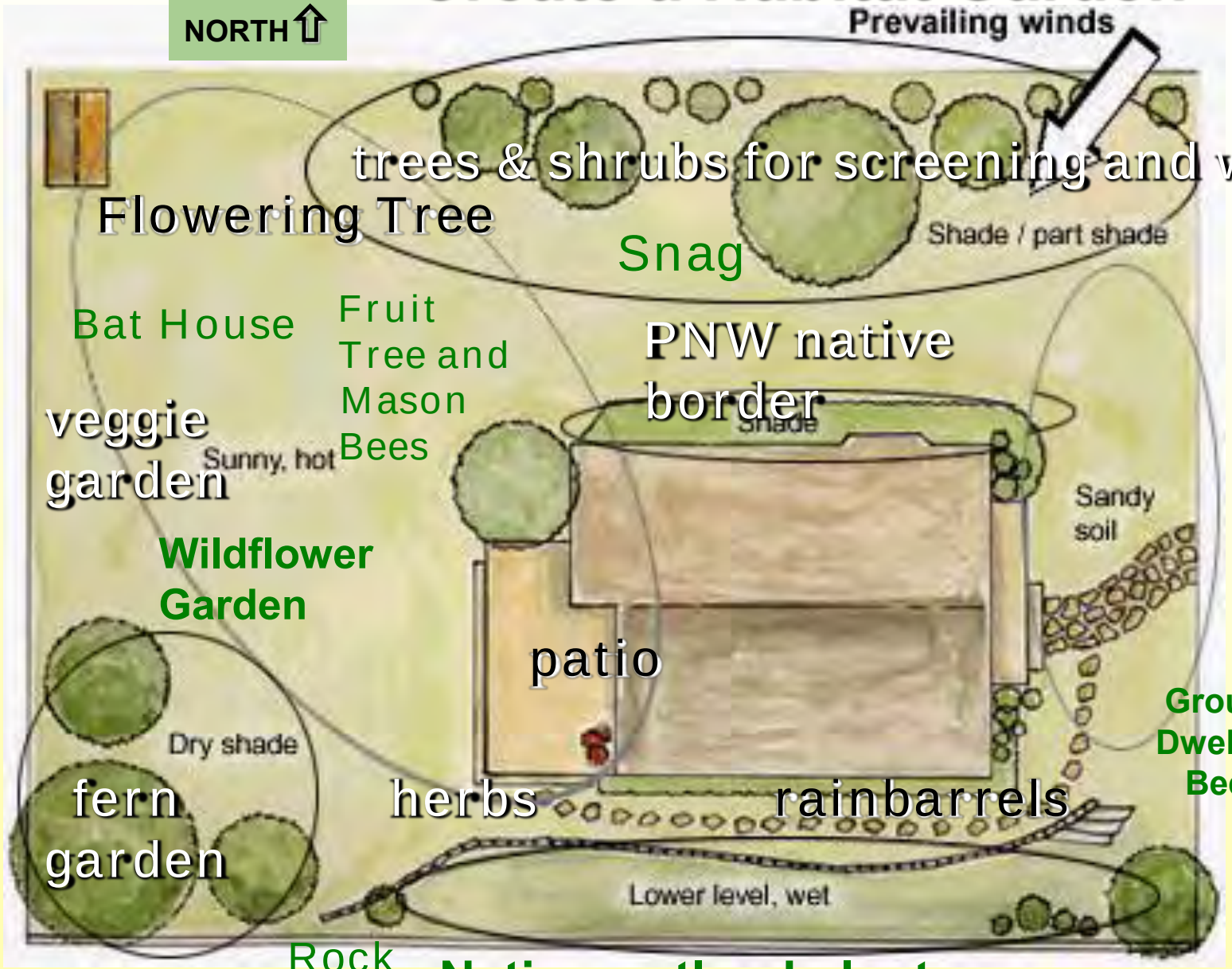
- All chemicals have potential toxicity. Use least toxic first.
- Inert ingredients are often not described on the label.
- All are manufactured products.
- Use as a last resort.
- Read and follow label instructions.
- Acquire the Material Safety Data Sheet which will outline safety information.

Organic Versus Certified Organic

- Organic refers to a carbon based substance.
- Frequently used on product labels; indicates product is made of organic matter

- Certified Organic is applied to a product that has met a set of standards developed by the USDA in order to be used in organic production.
- Can be identified by USDA or WSDA seal or OMRI logo

Create a Habitat Garden



Beneficial Insects

Green Lacewing and Larva

Larvae also called Aphid Lions

Lady Beetle and Larva

Adults and larvae are proficient aphid eaters

Hover Flies

- Resemble bees
- Larvae are the predators of aphids, mealybugs, and small insects
- Adults are important pollinators

Bats

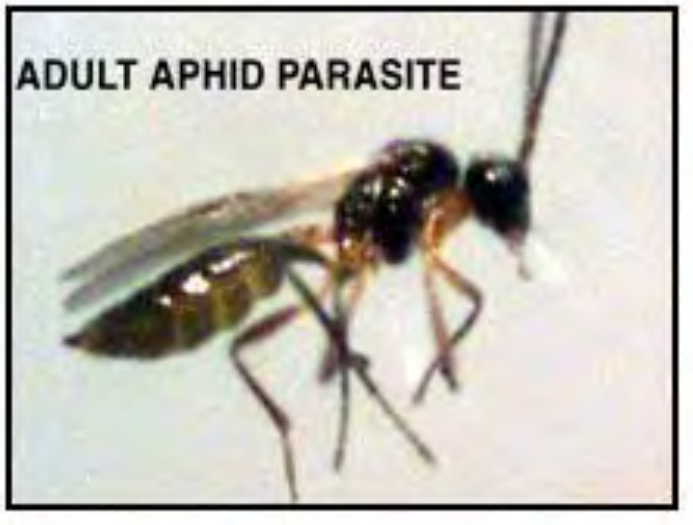
•Bats eat 600-1,000 insects an hour
• One baby a year
•Bats are not blind. They see as well as humans
•Fragrant and night-blooming plants

Birds

•Chickadee young eat only insects

•Adults eat weed seeds

Parasitoid Wasp



They Do Not Sting!!!

- Parasitize by laying eggs in the host insect. The host is entirely consumed by the developing larvae.
- Caterpillars, moths, leafminers, wood-boring beetle larvae, flies, aphids, gypsy moth, weevils, and spiders.

Butterflies and Moths

Monarch and Milkweed

Anise Swallowtail Larvae

Western Sheepmoth

Taylor’s Checkerspot

Native Bees

- Bumble Bees – 30 species in western North America
- Solitary Bees – mason, leaf cutter, carpenter
- Green Bees and Small Bees – ground nesting, semi -social

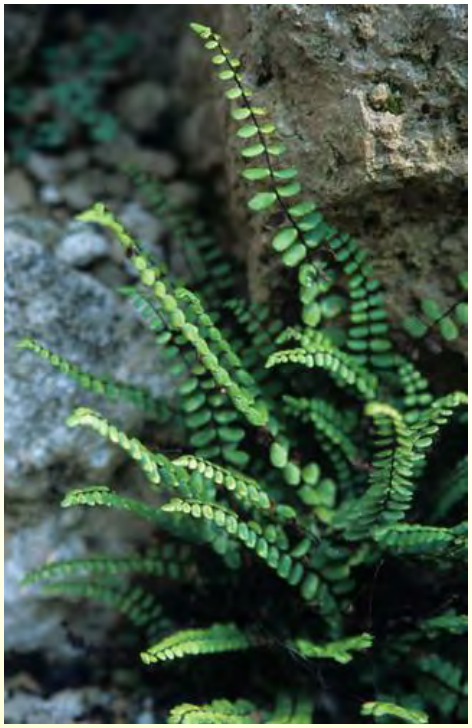
Yellow Faced Bumble Bee - *Bombus vosnesenskii*

Western Bumble Bee - *Bombus occidentalis*

Building Habitat

- Plants diversity is key –shape and size and species
- Don’t be overly tidy
- Leave some ground bare for ground nesters
- Leave moss intact for bird nests
- Provide larval food plants for butterfly caterpillars
- Plant dense areas for shelter
- Provide snags, wood blocks, rock piles for basking, nesting and safe sites
- Provide a water source – puddles for butterflies, fountains or baths for birds

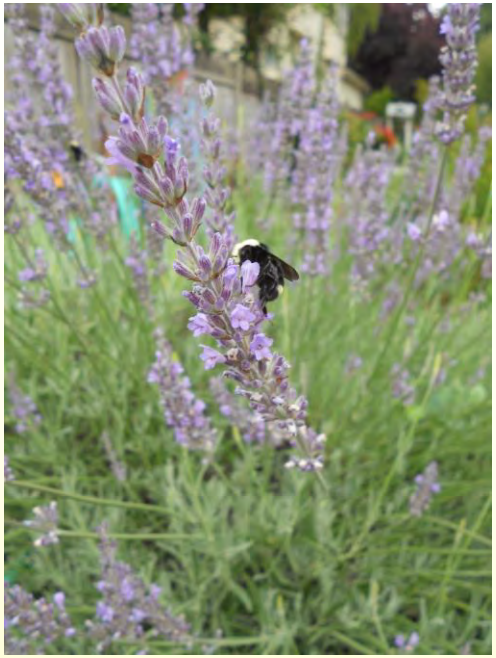
Planting Choices



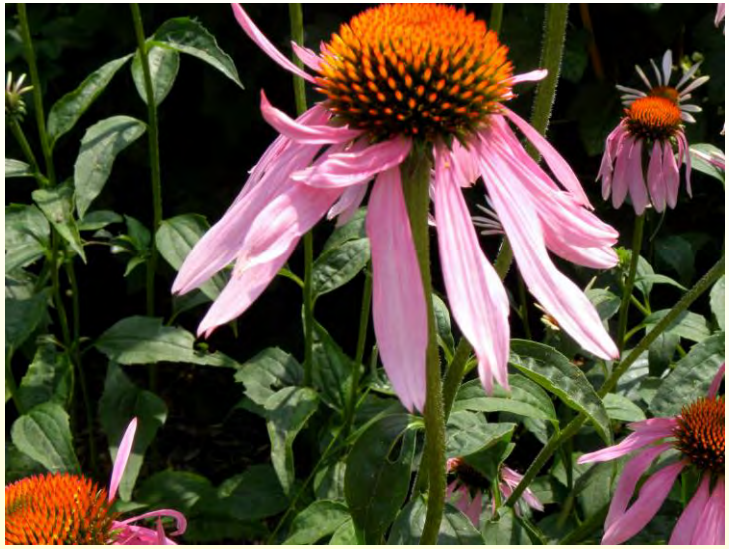
- Native plants are pest and disease resistant and recognized by native fauna
- Group plants together
- Three season bloom
- Intermix with edibles
- Include cover crops

- Three important plant families
  - Mint – Lavender, oregano, thyme, rosemary, sage
  - Daisy – *Echinacea*, cosmos, zinnia, calendula, marigold
  - Carrot – Parsley, cilantro, dill, fennel, lovage

Mint Family – Lamiaceae



Daisy Family – Asteraceae



Carrot Family - Apiaceae

What do you suppose? A bee sat on my nose.
Then what do you think? He gave me a wink And said,
"I beg your pardon, I thought you were the garden."
~English Rhyme