Spring Garden Cleanup Techniques to Benefit Pollinators and Improve Soil

Don't start spring cleanup too soon

- **Delay spring cleanup of leaves, dried flower stalks & ornamental grasses until daytime temperatures are above 50°F for at least 7 consecutive days**
- **Wait until ground has thawed & dried out. Walking in gardens while soil is still wet can cause compaction**

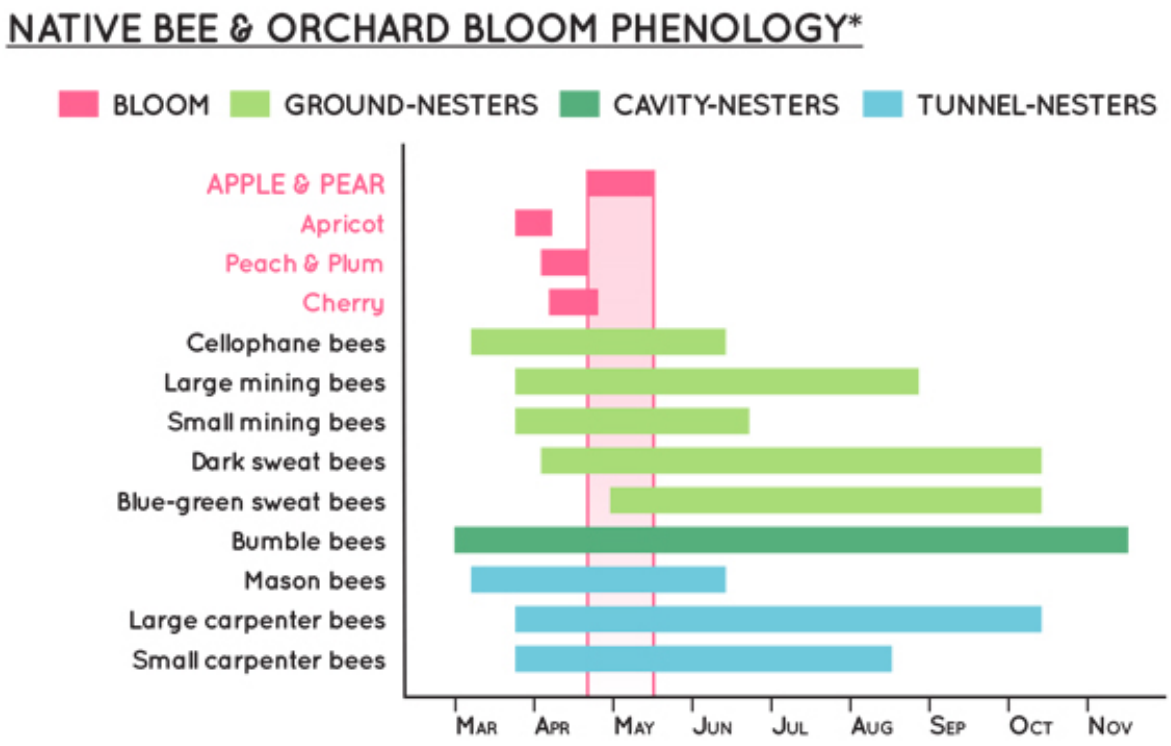
Why Delay Spring Cleanup

- **Leaves, stems & plant litter provide critical habitat for overwintering pollinators**
- **Butterflies & moths lay eggs on undersides of fallen leaves & seek winter shelter under leaf cover**
- **Solitary bees build nests in dead plant stems & old woody material**
- **Bumblebee queens hibernate in shallow holes just below soil**
- **Leaf litter provides habitat, insulation & protection for insect pollinators**
- **Leaf litter is natural soil fertilizer as leaves break down during winter**

When to start spring cleanup

- **Mid April earliest to consider cutting back perennials**
- **Mining bees, mason bees, carpenter bees & bumble bees may be out by early April, but species such as sweat bees waiting for warmer days in May**
- **Last year's leaf litter still provides protection for plants & invertebrates against late-season frosts**

https://xerces.org/sites/default/files/inline-images/bloom-time-graph.jpg



Source: Wild Pollinators of Eastern Apple Orchards, 2nd Ed.

Phenology- nature's calendar- ie when things happen

Spring Garden Cleanup Tasks

- **Prune shrubs**
- **Remove winter mulch placed over sensitive plants in fall, as well as burlap wraps, wind screens, other types of winter protection**
- **Brush back thick layers of leaves on top of plants**
    - **Don't need to remove all leaves from garden- really good for soil**
    - **Leaves act as a layer of mulch to help keep weeds down**
    - **Leaves feed plants (and soil) as they decompose**
- **If you want to add mulch, lay it on top of leaves**
- **Prune dead growth from perennials**
- **Cut, rather than pull, dead annuals & weeds. You don't want to disturb soil & bring weed seeds to surface where they can sprout**
- **Edge garden beds for a clean manicured appearance to garden and increased curb appeal**
- **Get a soil test**
    - **Information about composition & nutrient content of soil & soil pH**

Pruning

- **When pruning back woody perennials or shrubs, watch for cocoons & chrysalises**
    - **Some moths & butterflies (including swallowtails, sulfurs, & spring azures) winter in a cocoon dangling from a branch**
    - **Allow branches with a cocoon or chrysalis to stay intact & cut back later in season**
    - **Cut down spent growth to either fresh green leaves or to ground if no new leaves**
- **If pruning early in season, employ Chop and Drop Alternative techniques described in later slide**

CAREFUL Leaf Cleanup

- **Best method is to wait as long as possible to remove leaves from perennial beds because on chilly nights in early spring, leaves still provide essential shelter**
- **Try leaving leaves in place—it's great and free mulch!**

If 'Leaving the Leaves' is Not an Option…

- **Move leaves to where they are out of the way**
- **Wait until temperatures are above 50°F & soil dries out**
    - **Mulch leaves & return them to garden, then cover with layer of bark mulch or wood chips**
    - **Do not mulch leaves until overwintered insects have emerged**

Mulch

- **Mulching around garden plants, trees & shrubs is a good idea**
    - **Helps retain moisture & reduces need for watering**
    - **Minimizes weeds**
    - **Eventually breaks down & adds nutrients to soil**
- **Covering soil with mulch too early in spring may block emergence of beneficial insects & pollinators who overwinter in soil**
    - **Wait to mulch until soil dries out & until daytime temperatures consistently reach 50°F**

Wood Chip Mulch

- **Wood chips are different from triple shredded bark mulch (heavily processed hardwood) you can purchase**
- **Wood chips are chunks of tree branches & trunks that are byproduct of pruning trees**
- **Cleaner mulch that provides more benefits to trees & shrubs**
    - **Feeds the Soil-** One of the most important benefits of using wood chips is that they rot and feed the soil
    - **Regulates temperature-** Thick layer of wood chips maintains temperature near the roots. This protective covering is especially important during heat of the summer or winter cold snaps. It keeps ground cooler in summer and warmer in winter
    - **Regulates moisture-** Protective layer of wood chips prevents water from evaporating from soil. Reducing evaporation around roots conserves water because it reduces frequency that plants need to be watered and lessens chance that trees will become drought-stressed
    - **Reduces waste-** They are a byproduct of pruning and tree removal. If not reused, they end up at a landfill. When **this green waste decomposes without oxygen, it creates excess methane, a greenhouse gas nearly 30 times more potent than carbon dioxide**. It's terrible for the environment
    - **Free and readily available-** Most arborists will deliver excess wood chips to your house for free, and because pruning is recommended annually, there is always an endless supply

- **Visually attractive-** Wood chips have a variety of textures and colors. They provide a nice contrast to a green yard or garden
- **Suppress weeds-** Layer of wood chips prevents light from getting to weeds below, inhibiting them from growing and competing for resources

Chop and Drop Mulching

- **Chop and drop involves cutting down old vegetation at root collar & letting it fall**
  - **Minimal soil disruption**
  - **Returns nutrients to soil**
  - **Good method to use when trimming stems**
- **Wait to cut until overwintering pollinators have emerged**
  - **When cutting, leave about 6-8 inches behind**
  - **Hollow stems provide overwintering sites for future generations of insects**
- **Chop removed stems, tuck around plants, under shrubs to leave it in the garden to decompose into nutrients for soil**
- **Most effective plants are dynamic accumulators & nitrogen fixers**
- **Do not chop and drop weeds that have gone to seed**
- **As plants leaf out & grow, they will hide twigs, plant matter**
- **<u>Can be done any time of year</u>**

Alternatives to Chop and Drop When Delayed Cleanup Is Not an Option

Toss cut perennial & woody plant stems, and other plant matter onto uncovered compost pile very loosely or spread them out at edge of woods

or

Take cut stems & gather them into small bundles of a few dozen

- **Tie bundles together with jute twine & hang them on fence or lean them against tree at an angle**
    - **This method is effective for grasses as well. In this case, tie them before cutting them down**
- **Insects, especially native bees, can move in to stems & use them as brood chambers during summer**

Some Plants to Grow to Chop and Drop

Comfrey

Rhubarb

Legumes (great mulch & roots improve soil quality by adding nitrogen)

Lupine

Swiss chard

Yarrow

Elderberry

Nasturtiums

Borage

Soil Compaction

There is a whole web of activity happening below the surface. Roots and soil microbes form a complex network through which plants can access nutrients and water.

- **Soil pores are empty spaces between soil particles- support proper water movement, ease of plant root growth and space for nutrients and air**
- **In compacted soil, pore sizes decrease, so more difficult to grow healthy plants**
- **Improve compacted soil using a broad fork**
    - **Used by stepping on toolbar & rocking back & forth**
    - **Unlike with tillage, broad forking does not invert soil, but breaks through compaction**
        - **Tilling harms soil micro-organisms & microbial life**
        - **Tilling brings up buried weed seeds that remain viable in soil for many years**
        - **No-dig approach sequesters carbon dioxide in soil so not released into atmosphere**
- **After using broad fork, add top dressing of soil amendments like compost or leaf mold**

Feed The Soil Organisms and the Soil Organisms Will Feed the Plants

- **Soil organisms feed on organic compounds in soil, breaking down & releasing nutrients plants need, but cannot extract from soil, into form available for uptake by plants' roots. This improves fertility of soil & plant vigor**
    - **Chemical (inorganic) fertilizers can feed plant temporarily, but only organic compounds build soil biodiversity & maintain nutrient levels evenly throughout growing season. Chemical fertilizers can sterilize soil by killing soil organisms**

Build a Robust Insect Ecology for Biological Control of Pests

- **Increasing number & variety of insects is counterintuitive, but providing habitat for beneficial insects helps control invasions of plant pests**
- **Native plants attract beneficial insects & provide the habitat, quality & quantity of pollen & nectar they need**
- **Diverse native plantings attract predatory insects to protect garden, provide food source for garden protectors (birds, lizards, spiders) & pollinators (butterflies, moths, bees, insects)**
- **Pesticides kill both pest & beneficial insects indiscriminately**
    - **Small dose ruins garden's biological balance & biodiversity advantage**
    - **Drip from pesticides contaminate soil & kill soil organisms**
- **Compost teas as foliar sprays help suppress fungal diseases**

Leave the Leaves (Fall)

Anyone who has spotted fragile spring ephemerals popping up in the woods knows that all but the frailest of plants will burst through the leaf litter in spring without trouble.

- **Common misperception that fall leaves, matted down by snow or rain, have negative impact on perennials**
- **Pile leaves in garden beds, around trees & shrubs, in corner of yard**
- **Thick layer of leaves in garden over the winter provides insulation against cold weather & protects newly planted perennials against frost heaves that can expose tender roots**
- **Leaving leaves intact provide pollinators like butterflies with winter habitat, insulation, protection**
- **Leaves begin to break down over winter**
- **Shredded leaves do not provide same cover as whole leaves and may destroy eggs, caterpillars & chrysalis along with leaves**