

RESOURCES FOR PLANNING GARDENS TO ATTRACT BENEFICIAL INSECTS

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DESIGNING GARDENS TO ATTRACT POLLINATORS & BENEFICIAL BUGS

- Diversity is key! Diversity in plants, habitat areas, and ground cover types
- Model garden after natural habitat with native plants, conservation buffers, & habitats for birds and bats

ENCOURAGING DIVERSITY THROUGH FARMSCAPING:

Plant a variety of flowering plants that bloom at different times. This will attract pollinators and beneficial bugs from early spring until late fall.

Table 1. Some flowering plants known to attract arthropod natural enemies.

Carrot Family (Apiaceae)		Legumes (Fabaceae)	
Anise	<i>Pimpinella anisum</i>	Alfalfa	<i>Medicago sativa</i>
Blue Lace	<i>Trachymene caerulea</i>	Big flower vetch	<i>Vicia grandiflora</i>
Caraway	<i>Carum caryi</i>	Fava bean	<i>Vicia fava</i>
Chervil	<i>Anthriscus cerefolium</i>	Hairy vetch	<i>Vicia villosa</i>
Coriander/Cilantro	<i>Coriandrum sativum</i>	Sweet clover	<i>Melilotus officinalis</i>
Dill	<i>Anethum graveolens</i>	Red clover	<i>Trifolium pratense</i>
Fennel	<i>Foeniculum vulgare</i>	White clover	<i>Trifolium repens</i>
Lovage	<i>Lovisticum officinale</i>	Cabbage Family (Brassicaceae)	
Bishops Lace	<i>Ammi majus</i>	Yellow rocket	<i>Barbarea vulgaris</i>
Wild Carrot	<i>Daucus carota</i>	Sweet Alyssum	<i>Lobularia maritima</i>
Aster Family (Asteraceae)		Candytuft	<i>Iberis umbellata</i>
Blazing Star	<i>Liatrus pycnostachya</i>	Mustards	<i>Brassica spp.</i>
Chamomile	<i>Anthemis nobilis</i>	Teasel Family (Dipsaceae)	
Cosmos	<i>Cosmos binpinnatus</i>	Cephalaria	<i>Cephalaria gigantea</i>
Coneflower	<i>Echinacea spp.</i>	Dipsacus	<i>Dipsacus spp.</i>
oreopsis	<i>Coreopsis spp.</i>	Pincushion Flower	<i>Scabiosa caucasisca</i>
Golden Marguerite	<i>Anthemis tinctoria</i>	Scabiosa	<i>Scabiosa atropurpurea</i>
Goldenrod	<i>Solidago altissima</i>	Mint Family (Lamiaceae)	
Marigold, Signet	<i>Tagetes tenuifolia</i>	Peppermint	<i>Mentha piperata</i>
Mexican Sunflower	<i>Tithonia tagetifolia</i>	Spearmint	<i>Mentha spicata</i>
Sunflower	<i>Helianthus spp.</i>	Thyme	<i>Thymus spp.</i>
Tansy	<i>Tanacetum vulgare</i>	Other Species	
Yarrow, milfoil	<i>Achillea millefolium</i>	Buckwheat	<i>Fagopyrum esculentum</i>
Yarrows	<i>Macrophylla taygetea</i>	Cinquefoil	<i>Potentilla spp.</i>

(*Note about table above: The older name for "Apiaceae" is "Umbelliferae," so you may see members of the Apiaceae family referred to as umbelliferous flowers. And the older name for "Asteraceae" is 'Compositae,' and these are still often described as composite flowers - Including during Richard's presentation.)

- For excellent discussion of farmscaping in our region, see the Living Web Farms site at: <http://livingwebfarms.org/multimedia/videos/>

- Pat Battle and Richard McDonald each have a farmscaping presentation there in the "Complete Hands On Workshops" section of that multimedia page. Everything else there is worth a look, too!
- Xerxes has archived some regional guides at: <http://www.xerxes.org/pollinator-conservation/agriculture/pollinator-habitat-installation-guides/> See especially the PA and New England guides for plants that can also thrive in our region.

PROVIDE A VARIETY OF HABITAT

- "Bee Hotels" can be a great way to provide habitat to a variety of bee species
 - Save all those hollow stems this fall to provide a variety of widths for different bugs who prefer different sized apartments!
- For more about providing healthy habitats around schools and homes check out Wild Farm Alliance's Briefing Paper at <http://www.wildfarmalliance.org/briefing_papers>.



One thing lacking from the above photo is any rodent barrier. Mice & rats like to snack on bee larva! If you are using a plastic pipe or wooden frame to house the straws, stems, and other bee nest material, you can fasten "hardware cloth" (or similar metal mesh with $\sim\frac{1}{2}$ " openings) to the front (and then plywood or some similar solid barrier on the back end too). Then the bees can fly in and out of the front, but the mice can't get their babies.

- More details on native pollinator habitat and nests can be found at: <http://www.xerxes.org/providing-nest-sites-for-pollinators/>
- And: http://www.xerxes.org/wp-content/uploads/2008/11/nests_for_native_bees_fact_sheet_xerxes_society.pdf

BUFFERS

- Keep some wild "buffer" areas around your school's landscape to provide habitat for carabid beetles and other beneficial insects that prefer undisturbed ground and native, overgrown grassy areas. Oregon State University has published a poster on establishing a beetle bank from scratch on a farm here: http://www.ipmnet.org/Posters_and_Presentations/Creating_A_Beetle_Bank_2006.pdf
But many of our already-grassy areas are perfect beetle banks just by leaving them unmowed and untreated with any insecticides.

ADDITIONAL SITES AND RESOURCES TO HELP TEACH & ENGAGE STUDENTS ABOUT POLLINATORS:

- Great Pollinator Project: <http://greatpollinatorproject.org/education>
- Xerxes society (invertebrate conservation): <http://www.xerxes.org/educational-resources/>
- Nature Works Everywhere: <https://www.natureworkseverywhere.org/resources/pollinator-garden/>