Pesticides and Pollinators

Jodie Banks
Alaska Community Action on Toxics

ACAT
Alaska Community Action on Toxics

505 W. Northern Lights Blvd. Suite 205
Anchorage, AK 99503
(907) 222-7714
www.akaction.org

Our mission is to assure justice by advocating for environmental and community health. We believe in the right to clean air, clean water, and toxic-free food.

Core Values

Community Right-to-Know

We believe everyone has the right to know about harmful chemicals presents in our air, water, soil, food, and bodies.

Environmental Justice

We recognize that people of color and the poor are disproportionately harmed by toxic releases from military and industrial facilities. We seek to remedy environmental injustices through community-based research and advocacy.

Precautionary Principle

If toxics are present and suspected to cause health problems, we believe that ways to limit and avoid unnecessary exposure to those chemicals must be taken. The precautionary principle means that it is "better to be safe than sorry."

Elimination of the Production and Release of Toxics

Phase out chemicals that are harmful to health and the environment and replace them with safe alternatives.

Rights and Sovereignty of Indigenous People

Culture of Caring and Wellness

We care about the physical, emotional, and spiritual health of individuals, communities, and workers affected by environmental contaminants.

Programs

- Rural: Alaska Rural Environmental Justice Program
- Policy: Environmental Health Policy and Social Change Program
- Education: Environmental Health Education Program
- Outreach: Alaska Youth and Community Outreach Program
- Wellness: Wellness and Healing Program

ACAT is a dedicated team of diverse people. We are the only Alaska-based environmental health and justice group working on preventing environmental contamination at every level: local, state, national, and international. Find out more by visiting www.akaction.org.

Pollinators

Pollinators feed on the nectar or pollen of flowering plants. By visiting flower after flower they transfer pollen from plant to plant, enabling the plant to reproduce. Nearly all agricultural crops require pollinators to reproduce and approximately a third of agricultural pollination in the United States is accomplished by European honeybees. Honeybees are kept in Alaska for honey production and pollination but will generally die off- during the cold winter if no warm storage is provided. These are the pollinators most managed by humans, but they are not responsible for all pollination. Wild pollinators are crucial to the plant life-cycle in agriculture and in natural settings. In Alaska, the pollinators native to the region include bumble bees, adrenid bees, sweat bees, wasps, moths, butterflies, hummingbirds, and mosquitoes!

Because food production and the natural ecosystem depends on pollinators, it is important to understand human impacts on their health. So, what is threatening pollinators?

The documented decline of pollinator health nation-wide is likely a result of multiple factors, including habitat loss or fragmentation, pesticide use, and introduction of non-native pathogens or species. Pesticides are particularly damaging because they both directly and indirectly harm pollinators.

How do Pesticides Affect Pollinators?
Death, Damage, and Degradation

Lethal: Many pesticides are acutely toxic to pollinators, including bees, and result in death. These include carbamates, organophosphates, synthetic pyrthroids, chlorinated cylcodienes and neonicotinoids. Because they are widely used in agriculture, residues of many of these pesticides are also found in our food.

Sublethal: Pesticide levels below those which result in death nonetheless have sub-lethal effects for pollinators which inhibit food collection, reproduction, and, for hive-dwelling bees and wasps, olfactory communication essential to hive life. The combination of multiple pesticides may have a combined effect and be more toxic than when used individually.

Habitat & Food: Herbicides, especially those which are used indiscriminately over large areas, harm pollinators by eliminating habitat and food sources.

Neonicotinoids
Neo-whaa?

This class of insecticides include some of the most widely used chemicals in agriculture in the world. Recent studies from have implicated them in Colony Collapse Syndrome of the honeybees used to pollinate our food. Because of their toxicity to bees even in sub-lethal doses, the European Union adopted a ban on three commonly used neonicotinoids in 2013. The European Environmental Agency, however, notes that the ban covers only three of seven pesticides in use and only bans them for use with crops attractive to bees. Efforts in the United States to ban neonicotinoids saw promise in the "Save Americas Pollinators Act" H.R. 2692 of 2013 but it was referred to the House Committee on Agriculture and stalled. Similarly,

* check Resource page for links to spreadsheets that include yard and garden products containing these chemicals.

Native Alaska Plants Supporting Native Pollinators

(M) = medicinal (E) = edible (P) = poisonous

Common Name	Latin Name	Habitat	Growth Habit
Arnica	Arnica angustifolia	meadow	runner
Artemesia-Wormwood	Artemisia frigida	open, drought tolerant	clump
Aster		alpine meadow	spreads by runners
Baneberry	Actea rubra	meadow, moist soils okay	small herbacious shrub
Bedstraw	Galium boreale; Galium triflorum; Galium trifidum	forest floor	ground cover spreads by runners
Bluebells	Vaccinium uliginosum; Vaccinium ovalifolium	meadow, moist soils okay	seeds prolificly
Chocolate lilies	Fritillaria camschatcensis	meadow, moist soils okay	small clumps, generates bulbs
Columbine	Aquilegia formosa (Western columbine); Aquilegia brevistyla (smallflower columbine)	drought tolerant, from poor soils to meadow	Tap root, seeds
Cow's parsnip (also Indian Celery, Pushki)	Heracleum maximum	meadow, moist soils okay	clump seeds
Death camus	Anticlea elegans	meadow, moist soils okay	clump
Devil's club	Oplopanax horridus	needs moisture	woody shrub, spreads by runners
Dogwood	Camus sericea	forest floor	ground cover spreads by runners
Elderberry	Sambucus racemosa	open spaces, sun	Spreads once established- grows up to six feet a year
False hellabore	Veratrum viride	meadow, moist soils okay	rhizomes, seeds
Geranium	Geranium erianthum	meadow	
Goatsbeard	Aruncus dioicus	meadow, moist soils okay	Forms large clump
Heuchera (also Alum root)	HuecheraT	moist soils	seeds prolificaly
Iris (also Blue flag)	Iris setosa	moist soils	clump
Jacobs ladder	Polemonium pulcherrimum	dry, rocky soils to meadow	seeds prolificaly
Larkspur	Delphinium glaucum	meadow	clump
Lupine	Lupinus arcticus; Lupinus nootkatensis	poor soils, drought tolerant	Tap root
Monkshood	Aconitum delphinifolium	meadow	spreads quickly
Pasque flower	Anemone patens	poor, rocky soils	clump
Prickly rose	Rosa acicularis	sunny open spaces	spreads by runners
Shooting star	Dodecathon frigidum	poor, rocky soils	clump,
Solomon seal (false)	polyganacium / Smilacina stellata	meadow	spreads by runners
Valerian	Valeriana capitata; Valeriana dioica	meadow	spreads readibly
Yarrow	Achillea millefolium	meadow, drought tolerant	spreads by runners

Bloom Timing	Bloom Color	Edible/Medicinal Use	Sun exposure
July	yellow	M	Full Sun
July	insignificant	M	Full Sun
July to August	pale purple with yellow centers		Full Sun
June	white flowers, red or white opaque berries	P	Partial Sun to Shade
June	white	EM	Full Sun to light Shade
June	blue	E	Full sun to light Shade
June	mahogany brown	E	Full sun
June to July	orange-red	M	Full sun to light Shade
July	white	EM	Full sun
June	white-green	P	Full to Partial sun
July	white, red opaque berrie clusters	M	Partial sun to Shade
May to June	white	E	Full sun to Partial sun
May to June	white, red opaque berry clusters	EM	Full sun
May to June	white to pink-white	P	Full sun to Partial sun
June	lavender	EM	Full sun to Partial sun
June	creamy white		Full sun to Partial sun
May to June	white		Full sun to Partial sun
May to June	purple		Full sun
July	lavender		Full sun
July	dark purple	P	Full sun
May to June	purple	P	Full sun
July to August	dark purple	P	Full sun to Light Shade
May	pink-purple		Full sun
June to July	pale pink with yellow centers, orange-red rosehips	EM	Full sun
May to June	pink		Full sun
May to June	white		Full sun to partial sun
July	white to pink-white	M	Full sun to partial sun
July to August	white	M	Full sun

Alaska House bill banning neonicotinoids (HB 224) was introduced in 2014 by Representative Harriet Drummond with support from Representative Les Gara. It was read and referred to the House Resources Committee.

Must all Pesticides be Toxic?

By definition, pesticides aim to kill insects or fungi that harm crops or property. The vast majority are toxic to other species beyond their targeted pest, including humans. However, recent research suggests there may be promise in alternatives to synthetic pesticides. These include protein-based pesticides developed from spider venom. This pesticide could target pests, leave pollinators unharmed, and readily break down in the environment after application.

But what can YOU do?

Plant a pollinator garden.

Pollinators appreciate the added habitat and food sources and your own garden benefits, too. Different pollinators require different habitat but consider leaving a patch of bare ground, dead leaves, stumps, or branches for ground nesting bumble bees and digger bees, and don't forget water! Water is important to those who build homes with mud and will attract some species of butterflies. Because native pollinators have evolved with native plants, it is important to include a variety of plants indigenous to Alaska to provide maximum benefit. Native flowers are also better suited to the climate and require less care than non-native species.

Call your representatives

Call or email your Alaska State Legislators and United States congressional representatives and let them know you support the bills banning neonicotinoids. Enough heckling can create hope for committee-bound bills!

Support those who have pledged to be pesticide-free

Eating organically is one simple way to protect pollinators. Nearly all conventionally-grown food is sprayed with pesticides known to harm pollinators and other wildlife. The residues remaining can harm us, too. Support those who are committed to pesticide-free workplaces and products by purchasing organic food and getting to know what is locally available at farmer's markets. Know your grower to know your food.

Geek Out Here (Resources)

For more information on native pollinators in Alaska:

Here are a few links to helpful websites:

http://www.beyondpesticides.org/pollinators/documents/pesticide_list_final.pdf

http://www.xerces.org/wings-magazine/neonicotinoids-in-your-garden/

http://api.ning.com/files/YaSLp-TlPk32KYraH-WO0YseH3fcIHTgT9K*txfX0lC0zMZu4MO7MHXmU7SNjWlhYBGJfVrLXKfUr-7SGNHnroainaz27rd7/NeonicotinoidstoAvoid.pdf

http://householdproducts.nlm.nih.gov/cgi-bin/household/prodtree?prodcat=Pesticides&purpose=dogs&type=Animal+Repellent

http://www.pesticides.org/educmaterials.html

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_035764.pdf

To read more about pesticides in our food and their potential effect on our health, visit ACAT: www.akaction.org

Pesticide Control Program of the Alaska Department of Environmental Conservation, including a list of permit-holders for pesticide use
http://dec.alaska.gov/EH/pest/index.htm

The Melibee project is a UAF/UAA scientific inquiry into the interactions between invasive plants and pollination success of local berry plants in Alaska. To learn more about their sometimes surprising results, go to
https://sites.google.com/a/alaska.edu/melibee-project/home

This article describes a new spider venom pesticide and includes a link to the scientific article which introduces it: http://newswatch.nationalgeographic.com/2014/06/06/spiders-honeybees-animals-pesticides-environment-science/

More on planting pollinator gardens: http://www.fws.gov/alaska/pollinator/pdf/pollinator_garden_factsheet.pdf

National Groups working on Pesticide issues, fact sheets and beyond:

Pesticide Action Network North America
www.panna.org

Beyond Pesticides
www.beyondpesticides.org

Safer Chemicals Healthy Families
www.saferchemicals.org

ACAT
Alaska Community Action on Toxics

505 W. Northern Lights Blvd. Suite 205
Anchorage, AK 99503
(907) 222-7714
www.akaction.org