GUIDE TO PLANT FOR WILDLIFE

By growing native plants and trees in your schoolyard, your students can help restore wildlife habitat and sequester carbon while creating an outdoor space for many to enjoy! It's one way your school can contribute a positive impact for nature and climate.

At the end of your activity, don't forget to record your impact in your Living Planet @ School dashboard. Measuring our collective impact is what will keep us all inspired — and on track — to reverse the habitat loss that seems irreversible, for the benefit of people and for wildlife.

To get started, create your school's action plan: a tool that will help you gather your research and ideas, learn more about what types of habitat your schoolyard can support and identify the supplies and native plants and trees that will bring your space to life. Once you have your plan in place, follow these steps to get your native plants and trees off to a good start and keep your habitat for wildlife thriving!

PREPARE

Prepare your supplies

One great thing about native plants is that they're suited to the natural conditions where you live and learn — you don't need a lot of fancy equipment or complicated methods to grow them! Here are few things that would be useful to have:

- Watering can or hose
- Stiff rake
- Trowel
- Solid fertilizer (like manure, compost or worm castings)
- Containers — optional
- Potting mix (not potting soil) — if needed for containers
- Shovel, especially if planting a tree

Prepare your planting area (planting in the ground)

The ideal starting point for your growing area is bare soil, but that rarely happens in practice. More common situations are adding native plants to an existing garden bed, converting turfgrass lawn into garden or taming a patch of invasive species.

If you're adding native plants to an existing garden bed at your school, you may want to remove any invasive, high-maintenance or unhealthy plants to make room — but often you can simply find spots where no other plants are growing. For example, if a bed doesn't have any groundcover, consider adding some wild strawberries. Research how much space your new plants will need as they grow to make sure you give them enough room. Also check that the light, moisture and soil conditions are a good match before you plant.

If you're looking to remove existing grass or invasives, here are a few methods you can use to get started:

Lasagna gardening (a.k.a. sheet mulch)
Lasagna gardening involves laying down a layer of cardboard and piling compost on top. Make sure that you are using plain cardboard, without any tape or glossy printing. You can also include straw and more layers of cardboard, hence the name "lasagna." Ensure that the top layer is compost and plant into that.

Solarizing
One of the most effective ways to create a new garden space is by using the sun's rays to heat up the ground, killing weeds and grass. This involves using a tarp or large sheet of dark plastic to cover the turf or other plants. Weigh it down over the area and leave it for at least six weeks, or until all the plants look brown and dead underneath. Rake or till and add your plants.

Scrape and dig
This approach takes the most effort but has the fastest results. If you are dealing with turf, you can dig out all of the existing grass, dispose of it and plant in the soil underneath.

Prepare your planting area (planting in containers)

Planting native plants in containers? Watch the video How to start a container garden and follow these tips.

If buying containers for your school project, make sure they have drainage so that any excess water can run out. Bigger containers always work better. We recommend a minimum of 35 centimetres wide and 35 centimetres deep. Ask your supplier about containers made of durable materials that will withstand freezing.

You can also build or upcycle your own containers or gardening beds. Again, we recommend a minimum of 35 centimetres wide and 35 centimetres deep. Wood is a great material to use — but if you intend on eating your plants, use untreated lumber to keep your food safe. You may also want to line your gardening bed with landscaping fabric to help the wood last longer. We don't advise building your container entirely from metal because it can get very hot, dry out your potting mix and burn roots.

Fill the container with a combination of potting mix and another material (like gravel, play sand or wood chips). Mixing in that second material helps water filter through your container to reach the plants' roots. As you fill the container, mix in water so that all the potting mix is moist enough to be squeezed into a "dirtball," but not so wet that water drips out when squeezed. Add a few handfuls of solid fertilizer into the top third of the container. Don't fill all the way to the top — leave up to 10 centimetres of space below the rim for the plants.

Get your plants, trees or seeds

The best plants for restoring habitat come from nurseries that specialize in native plants and operate in a way that doesn't harm wild populations of native plants.

A good place to start is by connecting with a native plant society in your region and asking for their nursery recommendations. You can also consult these directories:

North American Native Plant Society — Commercial Growers

Ontario Native Plant Growers Association

Look for these positive signs for when choosing a nursery:

- The majority of the plants they sell are native plants.
- The species identified as being "native plants" are native to your specific region.
- The plants come from known and reputable sources, such as certified seed collectors.
- The plants come from a diverse gene pool and aren't cultivars resulting from selective breeding.
- The information the nursery provides to customers is helpful and accurate.
- The plants are not treated with chemical pesticides that harm native insects.

If you aren't sure, you can ask nursery staff.

Other great ways to get native plants include:

- Saving and planting seeds from the native plants that you grow
- Swapping seeds or plants with other people in your school and local community
- Attending native plant sales held by local gardening and ecology groups

Once you know where you're getting your plants, you can make your final species selections based on what is available. Consider these factors:

- Bloom time: If your focus is flowers, choose species that bloom at different times and strive for continuous blooming from early spring to late fall. This helps to support pollinators throughout the seasons.
- Diversity: Plant a range of plants, trees and shrubs — of different species and heights — to maximize the benefits for a range of wildlife and insects you're welcoming to your schoolyard. Provide as much diversity as your schoolyard space and budget will allow.
- Size and spacing: Check how big each plant is likely to get, and what the recommended spacing is, so that you buy the correct number of plants for your space.
- Container growing: If you're doing a container garden, let the growers at the nursery know. They'll be happy to recommend suitable plants for containers.

Pinpoint a spot for each plant

Have your students help space plants a minimum of 30 centimetres apart, leaving more room for larger plants. It's a good idea to plant flowering plants of the same species together in clumps. To pollinators, large clumps of plants flowering at the same time are more attractive than single plants.

If your plants are in pots, you can place the pots on the ground in the schoolyard location where you will be planting each one to help you visualize how things will look once they're in the ground.

If you're planting a large number of plants with a larger group of students, place flags in the ground to show the participants where each plant should go.

PLANT

Seedlings or mature plants

Dig a hole as deep as the height of the plant pot. Unpot the plant: Turn it upside down while holding one hand over the top of the pot, then gently squeeze the bottom of the pot until the soil and roots slide out. Massage gently with your fingers to loosen the roots. Place the plant in the hole you made and fill any gaps with soil. Place your hands around the stem and press down firmly. Next, water all the plants thoroughly. And don't forget to label your plants — you can use the plant tag they came with!

Trees and shrubs

Before planting your native tree or shrub, make sure you and your students research how large it will grow over time. Place it where it will not grow into objects like school buildings or power lines. To avoid problems, it's important to have underground utilities such as gas lines located *before* you dig your hole. Also consider where the tree will create shade or drop fruit, flowers or nuts. Moving the tree after it's planted is a lot of work and stressful for the tree, so plan carefully to avoid that situation.

The best time to plant your tree or shrub is in the early spring or mid to late fall. Dig a hole that is bowl-shaped, two to three times as wide as the container the tree is in, and the same depth as the container. Use the side of your shovel to roughen the soil along sides of the hole to make it easier for the roots to grow into. Remove your tree from the container and massage the roots to loosen them up a bit. Place the tree in the hole. Keep the trunk vertical and plant the tree at the same depth it was planted in the container. Refill the hole with soil and place the removed sod upside-down just inside the edge of your hole, away from the trunk, to create a doughnut shape with a well in the middle. This directs the flow of water towards the roots. Do not pile soil against the side of the trunk. Add a layer of mulch on top to hold in moisture, and then thoroughly water your tree.

Just after planting your tree, make sure it gets the right amount of water to help it establish. A good rule of thumb is to water on planting day, the day after, and then once per rain-less week for the two following months (or four following months, for large trees) – a great activity for your students to lead. However, take the temperature, rainfall and your soil type into account — watering needs vary. When you do water, soak the soil thoroughly.

Tree planting instructions adapted from How to Plant your Trees and Shrubs by LEAF — Local Enhancement and Appreciation of Forests

Seeds

For most native plant seeds to germinate and grow, they first need to go through a period of being cold. In nature, this is achieved by the seeds being outside in winter. That's why fall is a great time to scatter seeds on bare soil. You can also simulate this step indoors though a process called cold moist stratification (storing seeds with moist vermiculite inside a bag in your fridge over winter). The length of that stratification varies, and some species have more intricate requirements.

Helpful resources

Video - How to start a container garden

Local Enhancement and Appreciation of Forests - YouTube

Growing native plants from seed: cold stratification — Ottawa Field-Naturalists' Club

Seed germination codes and instructions — Prairie Moon Nursery (You can search for plant species by germination code on the nursery website — use filter options in the left-side menu.)

STEWARD

After your plants and trees are in the ground, continue to maintain and steward your habitat throughout the seasons, including during summer and other school breaks, to enhance its value for wildlife. Fortunately, native plants are hardy and easy to keep going! Even so, these tips for successful stewardship may come in handy.

Grow it to know it

Think of each native plant growing season as a learning opportunity for your students. Appoint your students to be the school's very own naturalists, observing and recording in a notepad how each plant species changes over time and how well it grows. Year after year, your school's knowledge of which plant species thrive best in your schoolyard will grow, and so will your habitat for wildlife. Much of what you and your students have to learn on this journey can only be gained through hands-on experience, so keep experimenting together! Apply what you learn to create healthier, more diverse habitats in your schoolyard over time.

Steward through the seasons

Here are some suggested stewardship activities that you can do each season with your classroom to keep your plants healthy and enhance their value for wildlife:

Collect/scatter seeds
Fall is the best season to grow native plants from seeds. Rake bare soil to loosen the top layer, scatter your seeds thinly over the ground and press down to loosely pack the soil. The seeds will germinate the following spring. Mark the boundary of the seeded area so you can find it next school year.

Fertilize
Spread a small amount (about one litre per square metre) of your solid fertilizer onto the garden area. Use a stiff rake to mix the fertilizer into the top 10 centimetres of soil. If you notice any weeds, use the rake to pull them out by the root and mix them into the top layer of soil. This is known as "turning under" the weeds and will help fertilize the soil. Avoid raking any existing native plants or sprouting seedlings if present in your garden bed.

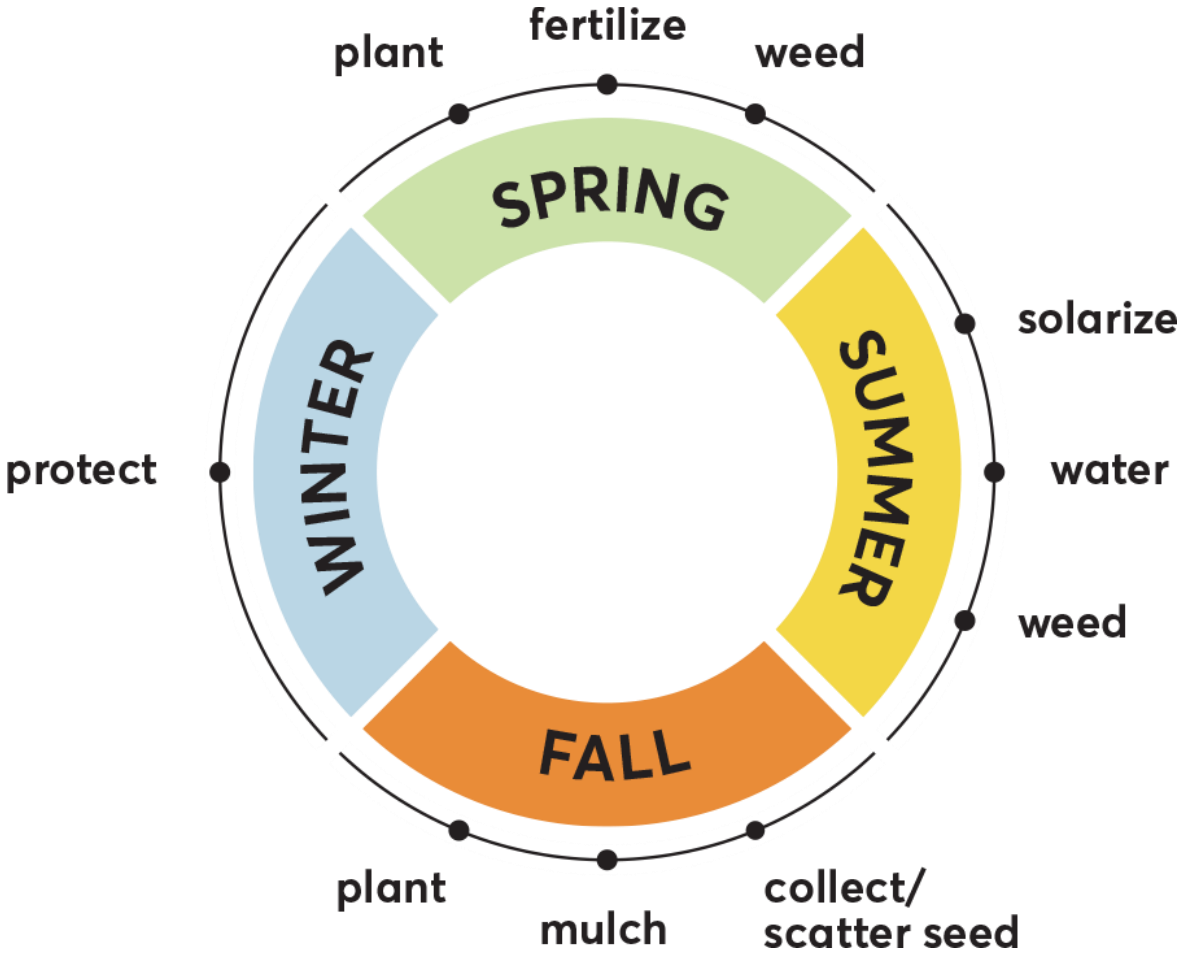
Mulch
Dried leaves make for a perfect protective layer (leaf mulch) for your plants during winter. Gather fallen leaves and pile them around your plants to create a 15–30 centimetre-deep layer. Leaving dried plant stems in the garden also provides homes for insects, including native bees and will indicate where plants will re-sprout in spring.

Protect
Plants in the ground, covered by a layer of leaf mulch, will be perfectly safe over winter. If your plants are in containers, they will need some additional protection. Bring them into a cold shed or wrap them in a tarp, stuffing gaps with dry leaves to create an insulated cushion layer.

Water
During the 4–6 weeks after planting, water your plants once every 3–4 days. After this period, water your plants only if you see signs of wilting (limp leaves or stems) or browning leaves.

Weed
Generally, shallow-rooted plants or those that grow quickly in the spring or fall are likely weeds. Remove and compost, spreading stems and roots of any weeds. If you're not sure what something is, leave it, take a picture and ask a garden expert.

Four-seasons stewardship calendar



Information on stewardship activities was adapted from the In the Zone *Four Seasons of Wildlife Gardening* guide

Let nature do the work

Since native plants have been living and evolving in your schoolyard and surrounding area for thousands of years, they are well adapted to surviving in your local conditions. Many of the gardening tasks that help keep exotic plant species alive are not required for native plants. If you are striving for a naturalized outdoor space or an outdoor classroom that provides habitat for wildlife, you can largely sit back and let nature do the work. Some ideas include:

- Leave leaf litter and some decaying wood to help the ground retain moisture and attract interesting wildlife. You may be surprised to find native plants take root, assisted by wildlife.
- Try a no-mow area around trees to see what grows naturally. Remove invasive plants and nurture native plants.
- Let low areas stay naturally wet and let pools dry up naturally in the summer. Some wildlife prefer these seasonally-wet places to complete their lifecycle.
- Reduce pruning where trees have room to grow and are not a hazard. More diverse structures can accommodate more wildlife. One situation where you would want to prune is when two branches are growing so close together that they're rubbing against each other; prune off one of these branches to prevent a wound from forming on the bark.
- Don't trim off flower heads once they finish blooming. Let them go to seed so that you can collect some seeds and leave the rest as food for wildlife.
- In fall, leave dead stems, leaves and seed heads where they are — don't throw them away as schoolyard waste! They provide important food and shelter for wildlife over the winter.
- If you give them room to grow, native plants will usually expand their populations by seeding themselves.

"Let nature do the work" section was adapted from the In the Zone Woodland and Wildflower garden guides.

Helpful resources

In the Zone Four seasons of wildlife gardening: a step-by-step guide — WWF-Canada and Carolinian Canada

Tree Care guide from LEAF — Local Enhancement and Appreciation of Forests

While native plants are well-adapted to surviving in your local conditions and you can largely sit back and let nature do the work, don't forget about your new habitat over school break and the summer! If you are planting towards the end of the school year, ensure that you have a stewardship plan in place over the summer months when your class will not be available. Speak with your school's maintenance team to come up with a plan and share the knowledge you have gained as you've been stewarding the space.

TROUBLESHOOT COMMON PROBLEMS

Wilting

Plants and trees need extra water for the first 4–8 weeks after you first plant them because the roots haven't yet grown deeply into the soil and aren't good at soaking up moisture. If your plants are wilting or leaves are getting crispy, give them a very thorough dousing — simulating a heavy rainfall — and wait to see if they bounce back. If they still look wilted after a day or two, water them again.

Insect damage

It's important to identify the insect *before* you take action. You can use the free iNaturalist app or take a photo and ask an experienced gardener. If you're seeing native species on your plants, that's great! You're helping your local ecosystem as intended. But if you're dealing with a non-native, invasive insect that's causing significant damage, you may want to address it.

To avoid unnecessarily harming native species, start with a gentle method and move to more intense methods only if that does not work. Here is a sequence of methods you can try:

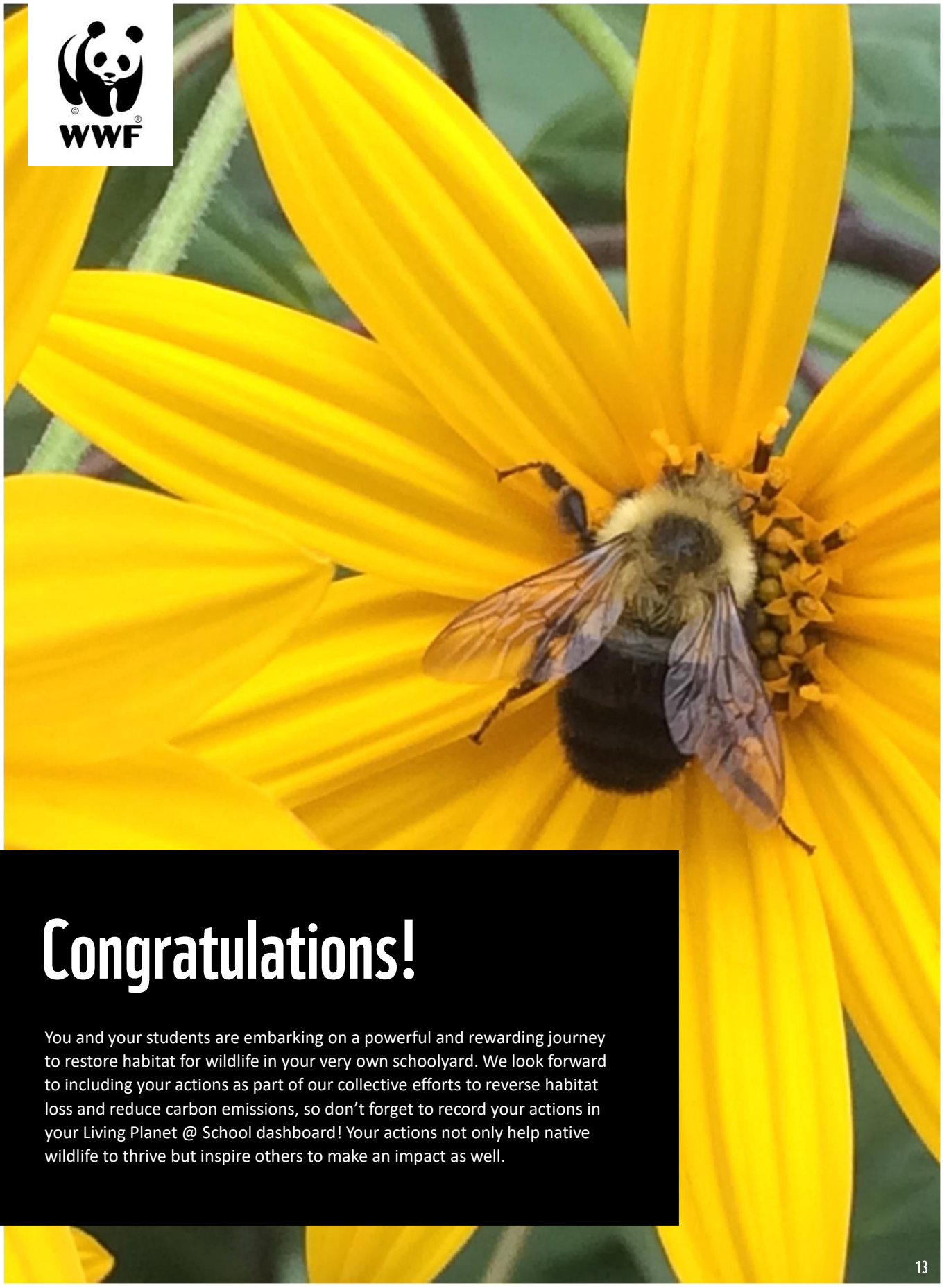
1. Manual removal: Pick off the insects and squish them. This works well if there are only a few insects present. For tiny insects, use a toothbrush instead of your fingers.
2. Blast affected plants with high-pressure water from your hose.
3. Mix a few drops of biodegradable dish soap with water and spray onto your plants.
4. Mix a few drops of lemon juice or vinegar with water and spray onto your plants.
5. Mix a few drops of a high-proof alcohol such as vodka with water and spray onto your plants.
6. Mix a few drops of neem oil, a natural insecticide, with water and spray onto your plants.

Before spraying anything on your plants, test out the effect of the solution by putting a bit on a Q-tip and rubbing it on a leaf. Wait at least an hour and then check that the leaf is unharmed before spraying your entire plant.

Pheromone traps are another method that can work well for certain insect species, including Japanese beetles. They work by putting out a scent that mimics the insect's mating signal to draw them into the trap.

Animals chewing your plants

This is especially common in spring when animals are extra hungry. Feeding wildlife is one reason for growing native plants in the first place, so you don't necessarily need to do anything about this. However, if you want to give young plants a head start or let an area recover, you can build a chicken wire "cage" and place it around the plants temporarily. In the long run, expanding your growing area to include more plants and increase their food supply may be enough to minimize damage to individual plants.



Congratulations!

You and your students are embarking on a powerful and rewarding journey to restore habitat for wildlife in your very own schoolyard. We look forward to including your actions as part of our collective efforts to reverse habitat loss and reduce carbon emissions, so don't forget to record your actions in your Living Planet @ School dashboard! Your actions not only help native wildlife to thrive but inspire others to make an impact as well.