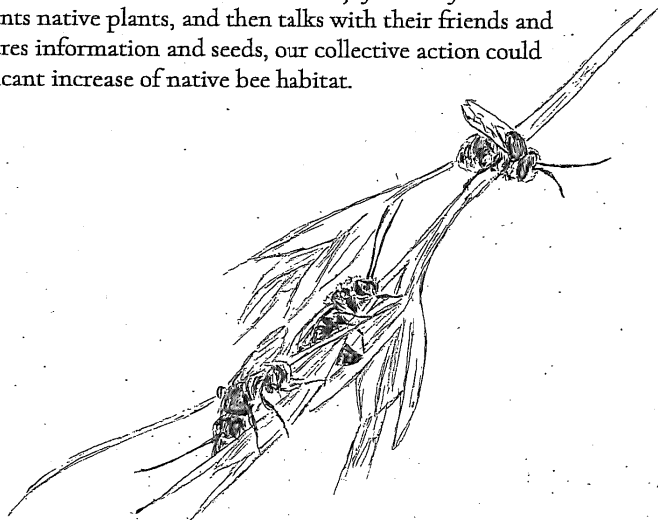


gratitude

In September 2020, a group of friends had the honor of learning from Tiffany Joseph about native pollinators. Tiffany is an educator of Skxwú7mesh (Fresh Water people) and WSÁNEĆ (Saltwater people, Emerging people) ancestry. She is a carrier of historical and ecological knowledge and is dedicated to supporting native bees. Tiffany taught us about native bees and their essential role in supporting all life on this land. We also learned about the environmental harm caused by the industrialized food system, and its devastating impact that has on indigenous food systems. The more we can support native bees, the better we can ensure that the countless plants and animals so important for indigenous food systems will continue to thrive.

Our conversation with Tiffany inspired us to take action to increase the native bee habitat in the Portland area, focusing especially on flowering plants that are native to this region. We want to share what we've learned in our research and help our friends and neighbors plant more native species so that there will be gardens all over Portland blooming year-round with native flowers for native bees to enjoy. If everyone who reads this zine plants native plants, and then talks with their friends and neighbors and shares information and seeds, our collective action could add up to a significant increase of native bee habitat.



10

Taking
Care
of
Native
Bees



tarweed

Nurturing
Pollinator
Biodiversity



IN THIS ZINE

LAND
1...ACKNOWLEDGEMENT

INTRO TO
NATIVE BEES..2

BEING A GOOD
5...RELATIVE

PLANTS FOR NATIVE
6... BEES

IDEAS
FOR PLANTING..8

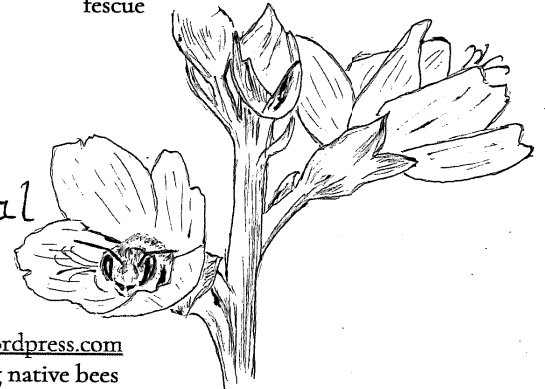
ADDITIONAL
9... RESOURCES

GRATITUDE..10

LARGE GARDEN BED / LAWN

(a front yard lawn can be converted to a permanent native meadow by first smothering grass and weeds with black plastic or cardboard and compost. Several native seed companies offer recommended seed mixes for native meadows)

Small flowered blue eyed mary, seablush, common camas, barestem desert parsley, red flowered columbine, tarweed, farewell to spring, roemer's fescue



Additional Resources

Tiffany Joseph's website:

<https://tiffanyrevitalist.wordpress.com>

Presentation on attracting native bees

https://wmswcd.org/wp-content/uploads/2016/04/Planting-for-Pollinators_KK-small.pdf

Native Bee Research in Portland:

<https://wmswcd.org/a-community-approach-to-native-bee-research-in-portland/>

West Multnomah Soil & Water Conservation District:

<https://wmswcd.org>

Native seeds:

<https://satinflower.ca/>

Bees of Portland Brochure:

<https://www.portland.gov/sites/default/files/2020-05/pdx-parks-xerces-bees-of-portland-mini-brochure-6-13-16.pdf>

A series of helpful webinars learning all the ins and outs of pollinators and how to be a good pollinator steward:

<https://islandpollinatorinitiative.ca/webinar-series>

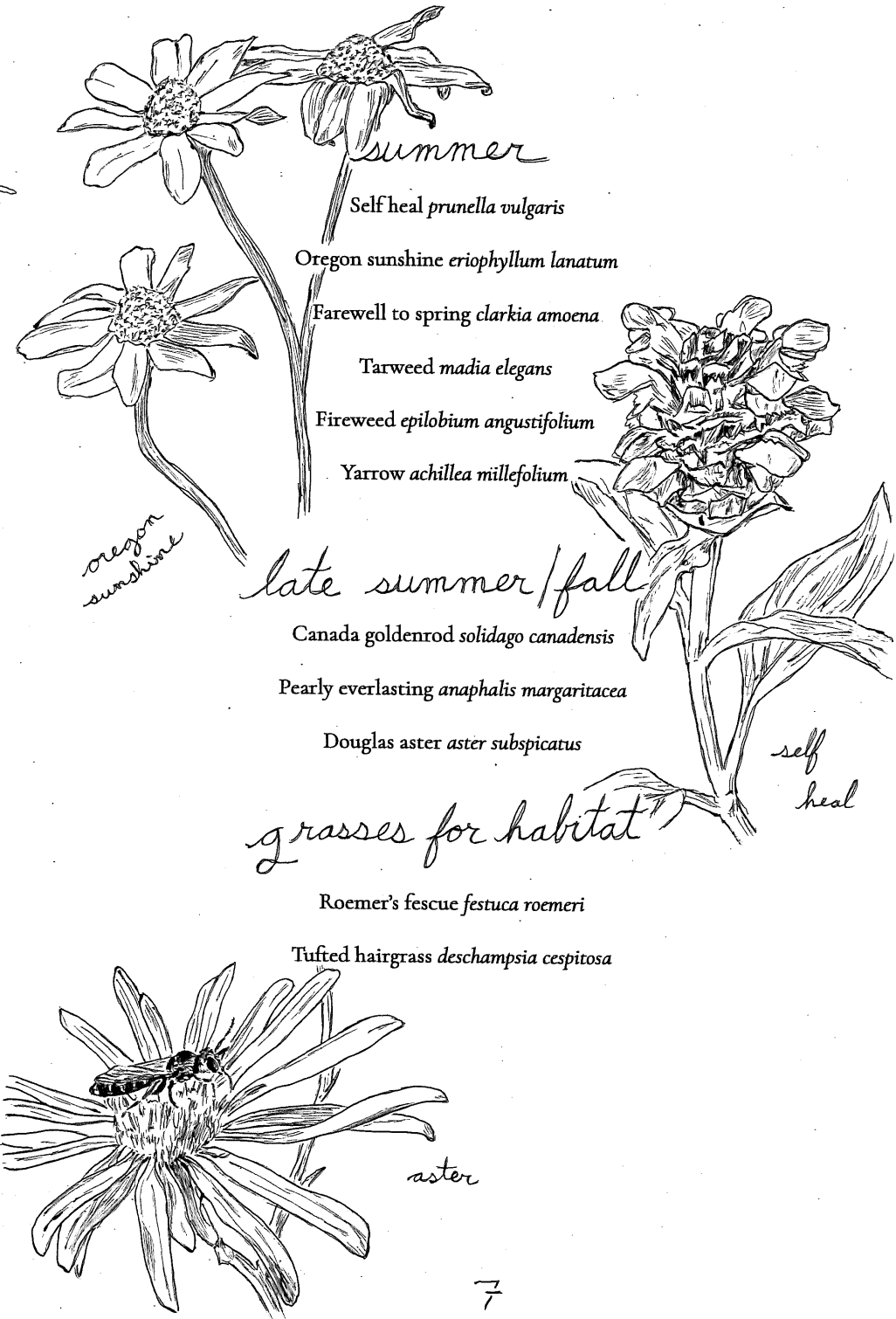
Introduction to Native Bees



We usually think of bees as stinging insects that make honey and live in large groups, but only a few species actually fit this description. Actually, there are over 20,000 different known species of bees globally and they vary widely in size, habit, and ecological role. The large majority of them do not produce honey and are solitary rather than social. This means that they do not live in large groups or hives but instead create small burrows in the ground or in wood cavities to lay their eggs.

There are roughly 4000 different bee species native to North America. These include groups like mason bees, carpenter bees, miner bees, sweat bees, as well as bumble bees. Bumble bees are the only truly social native bees. Like honey bees, they also gather nectar to bring to their nest, though they do not evaporate it to form honey, nor do they need large stores because only the queen lives through the winter to start a new nest the following spring. Only one kind of bee native to North America is known to produce honey. This is known as the xunan-kab bee and it has been taken care of and honored by Indigenous people of the Yucatán peninsula for thousands of years and into the present.

The vast majority of native bees however, live in solitary nests and do not collect nectar for storage. They primarily live in small burrows underground or in hollow stems and wood. While honey bees (and most bumble bees) are generalist and forage for nectar and pollen from many different flowers, many solitary bees are specialists meaning they only collect pollen from a few specific kinds of flowers. Many native bees have co-evolved with particular flowers and so they are mutually tied to each other's survival. This means that without native bees, many native plants would not survive, and vice versa.



summer

Self heal *prunella vulgaris*

Oregon sunshine *erriophyllum lanatum*

Farewell to spring *clarkia amoena*

Tarweed *madia elegans*

Fireweed *epilobium angustifolium*

Yarrow *achillea millefolium*

oregon
sunshine

late summer/fall

Canada goldenrod *solidago canadensis*

Pearly everlasting *anaphalis margaritacea*

Douglas aster *aster subspicatus*

self
heal

grasses for habitat

Roemer's fescue *festuca roemeri*

Tufted hairgrass *deschampsia cespitosa*

aster

ideas for planting

OUTDOOR FLOWER POT

Small flowered blue eyed mary, seablush, field chickweed (spring blooming flowers, may die back by summer)
Goldenrod and douglas aster
Yarrow and tarweed

IN ESTABLISHED GARDEN

(provided it still gets full to mostly full sun)

Common camas
Oregon sunshine
Red flowering currant (tolerates shade)
Tufted hairgrass
Roemer's fescue

CORNER OF COMMUNITY GARDEN

(will not spread)

Broadleaf lupine
Red-flowered columbine

PARKING STRIP

Fireweed, yarrow, douglas aster, pearly everlasting, canada goldenrod
Barestem desert parsley, roemer's fescue, farewell to spring

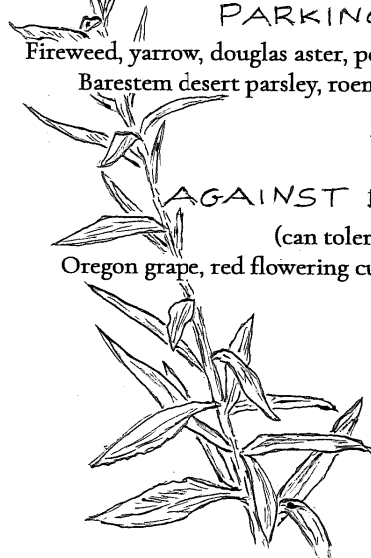
AGAINST BUILDING

(can tolerate shade)

Oregon grape, red flowering currant, osoberry (prefers shade)



osoberry



goldenrod

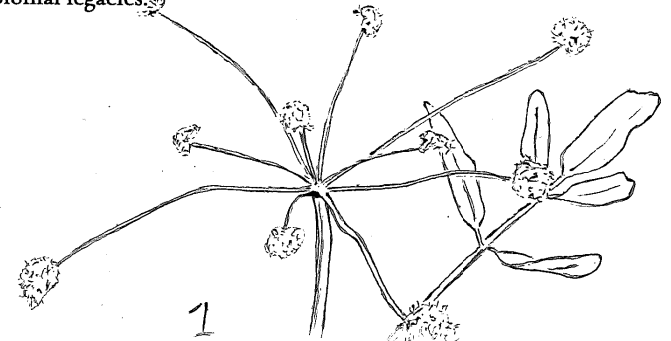
8

Land Acknowledgement

This land around what is today called Portland is the traditional territories of the Multnomah, Clackamas, and Cascade bands of Chinook, Tualatin Kalapuya, Cowlitz, and Molalla people. Since time immemorial, Native people have stewarded this land, and their descendants continue to fight for, and protect their homelands. The institution of settler-colonialism, through violent policies of genocide, forced relocation, and assimilation, has deeply impacted Indigenous people throughout North and South America and their continued presence is testament to centuries of resistance and dedicated practices of resiliency. Today Portland is home to members of over 380 federally recognized tribes as well as many tribes still working for federal recognition such as the Chinook Indian Nation.

Native people have always lived here and have shaped these landscapes and ecosystems in lasting and important ways. Many of the plants recommended in this zine including camas, tarweed, and barestem desert parsley have long been cultivated and tended by local tribes and they continue to be valued sources of food and medicine for Native people today. The history of colonization, including the extractive practices of commercial agriculture, fishing, logging, and hydropower projects, has severely damaged once-thriving ecosystems. Furthermore, invasion and land theft by the United States has prevented Native people from performing essential practices such as controlled burns, which are vital for the health of the land and the diversity of life which it supports. Knowing the history of this land and its people, in addition to tending and taking care of native plants and pollinators is a responsibility for all who live as guests on this land. As you read this zine, please consider your own relationship to this land and to the institution of settler colonialism, as well as how creating pollinator habitat can be one aspect of unlearning colonial legacies.

barestem
desert parsley



1

BEING A GOOD RELATIVE

If there are so many kinds of native bees, why does the honey bee get all the attention? The popularity of the honey bee is likely because it is an integral part of western industrial agriculture. The honey bee is originally native to Eurasia and Africa and it is thought to have first been domesticated in ancient Egypt. European colonizers brought the first hives with them to North America in 1622. Since then, beekeeping has grown to become a major commercial enterprise. In the process, honey bees have displaced native bees, and the development and industrial agriculture has destroyed many of the plants native bees depend on.

Although efforts to save the honey bee have received a lot of attention, this ignores the fact that honey bees are not the only kind of pollinator. In fact, many native bees are also essential for pollinating plants native to the Americas like tomatoes, blueberries, and squash, crops which honey bees are not well adapted to. The interlocking systems of capitalism and colonialism are only interested in extracting wealth from people's labor and the land, and not in protecting biodiversity. Therefore, native bees are at risk from our industrial food system which does not see value in the caretaking of native species and the land.



The practice of being a good relative in all of our relationships with both human and other-than-human beings is modeled by Indigenous people worldwide. This zine is partially inspired by the many Indigenous scholars, artists, and activists whose work teaches the necessity of being in good relation with one another and the earth including Haunani-Kay Trask, Kim Tallbear, Elizabeth Cook-Lynn, Chrystos, Lee Maracle, and Leanne Betasamosake Simpson. All of these writers demonstrate that being a good relative means fighting against settler colonialism, capitalism, white supremacy and heteropatriarchy which are all built on violent, hierarchical, and exploitative relationships. Taking care of native bees is just one small way of learning to recognize our interconnectedness with all life and hopefully inspires us to join the many struggles for collective liberation. The following are a few suggestions for supporting native bees.

- Native pollinators need native plants nearby to nourish themselves. Many native bees have evolved to eat from just a few particular plants, so if they don't have access to those flowers, they will starve. If we make sure to plant these flowers, then we are helping keep native bees fed.
- It is also important to make sure bees have food sources year-round. Try to plant flowers with a variety of bloom periods to ensure there are blooms all throughout the year. We sort the recommended plants by their different bloom times to help you make a plan! It is also helpful to keep a shallow source of water for bees to drink from in the summer.
- Native bees don't range very far, so it's ideal to not just plant native flowers in your own garden, but also to get your nearby neighbors to do so as well, so that the bees have a variety of spots to eat.
- It's also important to make spaces where they can nest, including areas of bare ground and dead plant material with hollow stems. Avoid tilling and disturbing the soil too much. About 70% of native bees are ground nesters who prefer well packed ground to make their burrows.

Plants for Native Bees

The following recommended plants are organized by the time of the year in which they bloom. Many of these are perennial plants, meaning they will die back in the winter and regrow in the spring. A few are woody shrubs and several are annuals, which reseed themselves every year. Many perennials may not bloom the first year you plant them, but they will grow back from their roots year after year. If planting by seed, it is usually best to sow seeds in the fall. Many seeds do not need to be covered. Some will sprout in the fall, others require the cold and wet in order to germinate when the weather warms again in spring. Additional resources cited at the end of this zine will provide more detailed information on planting.

red flowering
currant

early spring

Osoberry *Oemleria cerasiformis*

Red flowering currant *ribes sanguineum*

Oregon grape *mahonia aquifolium*



mid-late spring

Small flowered blue eyed mary *collinsia parviflora*

Barestem desert parsley *lomarium nudicaule*

Field chickweed *cerastium arvense*

Sea blush *plectritis congesta*

Common camas *camassia quamash*

Broadleaf lupine *lupinus latifolius*

Red-flowered columbine *aquilegia canadensis*

lupine

6



Most solitary bees only live for a few months as the adults we are familiar with, but the entire life cycle of a bee usually takes a year. After being fertilized by a male bee, an adult female spends the rest of her life providing for the next generation. She finds an appropriate nest site to lay her eggs which she supplies with a mixture of pollen and nectar to sustain the developing larvae once it emerges from the egg. In her life, a female solitary bee might lay between 20 and 30 eggs. After emerging from the egg, the larvae spend the summer in their cell eating the food stored by their mother. In time for winter they form a cocoon and by spring they emerge transformed as an adult and begin their life outside of the nest. The males usually emerge a few weeks before the females, and this new generation takes on the responsibility of preparing for the next.

Bees are distinguished from wasps, to whom they are most closely related, in several ways. Generally, bees are covered in fine hairs, especially on their legs, which allow them to collect and store pollen. Wasps tend to be hairless and their bodies are longer and skinnier. Some flies also resemble bees, but flies keep their wings held apart when they are not flying while bees fold their wings together over their bodies. Flies also have shorter antennae and larger eyes than bees. You will notice flies and wasps also feed on nectar and pollen, though they depend on other food sources as well.

As you spend more time observing pollinators, you will notice the surprising degree of diversity amongst them. Some may be just a few millimeters and others over 2 centimeters long. You may also notice that different types of bees frequent certain flowers at different times of the day. Or that certain flowers attract many different kinds of pollinators, while others rely on just one or two types of bees for pollination. You do not need to be a trained scientist or even be able to identify specific species to learn to pay attention to, and appreciate the presence of native bees. This practice can be a reminder that, like native bees, all of us have particular relationships and responsibilities to the place we live and the people and beings with whom we are interdependent.

3

