



Thriving Together:

The Role of Native Plants in a Warming World

Santa Barbara Botanic
THE GARDEN

As part of our summer-long Earth Day celebration, join us on a journey through four parts of the Garden. This trajectory explores how native plants protect you and the environment from climate change —the global, long-term shifts in weather patterns that include rising temperatures. In a warming world, how might we — people and nature — thrive together for generations to come? The answer lies with native plants that can combat climate change while supporting a wide variety of life or biodiversity. Come discover their power!

1 First Stop: The Water-Wise Home Demo Garden Section

Did you know that 2022 is shaping out to be one of California's driest years on record?

Because of climate change, California is experiencing intense droughts followed by floods, triggered by sudden rainfall. Native plants can reduce the negative impact of both by harvesting excess rainwater for eventual droughts. Their roots have evolved to reach deep into the soil for moisture, where they stabilize slopes and retain nutrients. Unlike

nonnative plants with shallow roots, native plants improve the soil's ability to slowly percolate water down to replenish groundwater.

The Rain Simulator on view here allows you to see how much rain runoff is absorbed into the soil by two native grasses, June grass (*Koeleria macrantha*) and leafy reed grass (*Calamagrostis foliosa*).

By comparison, nonnative lawns absorb less to no runoff, leading to floods and poorer quality soil.



June Grass
(*Koeleria macrantha*)

2 Second Stop: The Redwood Section

How do you feel now that you are beneath these giant trees? Are you cooler and even a little more relaxed in their shade?

If you look around, you'll find several thermometers measuring the temperature in this area. What temperature are they indicating? Before leaving, record some of those numbers here: _____

Trees, such as these coast redwoods (*Sequoia sempervirens*) and western sycamores (*Platanus racemosa*), create shade, preserve groundwater, and add cooling moisture to the air. Native trees are especially good at protecting you from heat, because they have adapted to California's climate and soils. As a bonus, they also create good living conditions for other plants and animals, offsetting climate change's reduction of biodiversity. How many different types of plants are growing here underneath these redwoods?



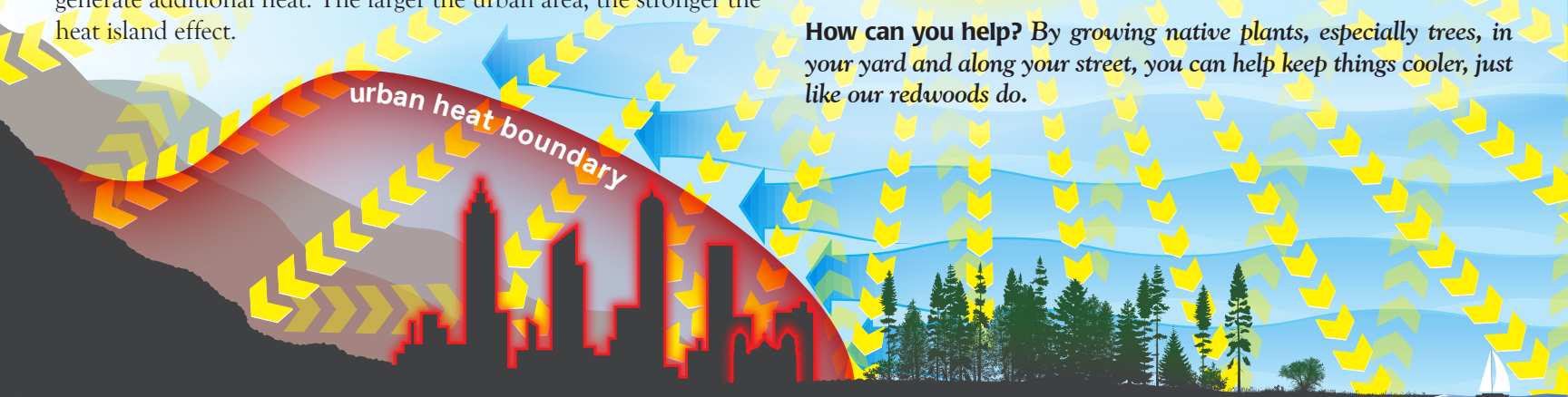
3 Third Stop: The Parking Lot

Are you feeling the heat? Here you'll notice a few more thermometers. Is the temperature higher than what you recorded by the redwoods?

When vegetation is replaced by a city's pavement and buildings, that area gets hotter, becoming an urban heat island. This is because human-made structures, like roads and parking lots, absorb heat from the sun. Human activity inside cities, such as running cars, generate additional heat. The larger the urban area, the stronger the heat island effect.

Urban heat islands harm us in many ways: higher electricity bills, increased air pollution, and more heat-related illnesses and deaths. In a coastal city like Santa Barbara, cool ocean winds blow the hot urban air inland where it gets trapped against the mountains, heating up the suburbs and wilderness. This, in turn, contributes to larger, more frequent wildfires that severely impact habitats and also destroy homes and lives. Because of climate change, the urban heat island effect is expected to increase over time.

How can you help? By growing native plants, especially trees, in your yard and along your street, you can help keep things cooler, just like our redwoods do.



4 Fourth Stop: The Pollinator Garden Section

*Notice the insects buzzing around our flowers? Every April, the Western Wood-Pewee (*Contopus sordidulus*), pictured here, migrates to our region to mate and feast on these bugs. Stay here long enough and you might catch a glimpse of this little bird.*

Climate change has made things harder for birds like the Western Wood-Pewee. Because of rising springtime temperatures, every year plants bloom a little earlier. However, pollinators, such as bees and butterflies, are slower to respond. They don't emerge until later in the season, missing the flowers they're supposed to pollinate.

Because of this missed encounter or phenological mismatch, seed production goes down as does the diversity of plants. Pollinator insects also decline in numbers. Consequently, larger animals such as the Western Wood-Pewee that depend on these insects for food struggle to survive. To help the birds and countless other animals, you can plant native flowers that are critical to the food chain.



We hope that you enjoyed our exhibit.

Help us thrive together by visiting our nursery and talking with our trained staff for tips on how to care for your new native plants. Go to www.sbbg.org to learn even more.

The Environmental Alliance of Santa Barbara County Museums is a collaboration of 12 museums, a zoo, and a botanic garden that are among the community's most trusted and independent voices for science and truth. The Alliance collectively presents programs, exhibitions, and events that seek to elevate different environmental issues and prompt action.

Visit www.sbmuseumsalliance.org