With the arrival of spring, now is a great time to get out in the backyard, observe the world around us and maybe even lend a helping hand to our neighborhood pollinators.

You know, those bees, bats, butterflies and other creatures that help produce nearly 1 out of every 3 bites of food [1]. Pollinators face all sorts of obstacles, from loss of habitat to changing climates, but little backyard efforts can have big impact.

"It's a great time to be outside and start teaching your kids about the importance of pollinators," said Elise Gornish, a University of Arizona Cooperative Extension specialist in the School of Natural Resources and the Environment.

Gornish, who has been conducting research and outreach in ecological restoration for over a decade, recommends several restoration projects that people with littles ones can do at home. No. 1 on her list: planting a backyard pollinator garden.

"Planting lots of flowering plants that display a diversity of flowering shapes, colors and sizes is the best way to maximize the number of pollinators you can attract to your garden," Gornish said. "You should always use native plants for your garden and can get advice on the best types of flowers from your local native nursery."

Another way to way to keep bees buzzing and bats flapping is to build bee or bat houses.

"You can make your yard more pollinator friendly by building a bee house that provides protection to bees during the winter months," Gornish said. "Or a bat house to provide shelter for bats during the day."

With stay-at-home orders in place and many looking for new pastimes, now is also a particularly great time to become a citizen scientist and support University research focused on understanding how the changing climate is impacting pollinators across the country.

What exactly is citizen science? Also known as crowdsourced science, citizen science pools the strength of the public to help researchers collect and analyze data on everything from annual rainfall to the appearance of spring blossoms.

"These programs allow people to join together in pursuit of a shared science goal without being in the same physical place. The fact that people are spread out in different locations is actually a great benefit for citizen science programs that want to collect data over a large area," said Erin Posthumus, outreach coordinator for the USA National Phenology Network [2], which is housed in the School of Natural Resources and the Environment. "You don't need to take classes or have a background in science to participate. All citizen science programs
are created to be picked up by nonprofessionals, often in an individual learning environment.

Not to mention, it’s a great activity for parents to do with their kids.

"It gets kids outside, allows them to use their natural observation skills and curiosity, and can be done in short chunks of time," Posthumus said. "Then parents can help make sure that the observations get logged into the app or website."

The USA NPN's citizen science platform, Nature's Notebook [3], is currently running two campaigns focused on supporting pollinators in the Southwest.

Flowers for Bats [4] and Nectar Connectors [5] were inspired by the need for more data about some of Southern Arizona's imperiled species: the lesser long-nosed bat and the monarch butterfly.

One specific research question is whether these migrating species "have the nectar they need when they need it," Posthumus said. "Changes in climate are shifting the timing of flowering in some plants, so we want to find out if the flowering is becoming mismatched with when those species need the nectar."

While the lesser long-nosed bat was taken off the endangered species list in 2018, researchers want to ensure the population continues to thrive.

"Flowers for Bats is an effort to document the bloom times of the bat's favorite food sources when it's here in Arizona for the spring, summer and fall, which are cactus flowers such as the saguaro and agave," Posthumus said.

Similarly, Nectar Connectors was created to find out more about when nectar is available for monarch butterflies during their migration to and from Mexico. Monarchs face a host of challenges, from habitat loss to climate change altering their cues for migration.

"We are tracking flowering for dozens of species across the U.S. that are important for monarchs and many other pollinators to find out when and where flowers are available across the country."

In large-scale phenology tracking projects such as these, researchers simply aren't able to collect all the data that they need on their own. Citizen science campaigns allow scientists to crowdsource observations and collect more data than they would be able to otherwise.

"The data you collect and share is being used by scientists right now in their homes? in my case, at my kitchen table with a cat who keeps stepping on my keyboard? to understand where species are, why they are there, and where they might be going as the climate changes," said Katy Prudic, assistant professor of citizen and data science in the School of Natural Resources and the Environment.

Prudic is co-director of eButterfly [6], an online citizen science platform that harnesses the observations of thousands of butterfly enthusiasts across the globe to understand how and when butterflies and other pollinators react to environmental changes.

Now more than ever, she recommends joining the citizen science community.

"Spending time in nature is restorative. It can be part of the way you take a breath and reflect
on some of the amazing things still happening all around you," Prudic said. "Also, you are helping some scientist at her kitchen table create knowledge that will help butterflies and their allies now and in the future."

Source URL: https://uaatwork.arizona.edu/lqp/bees-bats-and-butterflies-backyard-science-projects-whole-family

Links
[1] https://www.pollinator.org/pollinators