Is that alligator weed? Citizen scientists help keep tabs on San Diego County's plants, animals

November 2 2020, by John Wilkens

Credit: CC0 Public Domain

Jon Rebman saw the photo and did a double-take. Is that alligator weed?

If so, bad news. Originally from South America, alligator weed is a fast-growing invader, crowding the shorelines of lakes and reservoirs, choking off native plants that provide food and shelter for wildlife.

It had never been documented in San Diego County, at least not in the records at the 146-year-old San Diego Natural History museum, where Rebman is the curator of botany.

"Oh my," he said as he looked at the photo.

It was posted on iNaturalist, a website where people upload images of living things they come across while hiking in the mountains, walking along the coast, sipping coffee on their back porches.

Started in 2008 as a master's degree project at the University of California, Berkeley, the site was set up as a social network, a nerdy Facebook of flora and fauna, connecting people to "the awesome depth and breadth of life on Earth" by getting them to pay more attention to what's around them.

Turns out a lot of people like to pay attention. Worldwide, the site has almost 1.4 million registered "observers," who collectively have uploaded more than 52 million photos of 300,000 species. That's roughly 17% of all known species on the planet, and growing all the time.

Some iNaturalist users are so into it they joke about naming their newborns iNatalie or iNate, and the popularity of the site has drawn the attention of scientists, who are increasingly using it to crowd-source data collection for dozens of projects big and small.

"We can't be everywhere," said Rebman, who specializes in the plants of San Diego County, Imperial County and Baja California. "We need to know what's out there, and where, and this gives us a way to put more

people in the field, gathering information, putting dots on the map."

Most nights Rebman sits in front of his computer, going through iNaturalist photos and helping people identify the plants they've spotted. He's made 223,000 identifications since 2014, eighth-most in the U.S. He's also looking for oddities: plants last known to be here decades ago, and plants that should never be here at all.

Like alligator weed.

Rebman contacted the person who posted the photo and asked for more information and additional pictures. He asked the person to go to Otay Lakes, get a specimen of the plant, and bring it to the museum.

"Sure enough," Rebman said, "it was alternanthera philoxeroides."

He contacted officials at Otay Lakes and let them know about the invader so it could be removed before it got established. "That's a win for the local environment," he said, "and the kind of thing that might not have happened before."

San Diego is an iNaturalist hotbed. More than 760,000 photos, of more than 10,300 species, have been added to the site by more than 21,000 observers.

The busiest local participant is B.J. Stacey, 50, who lives in Santee and works in the procurement office at a large scientific research institute. Since 2012, he's uploaded almost 88,000 observations, more than anybody else in San Diego and California, third-most in the United States, and fifth-most in the world.

He's also made almost 74,000 identifications of species submitted by other people. Next year he hopes to be the first person on the site to

reach 100,000 in both observations and identifications.

"We are in the midst of what many scientists are calling the sixth mass extinction," Stacey said. "All the data points that can be added to our collective knowledge are valuable."

He's been interested in nature since he was a kid, and passionate about photography since middle school, so a social network that combines the two was a perfect fit, he said.

Now he goes out almost every day—hourslong outings if he can, but sometimes no farther than his own yard. "Once you start looking," he said, "it is amazing how much diversity there is in such a small area."

A couple of his finds have been particularly memorable. One was prostrate capeweed, a plant in the sunflower family, which he spotted in La Jolla. After he submitted the photo, Rebman saw it and recognized it as a species never recorded here.

Another was a Rio Grande leopard frog he photographed in Imperial County. That led to a multi-year study and a published paper by the curator of herpetology at the Natural History Museum of Los Angeles County.

Other observations of his also have been cited in research papers, he said, and he was asked once to speak at an international conference.

"You never know when that bug you see is something that is unknown in an area," Stacey said.

He's been a regular at the annual City Nature Challenge, an international competition to see which region can tally the most plants and wildlife over a four-day period. San Diego usually finishes in the top 10, and did

so again this year, at ninth, even though participation was curtailed by the pandemic.

Stacey considers the contest "the Olympics for naturalists," and prides himself on how many species he can record. But this year, as the event approached, he was finishing up chemotherapy and radiation treatments for cancer. He made it a goal just to participate.

Participate he did, documenting the sixth-most species of anyone in the world, 563.

Scientists have gone beyond regularly scrolling iNaturalist photos to see what's out there, although that remains a helpful way to check populations, monitor habitat change, and watch for the arrival of invasive species.

They also ask citizen scientists for help with specific projects.

"It has completely increased where we can be: lots of different places at lots of different times," said Michael Wall, curator of entomology at the Natural History Museum, who started a project earlier this year on local bumblebees.

Wall also helps identify insects as part of a worldwide project called "Never Home Alone," which "aims to document the species that live indoors with humans." An earlier study in just Raleigh, North Carolina, found more than 1,000 species of insects and their kin.

Rebman, the botanist, said he once asked a married couple in Borrego Springs to help him solve a mystery. The Natural History Museum had in its records from the 1980s a plant, rolled leaf spurge, that emerged after monsoonal rains on Whale Peak. Rebman wanted to know if it was still around.

The couple, Europeans who spend their winters in Borrego Springs, are avid hikers. They regularly post plant observations on iNaturalist. So when a storm hit the region a few years back, Rebman asked them if they could try to find rolled leaf spurge on the mountain.

"They went and located it and got us a specimen," he said, "Now we know it occurs, but it takes the right weather, at the right time, in the right place."

Knowing what's out there may have specific applications, if, say, a plant is discovered to have anti-aging properties that might be useful in developing a medicine for Alzheimer's disease. Rebman is working on one such project now.

But he said citizen naturalists also serve a broader role by helping scientists understand the overall health of the ecosystem. That's a big deal in a place like San Diego County, which is considered a biodiversity hotspot: A lot of species are found here and nowhere else in the world, and a lot of those species are endangered.

"Insects need the plants, and birds need the insects, and animals need the birds, and on down the line," he said. "It's all a big giant web. We're all relying on each other."

It's not iNaturalist's motto, but it could be.

Citation: Is that alligator weed? Citizen scientists help keep tabs on San Diego County's plants, animals (2020, November 2) retrieved 20 September 2024 from https://phys.org/news/2020-11-alligator-weed-citizen-scientists-tabs.html