Mālama ʻāina i ka huliau: Caring for the land in a changing world
Aloha mai ka ʻakau,

For most of my career, conservation required many hours of collecting data the old-fashioned way—people hiking and swimming miles to gather valuable information used to inform protection of our island home. While these methods worked well (and continue to do so), they limit the reach of our impact. Enter innovation. Adapting and innovating in conservation has allowed us to cover much more ground in a shorter amount of time, with fewer resources and more safety for our field crews.

Yesterday, scientists manually sorted through GPS data to identify plant species over an entire landscape. Today, we use artificial intelligence (AI) to sort through a lot of high-resolution aerial imagery. But innovation isn’t just about using new technology; it’s also about thinking creatively about how to use existing tools and collaborating with unconventional partners.

In this issue of our newsletter, we share the ways in which we leverage innovative tools and approaches to protect native species, restore native forests, adapt to climate change and protect coral reefs in Hawai‘i and Palmyra.

On and around Palmyra Atoll, we are combining the use of artificial intelligence, drones and high-resolution aerial imagery to identify and count seabird species across the landscape. Over time, this data will help us track how native forest restoration is impacting seabird populations. We’re also using AI and a large collection of aerial imagery on Kaua‘i to identify invasive tree ferns in remote forests, partnering with Amazon Web Services to develop a cloud-based solution that automates this data collection. With these tools, we can deploy and track different weed control techniques to see what works best.

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Innovation in Conservation

From Invasive Species—spotting AI to “Digital Reefs,” TNC Hawai‘i and Palmyra Leads the Way

by Ilima Loomis

Potentially spotting an invasive Australian tree fern in a few hours. That’s just the job for a computer powered by artificial intelligence.

In fact, the project, a partnership with Amazon Web Services, could help The Nature Conservancy gain the upper hand in the ongoing battle against invasive species. Where it previously took expert human eyes weeks or longer to search aerial photos for signs of pests, AI could potentially spot an invasive Australian tree fern or scaly fern in a few hours. That means ground crews could start mitigation efforts sooner, before the plants have time to spread.

It’s just one example of how TNC is not only using technology to help protect the unique ecosystems of Hawai‘i I and Palmyra, but also leading the way for innovative ways of applying these tools, to accelerate and amplify our conservation impact so that we can better protect and restore the lands and waters upon which all life depends.

From sensors rugged enough to work in a rain forest, to computer models helping build more resilient reefs, to novel financing tools for ecosystem restoration, TNC is constantly exploring how innovative tools and technology can help solve today’s greatest conservation challenges across different ecosystems and environments.

“It’s really important that we’re incorporating technology and innovation as much as possible so we can do the best work we can with the fewest resources possible,” says Alison Cohan, TNCHP Terrestrial Director. “The conservation needs drive the technology, so we’re working with the tech companies to develop the right solutions.”

Hawai‘i’s extreme environments make it an ideal location to innovate and adapt technology to conservation work. “Our native watersheds are really, really rugged,” says Cohan. “They’re incredibly hard to get to, so even deploying the technology is expensive. Connectivity is a huge issue. The weather can be gnarly. So the more we can automate with things like rugged sensors, that provide connectivity and have batteries that last a long time, it’s not only saving resources, it’s also keeping our crews safer.”

Other innovative TNC projects in Hawai‘i and Palmyra include:

DIGITAL REEFS

A 3D virtual replica of coral reefs allows researchers and reef managers to simulate different environmental conditions and conservation actions, and then see their outcomes. For example, coral restoration practitioners can virtually plant corals and see where currents will carry their offspring—using hydrodynamic models developed by our partners at Woods Hole Oceanographic Institution. The world’s first “digital reef” is being developed at Palmyra, with similar models in the works for Olowalu on Maui and other important reefs around the globe.

REEF INSURANCE

TNC worked with an insurance broker to develop the first policy for nature in the U.S. It will provide a near-immediate payout to repair Hawai‘i’s coral reefs in the event of a major storm. This tool will provide funding for restoration and repair of coral reefs, enabling a quick response when time is of the essence.

MONITORING SEABIRDS

In 2022, managers launched a seabird monitoring project at Palmyra Atoll, which includes using AI to analyze high-resolution aerial imagery taken by a drone to detect and identify seabirds across the landscape. This technology opens new doors for conservation science and can be adapted for use in other locations.

TRACKING FADES

When Fish Aggregation Devices drift away from fishing areas, they can cause unintended impacts on wildlife. In a program launched with commercial tuna fishery partners, TNC monitors drifting FADs around Palmyra, collecting biomass data to better understand their impacts on ocean ecosystems, and giving staff the chance to intercept the devices before they become grounded on fragile coral reefs.

FISHKIT

Working with a handful of communities in Hawai‘i and other parts of the globe, The Nature Conservancy developed software to help support local management of small coastal fisheries. Programmers are now updating the software so that it can be applied to fisheries worldwide.

Ultimately, TNC’s focus on technology and innovation is about finding new ways to be effective environmental stewards and community partners, says Emily Fielding, TNCHP marine conservation director. “We absolutely have to keep innovating to address the challenges of the present—and the future,” she says. “In terms of technology, we want to stay abreast of all the innovations that are constantly happening in our world, and explore how they can help us better protect our natural resources.”
Strengthening Our Organization

I n 2017, TNCHP’s Ihupani Advisory Council was inaugurated with five members, the sixth joining in 2018. In Hawaiian, “ihupani” means “expert, wise person, wisdom,” so it is fitting that this group is made up of previous board members. This February, we inducted two additional members, Paul Alston and Nate Smith. Paul joined the board in 2014 and served as Chair from 2019 to 2022, and Nate joined the Board in 2009 and served as Chair from 2016 to 2019.

Director of Philanthropy Lori Admiral acknowledges that TNC’s strength as a non-profit comes in part from the Board. “Continuing to harness knowledge from Ihupani members after their formal board terms end adds resiliency to our organization,” she says. “The Council has championed successful fundraising initiatives, demonstrating that they are a foundational part of our past and our future as well.”

Nature As Our Kin

T NC co-sponsored a reception with UH Manoa for Dr. Robin Wall Kimmerer, author of New York Times bestseller Braiding Sweetgrass. At her talk, she shared a message speaking from her heart as a member in the Cizi- band Potawatomi, a scientist, professor and mother. She believes that the best way for us to care for our lands is to weave together traditional ecological knowledge and science with Western science in a reciprocal relationship.

The Nature Conservancy, Hawai’i and Palmyra

TNCHP Director of Philanthropy Lori Admiral says, “We are fortunate to have donors like Paul and Tanya, who share their expertise and passion for protecting nature and championing the importance of ensuring resiliency for future generations.”

Ensuring Resiliency for Future Generations

TNC is a natural fit for Paul and Tanya Alston, who have supported our work for almost four decades through membership, donations, volunteer leadership and as members of our Legacy Club, helping to protect nature for future generations. Paul joined the Board of Trustees in 2014 and brought with him deep experience as a real estate attorney in Hawai’i, connecting conservation-minded landowners to properties with distinct natural resources. He served as Board Chair from 2019 to 2022 championing Diversity, Equity, Inclusion and Justice goals and has challenged trustees and staff to focus on ambitious and sometimes difficult issues to help grow the chapter’s reach and relevance.

Tanya grew up on a dairy farm on Hawai’i Island. Her childhood adventures, both mauka and makai (mountain and ocean), shaped her early love of nature. Tanya shares, “It is important to us both to understand there are things we can’t change, but then also put our time into helping organizations work on what we can change. Working with many organizations in Hawai’i, we find that TNC allows us to be connected to different places across the islands that we can help ensure are preserved.”

Paul is pleased by the practical approach TNC takes, and they both agree that there is an inherent responsibility to act both here in Hawai’i and globally. Paul notes, “Sometimes you need to experience a project to fully understand how it impacts both the area where it is located and the broader environment.”

This happened for Paul while learning more about the chapter’s projects. Paul says “I didn’t fully understand why staff was working at an atoll 1,000 miles away from Hawai’i. It’s so remote. But when I visited Palmyra Atoll, it was easy to see that resiliency is best studied at a place free from population and industry stressors. Lessons can be gathered more quickly in tightly touched areas and applied to less pristine locations in hopes of bringing them back into balance.”

They see that collaboration among researchers on Palmyra Atoll as well as TNC’s work with communities and other public and private partners in Hawai’i enables efficient solutions. What brings Paul and Tanya hope are younger people engaging in our work, learning how TNC combines cultural knowledge and science.

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INTRODUCING OUR NEW PHILANTHROPY STAFF MEMBERS

As our new Grant Writer, Christy Potvin brings 15 years of grant writing experience, from employment in the healthcare industry and Tribal government to freelance opportunities for many nonprofits. Being raised with a deep appreciation of the woods, swamps, rivers and lakes within northwestern Wisconsin, she is passionate about nature and is thrilled to use her talents for our chapter.

We also welcome Ali Peterson to our team as our Philanthropy Coordinator. Ali brings direct experience as database administrator at the Aloha Council, Boy Scouts of America, where she held a similar role. Originally from Oregon, she enjoys spending time in nature and experiencing the world through hiking, photography, travel and cuisine.

Our new Associate Dir of Philanthropy, Zach Horton, previously worked with TNC’s Texas and Caribbean programs for nearly 8 years. He worked most recently in Hawai’i with the Hawai’i Island Land Trust. Zach brings nearly 20 years of fundraising experience to his role with us and is excited to focus his expertise near his home in Hilo on Hawai’i Island.

DONOR PROFILE

Dr. Kimmerer suggests a shift away from thinking about the world as a natural resource to thinking of nature as our kin, honoring the gifts given by our relatives. This too is the basis of Hawaiian cultural values, with people being part of—and not separate from—nature.

TNCHP Executive Director Ulalia Woodside Lee shares, “The Hawaiian saying malama kekahi i kekahi (we must take care of each other) includes plants and animals as our kin; exactly in line with Dr. Kimmerer’s thoughts.”

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On March 8, TNC Hawai‘i and Palmyra trustees and staff convened at the Hawai‘i State Capitol in Honolulu for an Advocacy Day. Attendees met with legislators to talk about TNC’s work in Hawai‘i and government funding and policies that support our vital conservation work with partners. The trustees and staff highlighted TNC’s support for a visitor green fee, community-based coastal management and Hawai‘i’s vanishing forest birds.

With the State Legislature fully reopened for the first time since the COVID pandemic began, Advocacy Day was an opportunity to reacquaint or introduce TNC to the legislators. TNC is an active advocate for State policies and funding to support conservation throughout Hawai‘i, and connecting with legislators about our work is key to helping them understand how the policy and funding they debate and vote on impacts conservation and communities.