

The Range of Educational Outreach Obtained by Conservation Organizations

By Michelle Smith Fall 2015

GIS 180 – Ecosystem Management UH Maui

Introduction



Photo: Robby Kohley

The Kiwi (Maui Parrotbill, *Pseudonsetor xanthophrys*) and 'Akohekohe (Crested Honeycreeper, *Palmeria dolei*) are the two most critically endangered native forest birds on Maui. Educational outreach allows the introduction of these birds to the general public, many of which are unaware of the current struggle happening in our forests. Guided hikes in The Nature Conservancy's Waikamoi preserve offer a rare peek at these birds, which used to have much greater ranges around Maui, and are now rare to see, even in their known ranges.



Photo: MFBRP

Within the world of conservation, Hawaii is often referred to as the Extinction Capitol of the World. As an isolated archipelago, its flora and fauna have evolved to be a truly unique cluster of biodiversity. Unfortunately, with massive habitat loss and the introduction of non-native species and disease, Hawaii's ecosystems have suffered catastrophically. It is estimated that half of the bird species historically native to the islands are now extinct. Conservation groups across Hawaii labor to protect native lands and habitats to preserve the islands. Public support is crucial to their success. Educational outreach has become increasingly important in order to expand public knowledge of native Hawaii and the threats that are putting it in danger.

Protecting Maui's watersheds requires strengthening the health of our native forests. Non-native plant species like Strawberry Guava (*Psidium cattleianum*) eliminate the native plant understory and prevents the natural absorption of water by the forest. Without a healthy forest to trap rainwater, erosion occurs, pulling valuable soil from the forest floor and depositing it in the ocean, causing harm to the marine ecosystem.



Photo: M. Smith

Non-native ungulates like pigs, goats, and deer also assist in the declining health of our native forests. These animals eat native understory plants and trample delicate soils, changing the composition of the forest floor. This increases soil erosion, allows for increased spread of non-native plants, and causes reduced habitat for Maui's native bird and invertebrate species.



Photo: Jack Jeffery

Mission Statement

The Mission is to explore the population exposure obtained by education programs implemented by conservation organizations on Maui over time period of Jan1, 2015 to Nov1, 2015. This includes guided hikes, public presentations, event booths, and volunteer trips.

Maui Forest Bird Recovery Project: Guided Hike, Events, Presentations, and Volunteer Trips Michelle Smith Nov2015

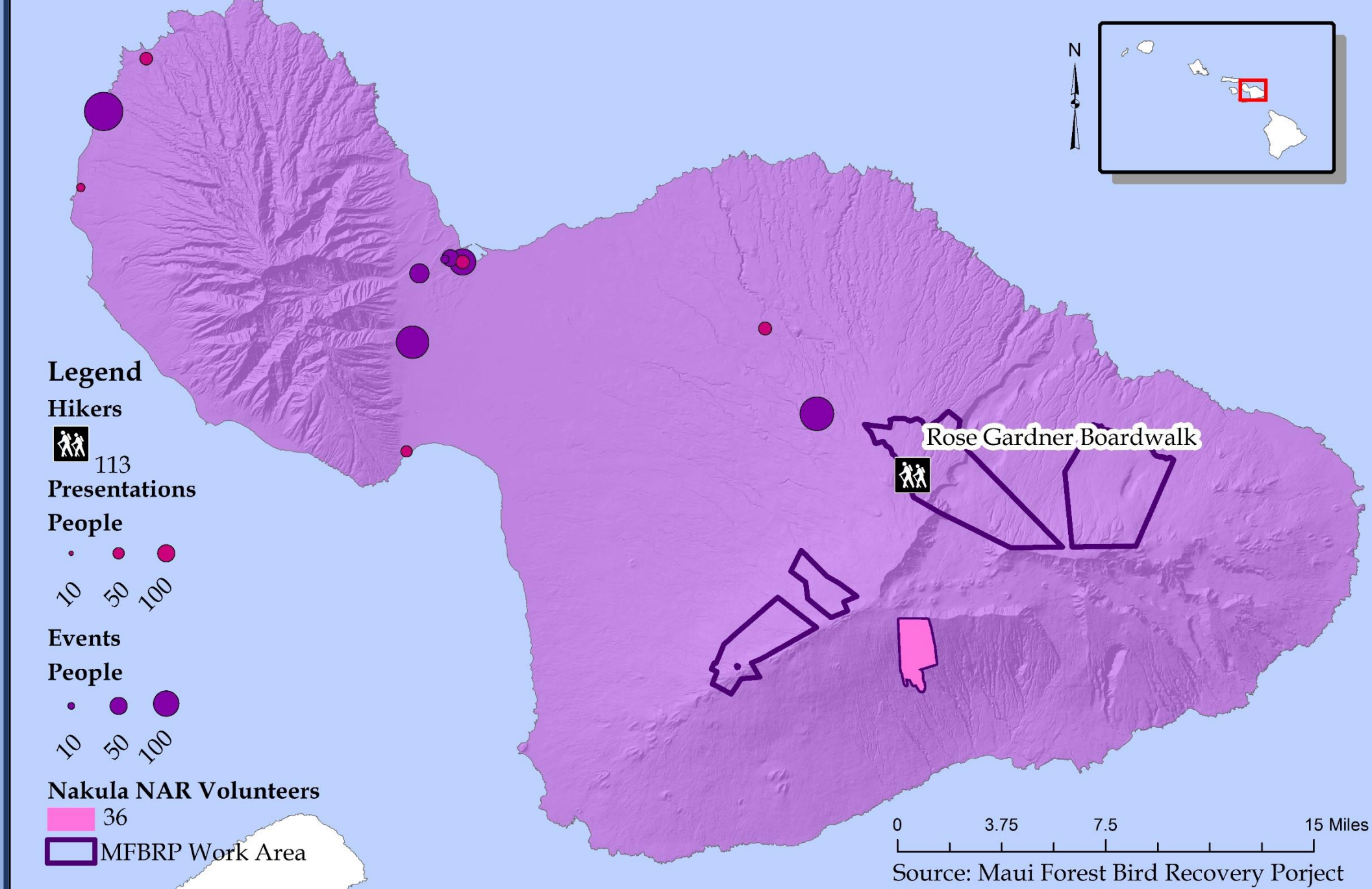


Figure 2 – MFBRP spends most of its time doing restoration work in Nakula Natural Area Reserve where it utilizes volunteers on both planting missions and banding trips. They guide hikes on the Rose Gardner Boardwalk, within TNC boundaries, which is one of the few places you can spot the projects target species, the Kiwi.

Maui Forest Bird Recovery Project is driven by science and dedicated to the conservation of Hawaii's native forest ecosystems. Formed in 1997, MFBRP's mission is to develop and implement techniques that recover Maui's endangered birds and to restore their habitats through research, development, and application of conservation techniques.

The Nature Conservancy: Volunteer Weed Removal Sites and Guided Hike Trailheads Michelle Smith Nov2015

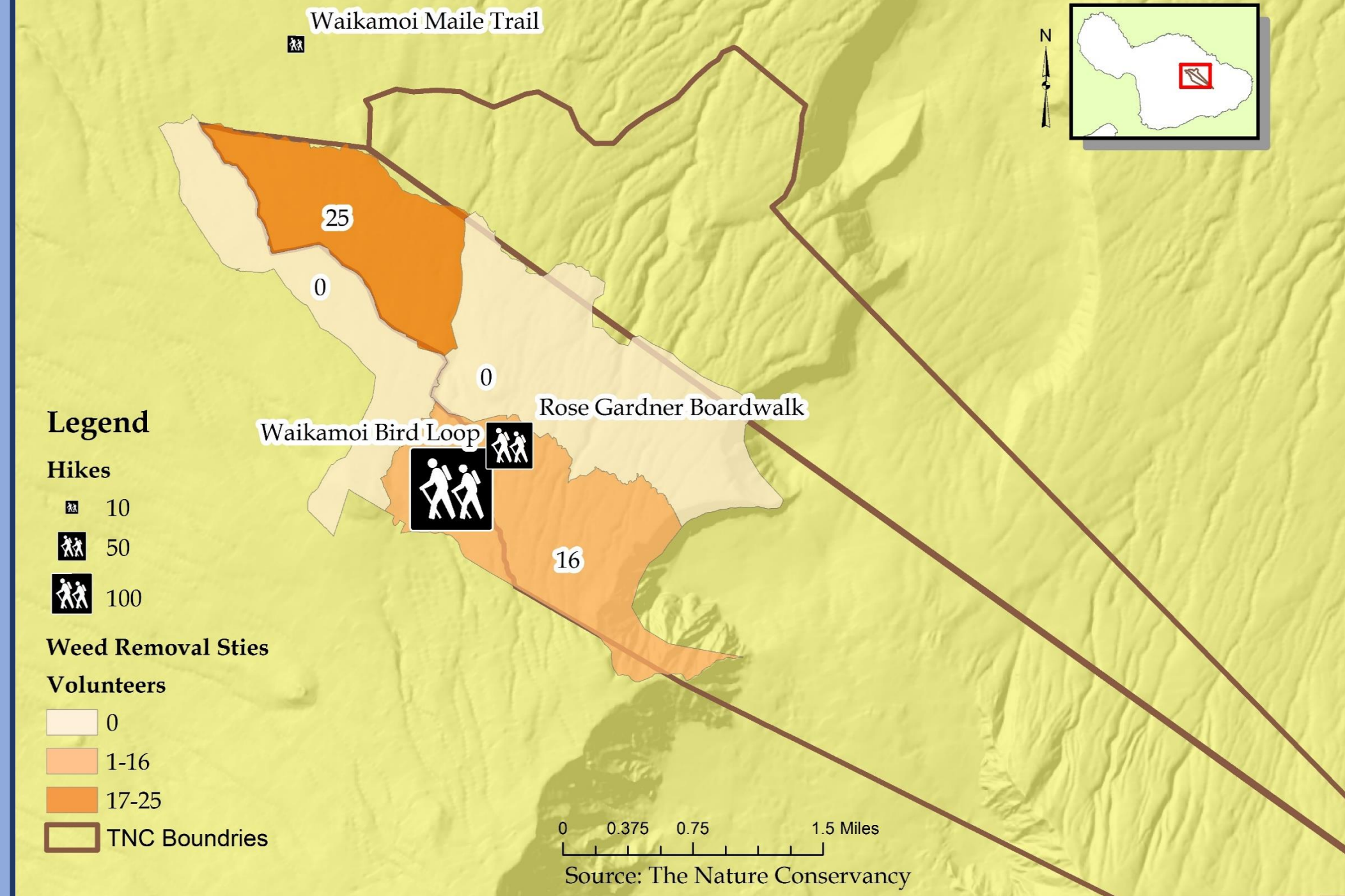


Figure 3 – TNC works closely with many other conservation groups on Maui, providing them with access to lands and trails. EMWP and MFBRP both utilize TNC trails for their educational outreach. TNC hosts their own docent led hikes, as well as organizes volunteer trips focusing on weed control. *Additional TNC lands have been omitted due to sensitive resources. **TNC data only covers from 1Jan15-01Jul15 "From mauka to makai, The Nature Conservancy works with local communities, businesses and people like you to protect Hawaii's best natural lands and waters. Since 1980, TNC has established a statewide system of Conservancy preserves, helped create new wildlife refuges and expand national parks, forged partnerships to protect our most important watershed forests and coral reefs, and led efforts to stem the tide of invasive species entering the state. All total, TNC has helped protect more than 200,000 acres in the Islands."

West Maui Mountains Watershed Partnership: Event Locations and Guided Hike Trailhead Michelle Smith Nov2015

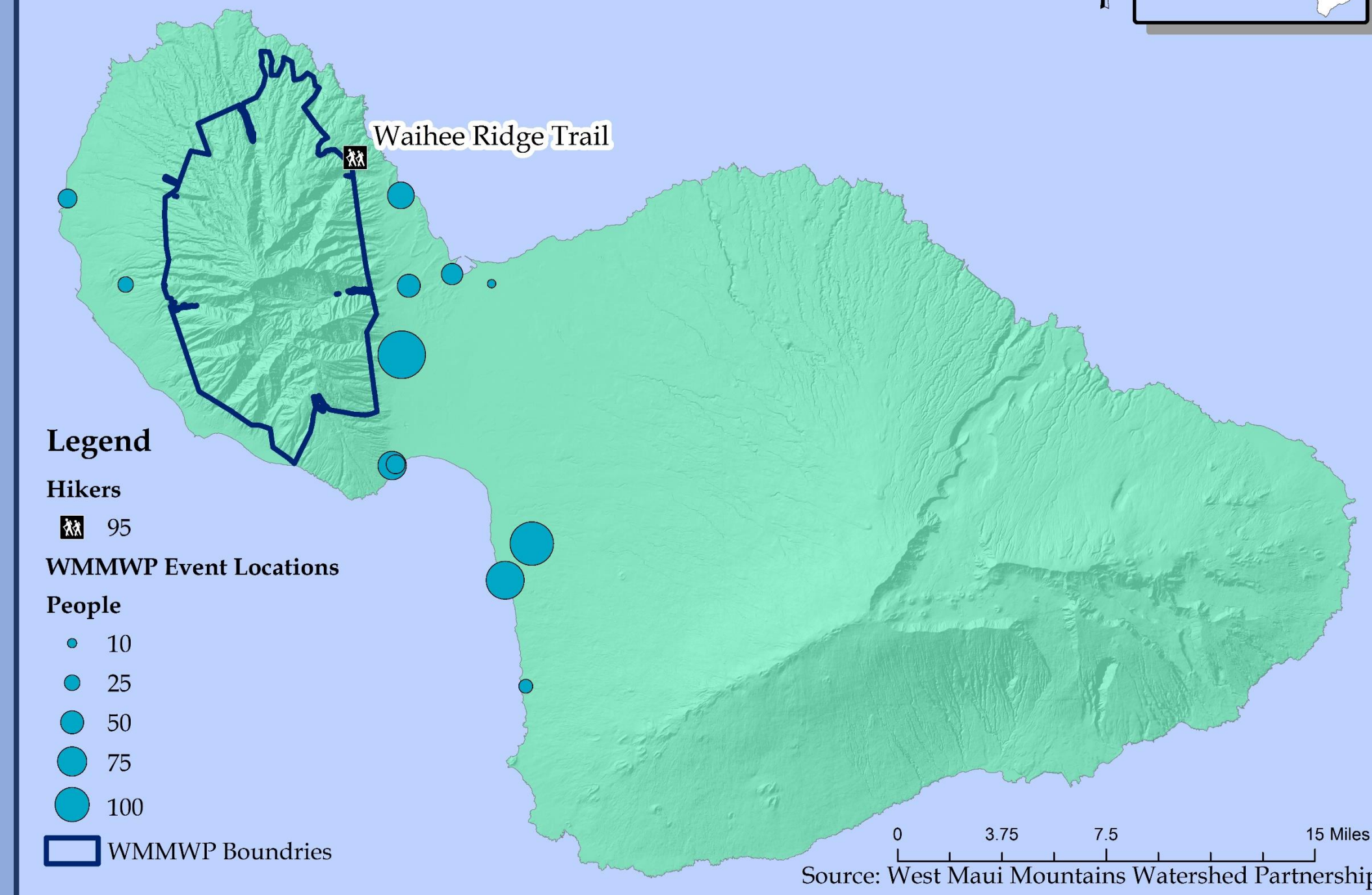


Figure 4 – West Maui Mountains Watershed Partnership focuses its educational outreach on events. Guided hikes are also led on the public Waihee Ridge Trail. This trail provides examples of both native and non native environments. "On November 20, 1998, state and private landowners officially formed the West Maui Mountains Watershed Partnership. Management priorities for this 50,000 acres include: Feral animal control, weed control, human activities management, public education & awareness, water and watershed monitoring, and management coordination improvements."

Discussion

Data provided did not eliminate individuals that attended multiple events or presentations. For example, one individual could have gone to the Maui County Agricultural Fair, and then attended a hike into Waikamoi Preserve. This would have been counted as two separate interactions. Likewise, if two groups attended the same event, one person would be counted as two interactions, one for each group. Presumably this is a fairly narrow margin, however with the parameters of the data collected, it's impossible to account for these overlaps.

The data was expected to show a fairly high rate of overlap, suggesting that organizations all attended the same public events, or all presented to the same groups that were specifically interested in conservation. In reality, this was not the case. While there was some location overlap between groups, there was mostly unique locations, suggesting the number of interactions is close to the calculated result.

East Maui Watershed Partnership is the only organization that has a dedicated Educational Outreach Coordinator of the groups involved in the project. This means that other groups have coordinators that are splitting their time with other tasks. This is fairly clear on the maps, with EMWP having a significantly higher reach across the island, as well as higher attendance to events. Specifically, their Malama Wao Akua art show doesn't overlap with any other organizations, and is still the most prominent feature on the map, with over 700 attendees. EMWP is also the only organization to lead hikes on all four of the trails frequented by conservation groups, even extending into west Maui to the Waihee Ridge Trail.

Outreach in Hana could be improved. The data does not account for an individual from Hana attending events and presentations on other parts of the island, however local contact would guarantee Hana's involvement. Conservation efforts often get friction from the Hana community, and involving and educating residents could alleviate some of their reservations. Additionally, Conservation groups could learn more about resident's concerns and work to accommodate everyone.

Groups other than TNC and MFBRP do volunteer trips. This data was not obtained and if plotted it would be interesting to see additional areas where volunteers are utilized.

References

East Maui Watershed Partnership, eastmauiwatershed.org; West Maui Mountains Watershed Partnership, westmauiwatershed.org; The Nature Conservancy, nature.org/ourinitiatives/regions/northamerica/unitedstates/hawaii/; Maui Forest Bird Recovery Project, mauiforestbirds.org; Maui Bird Conservation Center; County of Maui; Office of Planning, planning.hawaii.gov; Wiley Online Library; Conservation Biology Régnier, C., Bouchet, P., Hayes, K. A., Yeung, K. A., Yeung, N. W., Christensen, C. C., Chung, D. J. D., Fontaine, B. and Cowie, R. H. (2015), Extinction in a hyperdiverse endemic Hawaiian land snail family and implications for the underestimation of invertebrate extinction. Conservation Biology, 29: 1715–1723. doi: 10.1111/cobi.12565

Photos: MFBRP, Robby Kohley, Jack Jeffery, M. Smith

Methodology

Five different conservation organizations were contacted for educational data: West Maui Mountains Watershed Partnership and East Maui Watershed Partnership (Maui watershed partnerships), The Nature Conservancy (an international non-profit with a Hawaiian branch), Maui Forest Bird Recovery Project (a local non-profit doing avian population surveys and habitat restoration), and Maui Bird Conservation Center (a field site of San Diego Zoo Global doing captive propagation of native birds for release).

Data was collected in four areas of public contact: public presentations, event booths, guided hikes, and volunteer trips into field sites. Presentations and events were then plotted by location, hikes by trailhead, and volunteer trips by field plot. Attendance volume was linked to each data point, offering a visual representation of public interactions.

Results

Combined, presentations were held in thirteen locations across the island, events in twenty locations, and guided hikes on four separate trails covering both east and west Maui. These three categories offered a total of 4,756 interactions between individuals and the five conservation groups that were included.

41 total volunteers for TNC, and 36 for MFBRP were utilized at three different field sites on East Maui.

Hana is generally unrepresented. East Maui Watershed Partnership is the only organization to have an event in the area. MBCC's data showed that no one from Hana attended their open house.

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Combined Guided Hikes, Presentations, and Events of Five Conservation Organizations on Maui Michelle Smith Nov2015

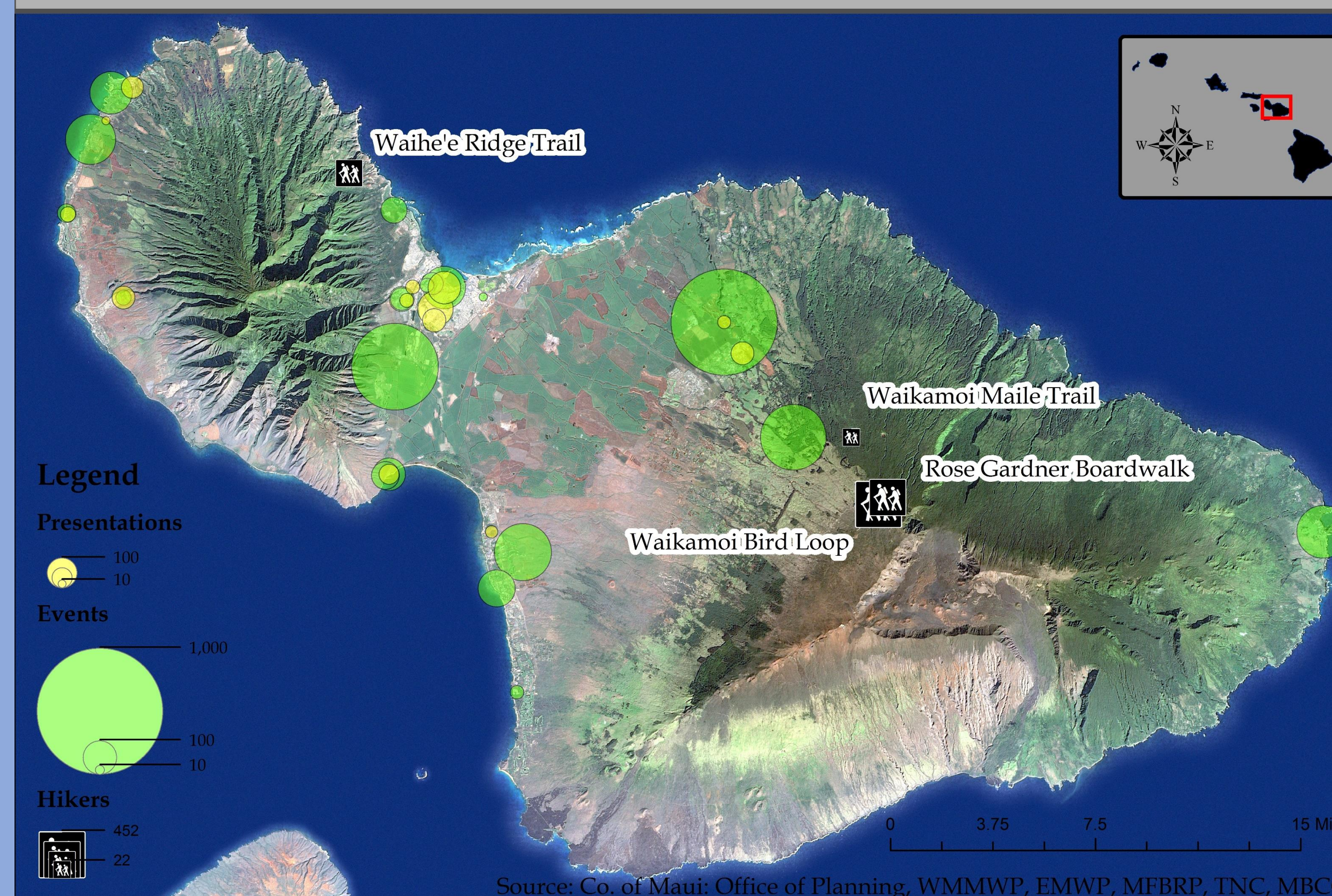


Figure 6 – Total combined guided hikes, presentations, and events held by Maui Bird Conservation Center, Maui Forest Bird Recovery Project, The Nature Conservancy, West Maui Mountains Watershed Partnership, and East Maui Watershed Partnership.

Maui Bird Conservation Center: Open House Attendance by Zip Code Michelle Smith Nov2015

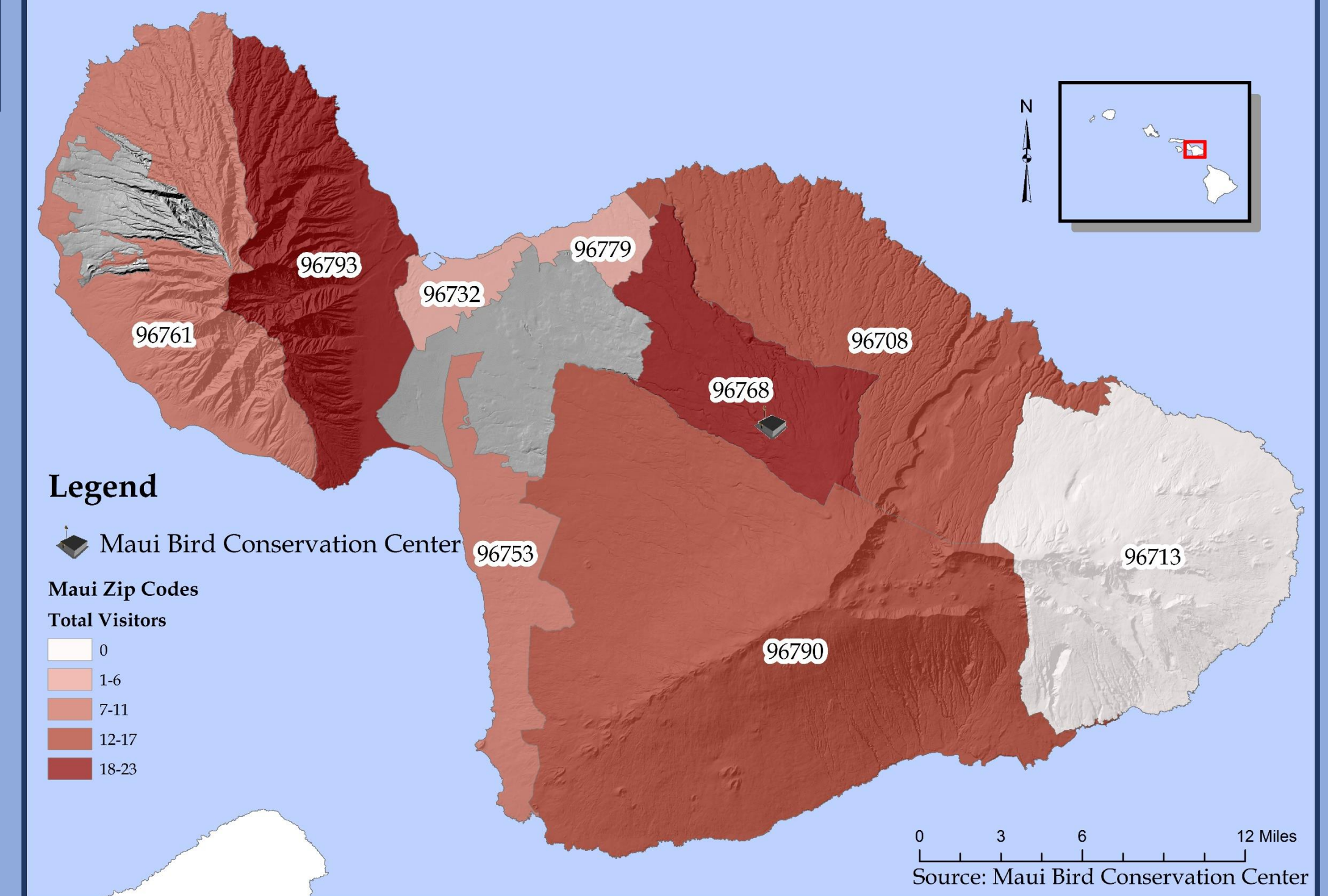


Figure 1: MBCC is located on Olinda Road in the former Olinda Prison. Every November, the facility hosts an Open House aimed at public education. This is the only time the facility is open to the public. Above depicts the home zip codes of guests from Nov'15. The Maui Bird Conservation Center is one of two facilities in the Hawai'i Endangered Bird Conservation Program. The mission of the HEBCP is to aid in the recovery of Hawaiian ecosystems by preventing the extinction and promoting the recovery of Hawai'i's most threatened native birds. HEBCP aims to establish or augment self-sustaining populations of birds in the wild, using captive propagation and reintroduction as crucial management techniques.

East Maui Watershed Partnership: Guided Hikes, Events, and Presentations Michelle Smith Nov2015

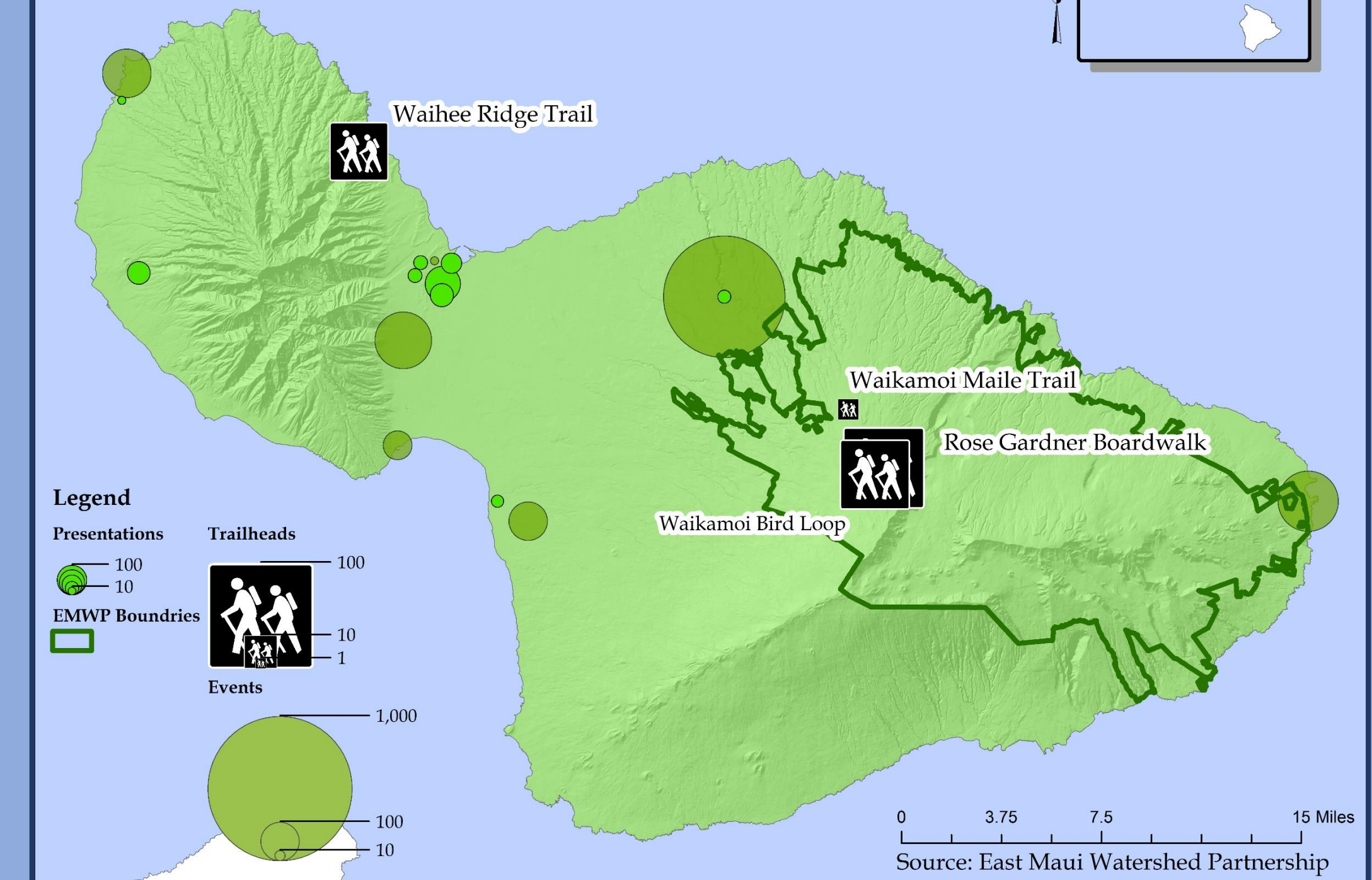


Figure 5: The East Maui Watershed Partnership has an extensive education program that includes guided hikes, public presentations, and booths at local events. Their largest annual event is the Malama Wao Akua art show which this year had over 70 attendees. "The East Maui Watershed Partnership is committed to protecting this watershed for the people of Maui. Our watersheds are our source of water, culture and biodiversity. EMWP is an environmental effort between federal, state and private landowners to preserve the native forest. The overall mission of East Maui Watershed Partnership is to protect the Watershed from degradation by protecting native forests and their component native species as well as educating the local community about conservation and other issues relating to watershed protection."

Conclusion

The goal of this project was to determine the general distribution of educational events around Maui. It was expected that overlap would occur around major events, as well as around groups and venues that are more active in the conservation community. In reality, it was observed that organizations were more specific in their target audiences, and data showed a slight division based on home territory. This is most apparent when you compare East Maui Watershed and West Maui Mountains Watershed Partnerships.

Since data was based on venue, it is slightly misleading that places like Paia and Wailea aren't well represented, as residents from these areas are likely to have attended events and presentations in nearby towns. However, as stated with Hana, visiting these areas specifically could include individuals that would be less likely to attend an event further away. This may require more quantity of smaller events, which may not be feasible with all organizations.

By attending events, giving presentations, leading hikes, and offering volunteer opportunities, organizations are providing a variety of options for the public to connect with the native forest. These connections and interactions are what bring the public closer to what is so special about Maui. It is difficult to convince someone to value and protect something, when they don't even know it is there, or why it should be important to them.

People save things which hold value to them, and we need to work together to save Maui.