

Invasive Plant Control Efforts at BIISC



Jennifer Randall (Tamaariki)
BIISC Field Operations Supervisor



BIISC Plant Targets



*Buddleja
madagascariensis*



*Cryptostegia
madagascariensis*



*Pereskia
aculeata*



*Cotoneaster
pannosus*



Rubus sieboldii



Ilex cassine



Phenax hirtus

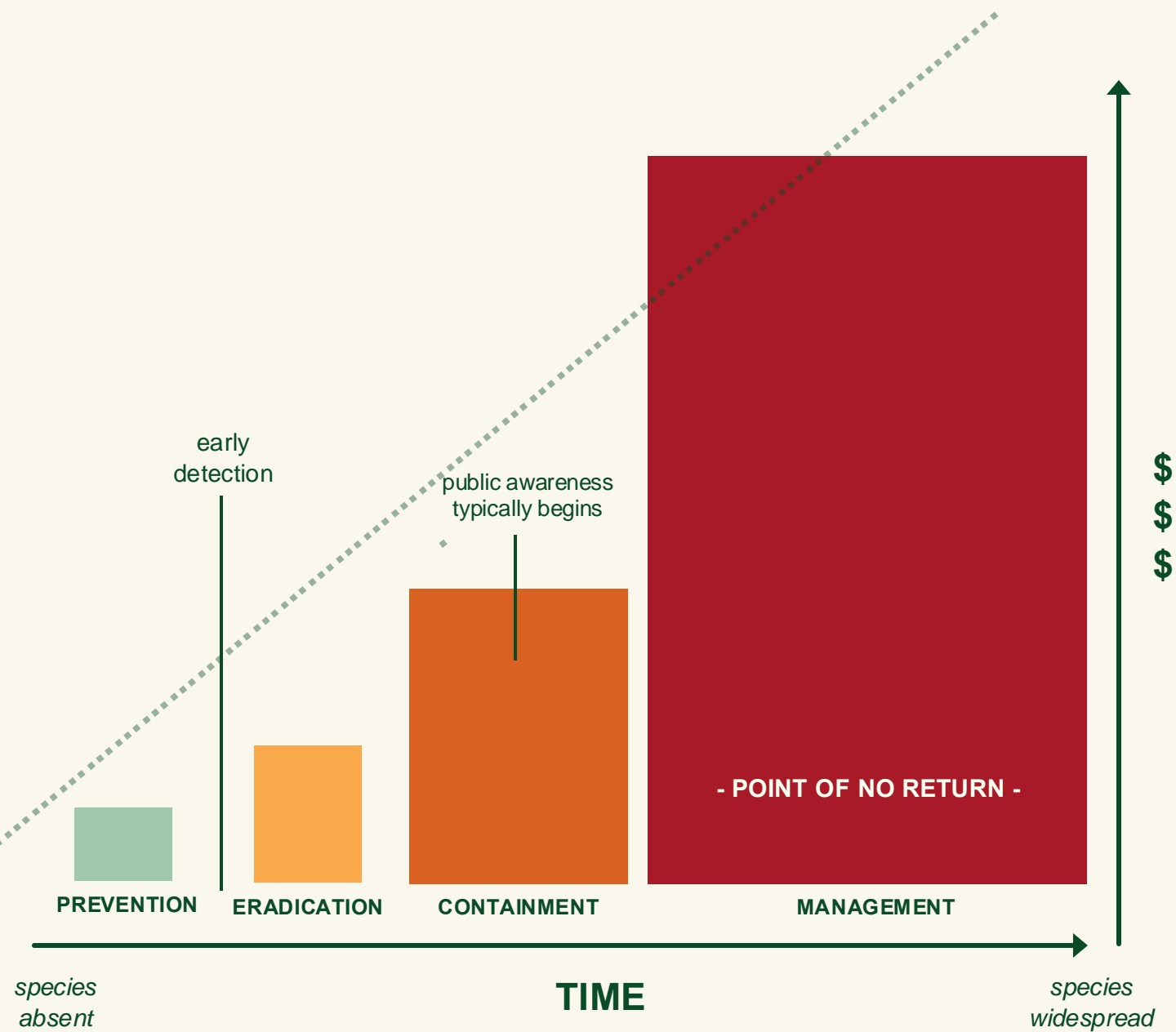


*Lonicera
hildebrandiana*



*Chromolaena
odorata*

BIISC ERADICATION TARGETS

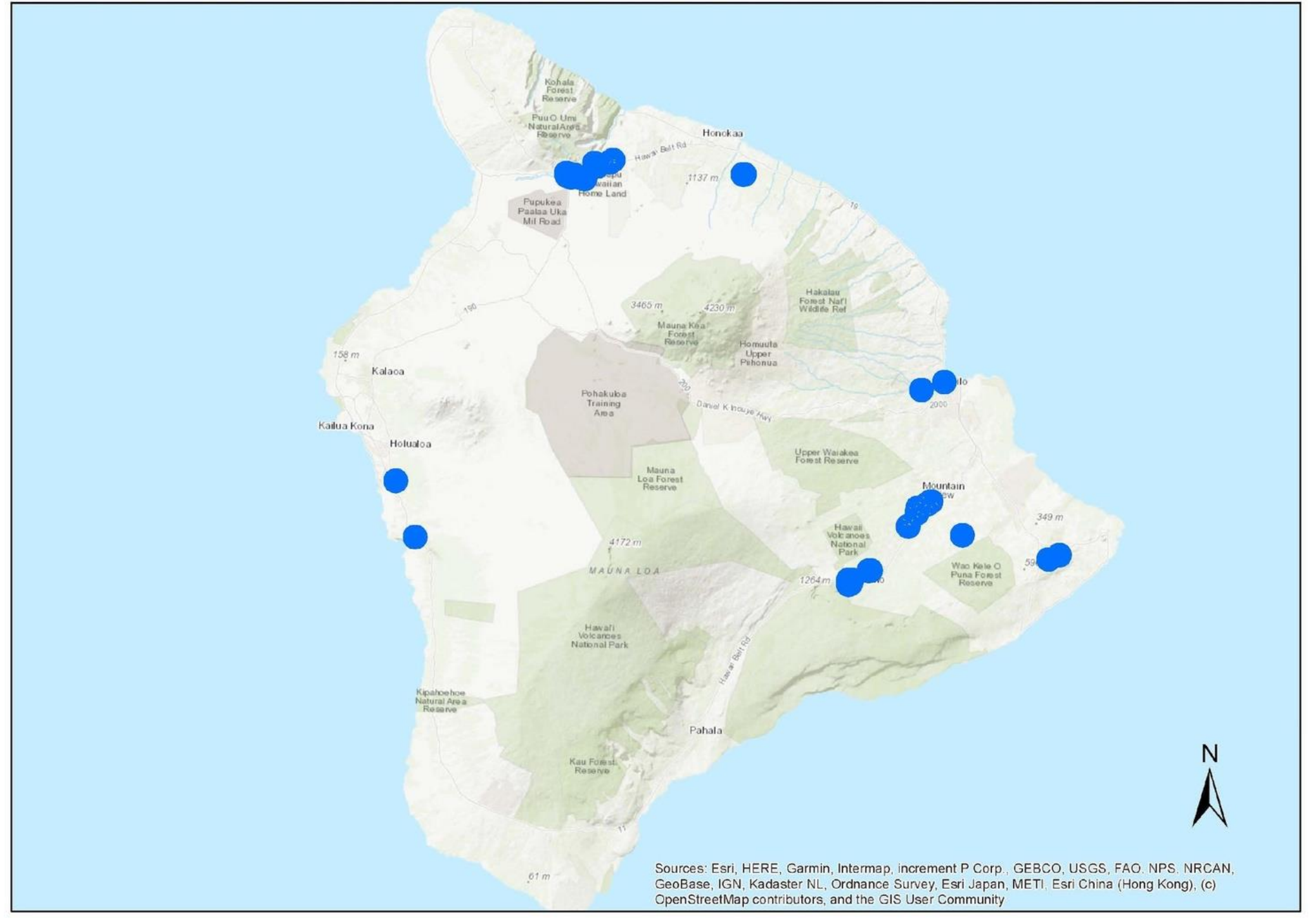


Smokebush

Buddleja madagascariensis



Smoke Bush Locations 2009 - Current



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

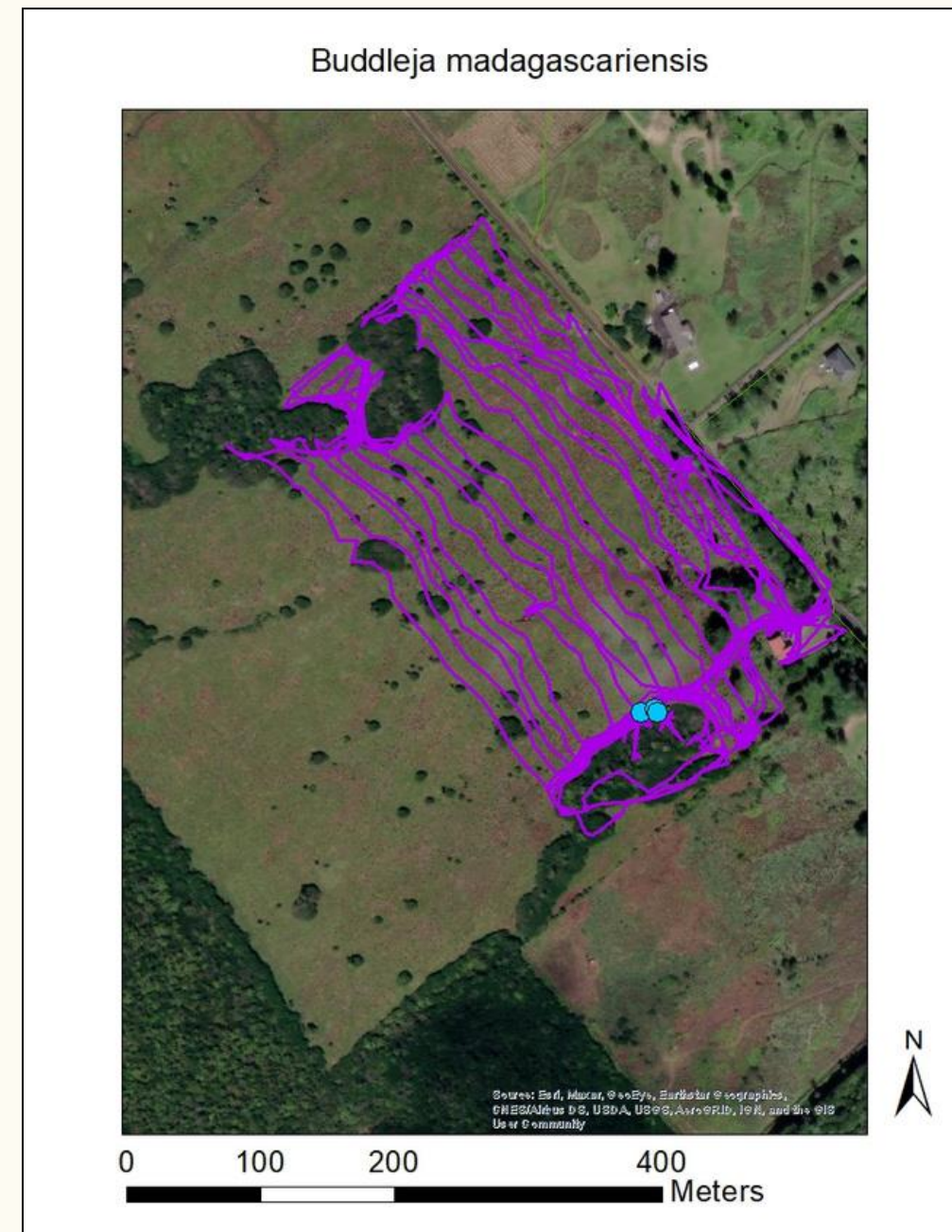
Smokebush

Buddleja madagascariensis



Eradication effort started in 2009

Historic sites: **33** Active sites: **1**



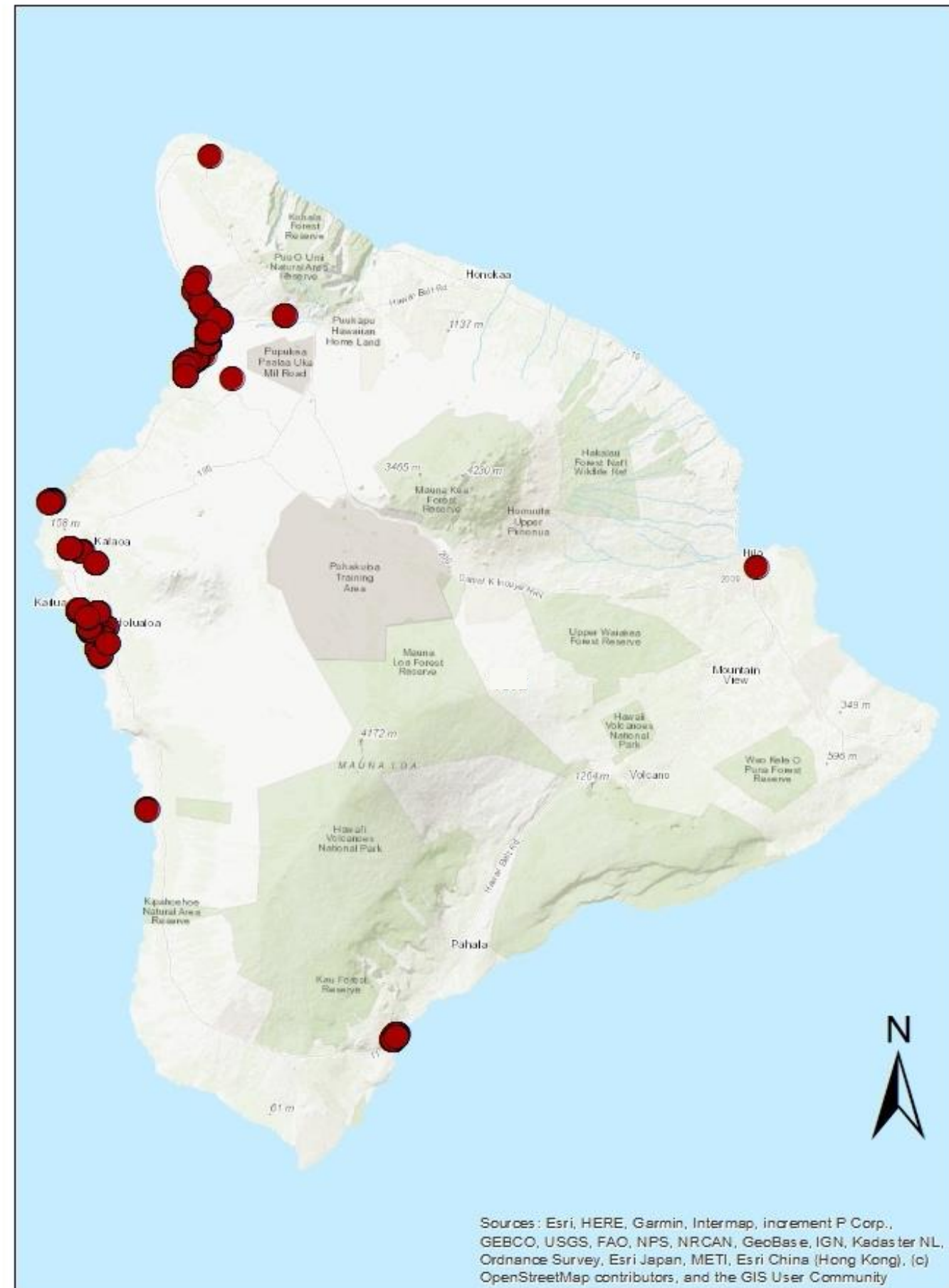
- **30 sites are in a monitoring phase** where no juveniles have been detected for 2-4 yrs.
- **1 site is active in the control and monitor phase** to exhaust the seed bank from 1 adult found 2 years ago.
- All active sites are in the **Upper Puna area.**

Rubbervine

Cryptostegia madagascariensis



Rubbervine Locations 2009 - Current



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

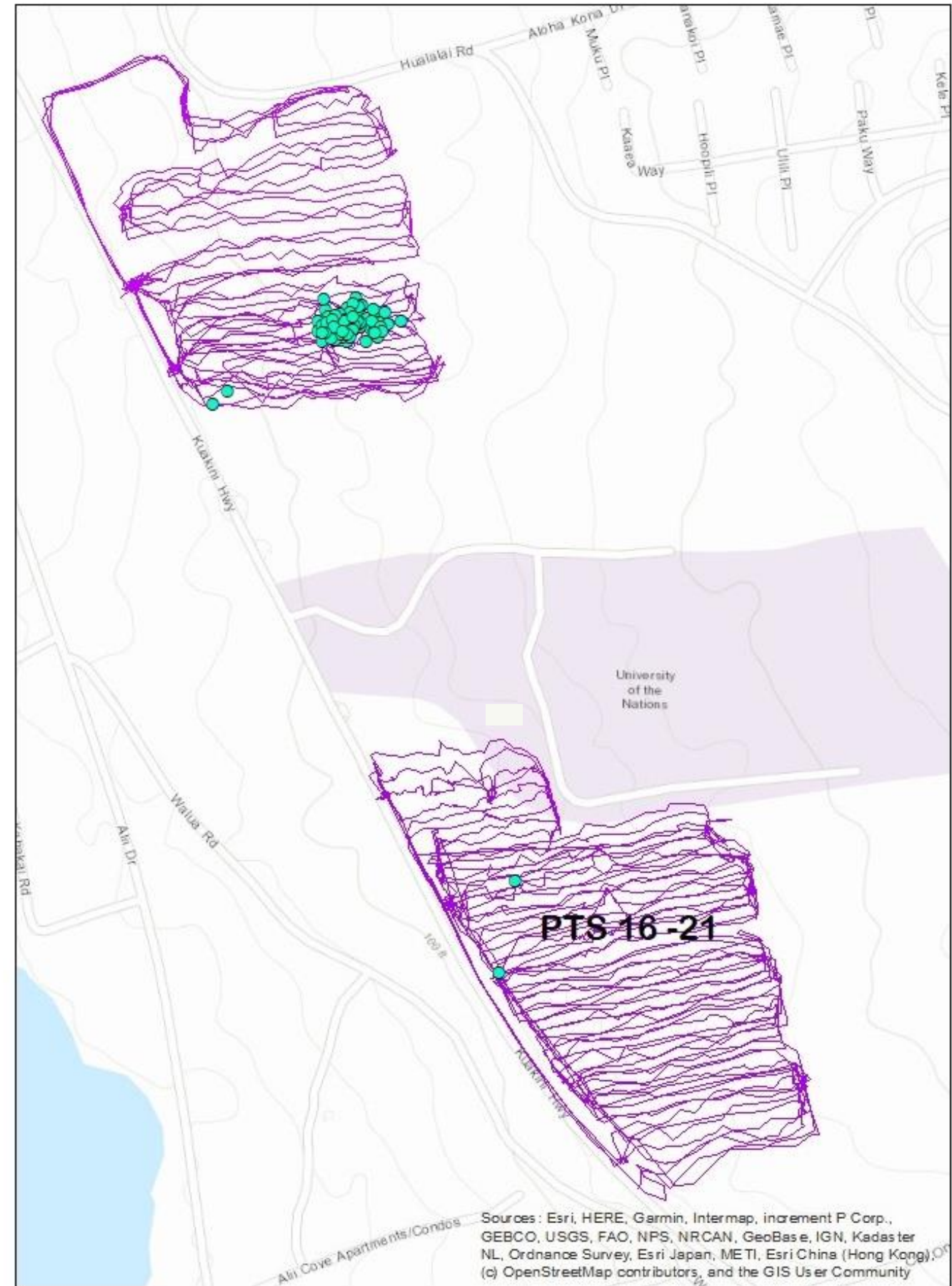
Rubbervine

Cryptostegia madagascariensis



Rubbervine Kona

J Tamaariki
BIISC
2024



0 150 300 600 Meters

Rubbervine

Cryptostegia madagascariensis



Eradication effort started in 2009

Historic sites: **31** Active sites: **2** New sites: **2**

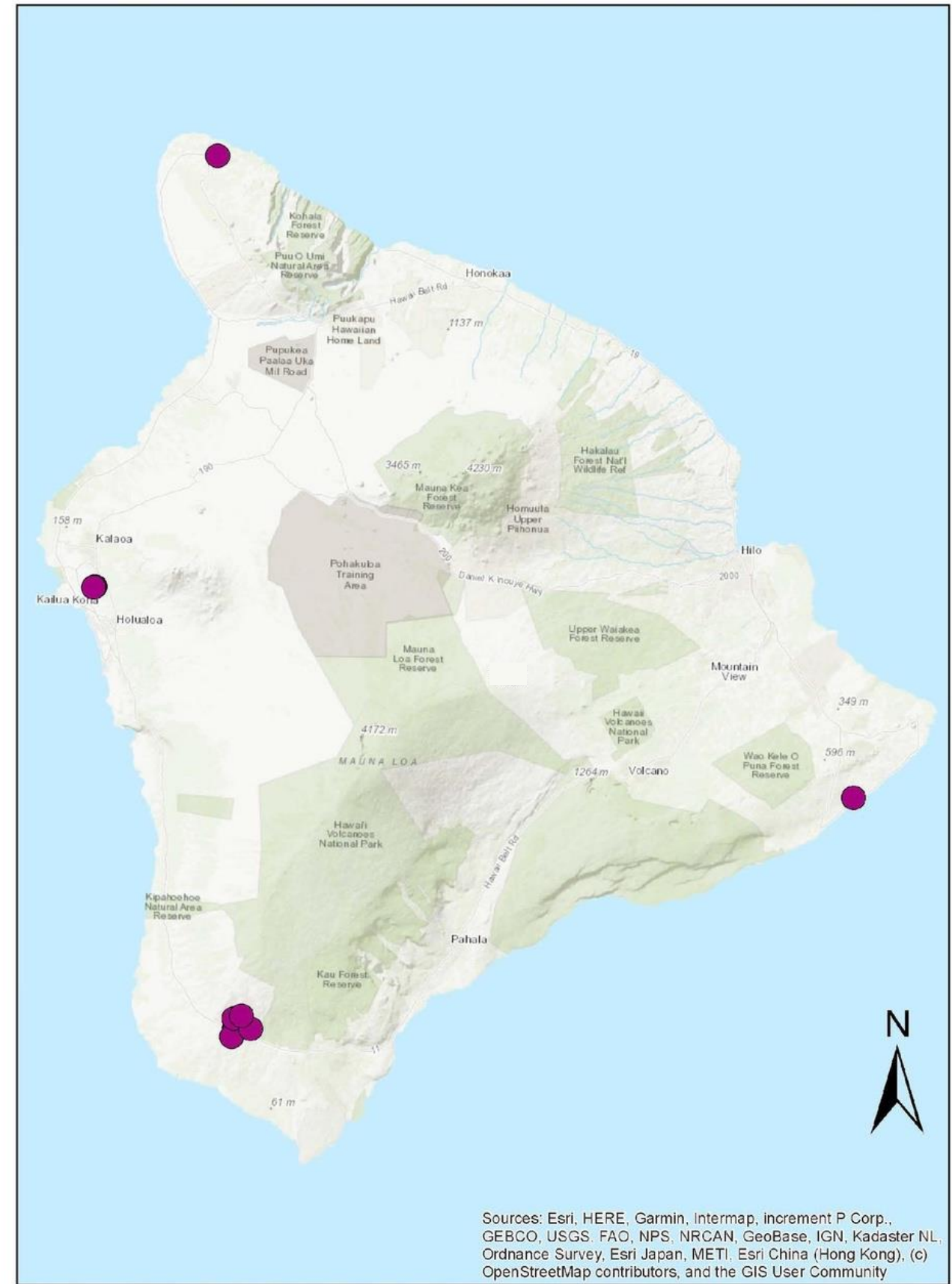
- Between 2009 and 2017 a total of 37 mature plants were controlled, **all 33 sites have been in the monitoring phase with no new seedlings observed** with 1 site in control and monitor phase.
- **In 2023, a new population in Kailua-Kona was discovered** via a public report (a 7-acre parcel used as a sheep pasture) crews found 34 mature plants and 40 juveniles during the initial sweep.
- **In June 2024, another new population was detected in the Mauna Kea Resort area,** we assessed the population to contain 8 mature plants and 6 juveniles. Delimiting work has begun.
- After 3 years of trying to get permission to enter a large property in Ka'u we have a contact.

Barbados Gooseberry

Pereskia aculeata



Barbados Gooseberry Locations 2011- Current



Barbados Gooseberry

Pereskia aculeata



Eradication effort started in 2011

Historic sites: **14** Active sites: **2** New sites: **2**

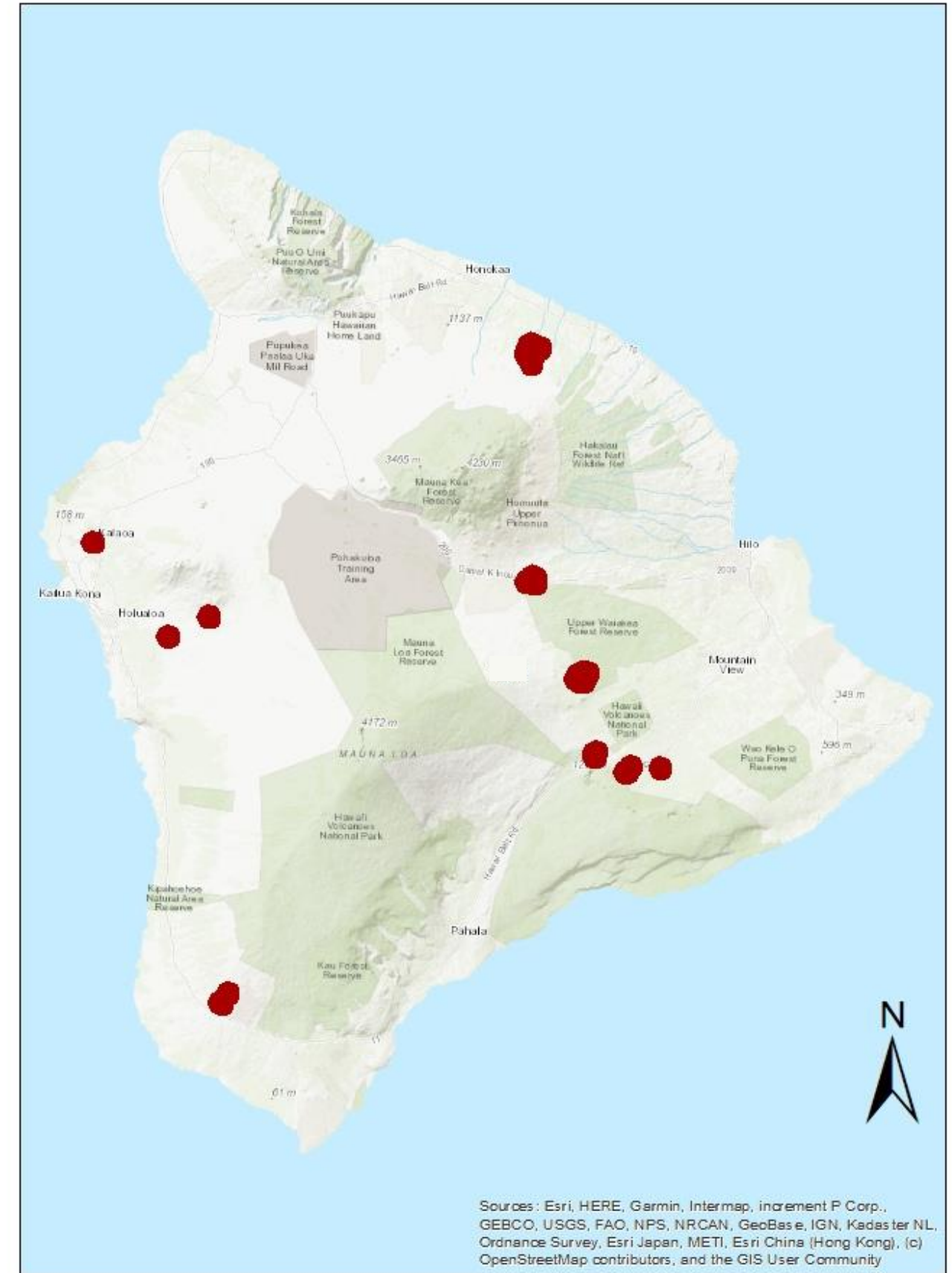
- **In 2022 ,1 new site was reported** by a landowner in HOVE, BIISC crews removed it and there has been no regrowth to date.
- **In 2023, another new site was reported in Lower Puna** by the coast, in a huge monkeypod tree. All of the plant material couldn't be removed due to its height in the tree.
- **A large landscaped planting still exists at Ace Hardware in Ocean View,** where the manager insists it contributes to the security of their property.
- **Landowners at all known sites are extremely cooperative** and grateful for help with removal.

Cotoneaster

Cotoneaster pannosus



Cotoneaster Locations 2012 - Current

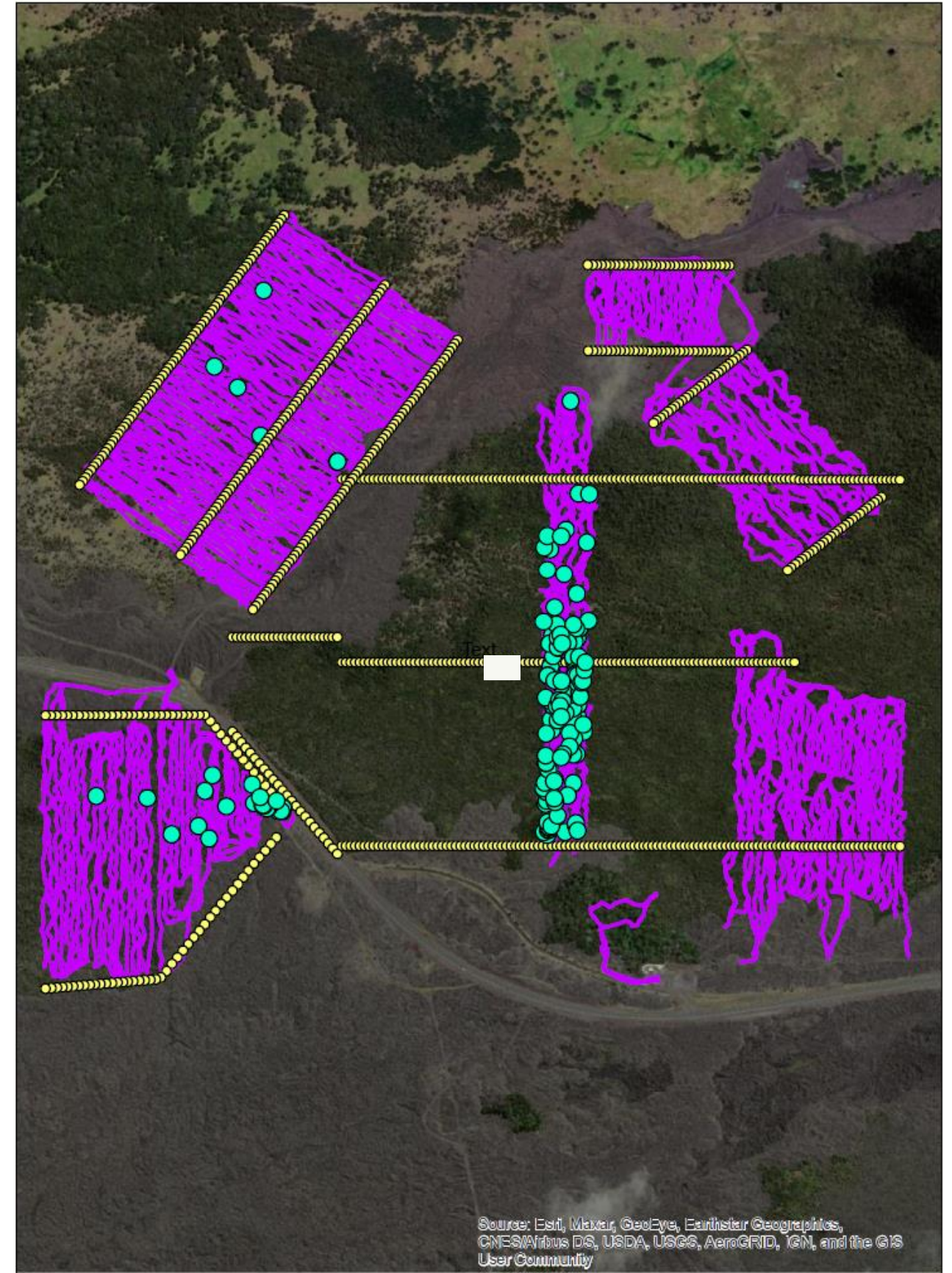


Cotoneaster

Cotoneaster pannosus



COTPAN Kipuka 21 2023



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Cotoneaster

Cotoneaster pannosus



Eradication effort started in 2012

Historic sites: **10** Active sites: **4**

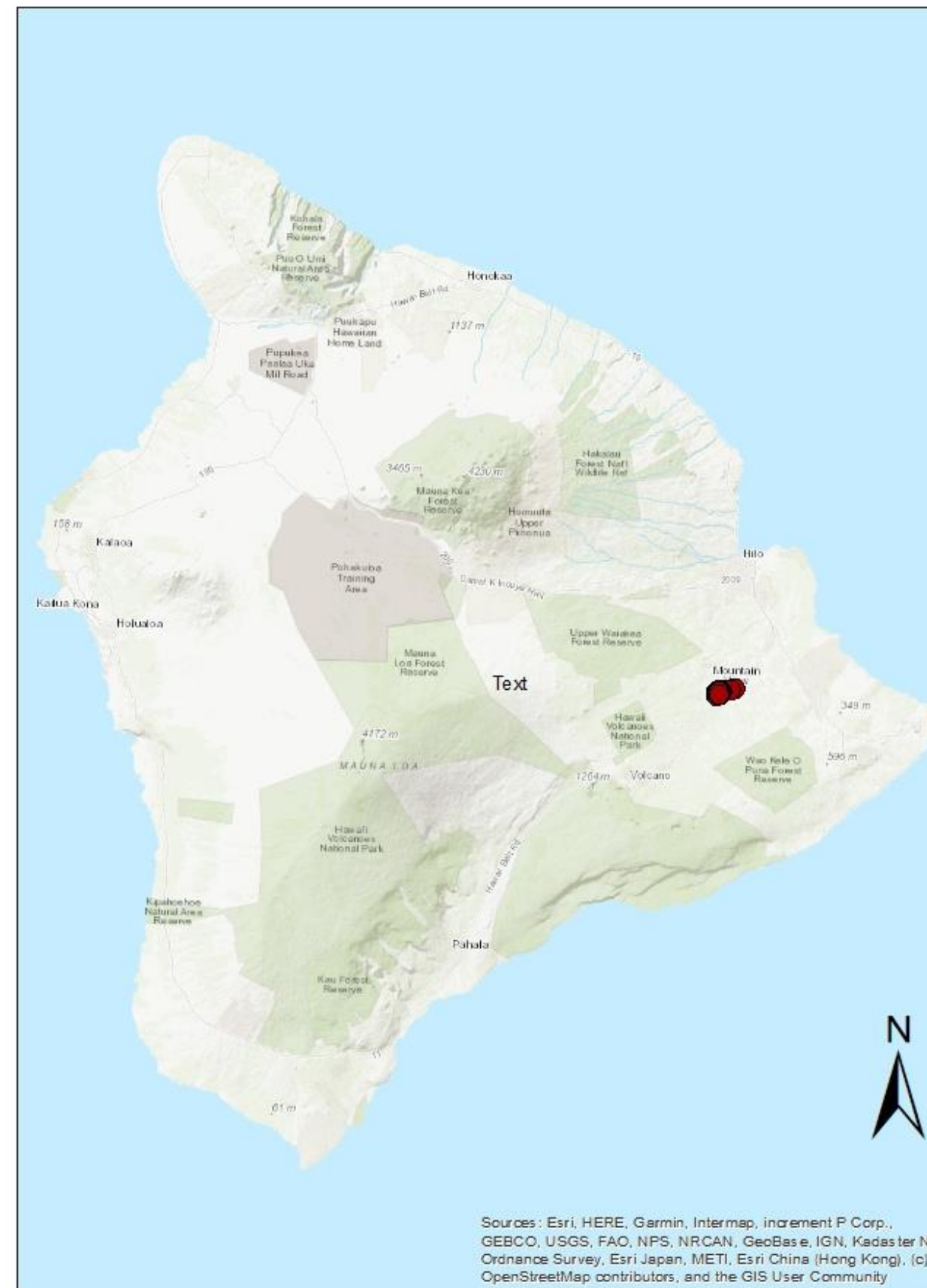
- **Kipuka 21** - (State land surrounding Kaulana Manu Nature Trail off Saddle Road) is one of BIISCs main sites, it was re-swept contiguously in 2021 - 2023 twice to map the core and control plants.
- **In mid-2023**, delimiting search areas were created to keep the infestation to the core.
- **Kukaiau Ranch control efforts** have been limited to private property owners as the ranch was sold in 2022 and contact with the new owner Melaleuca Corp. has been difficult to achieve.
- **Volcano has the remaining 2 active sites** in the monitoring phase with only 2 juveniles detected to date.

Molucca raspberry

Rubus sieboldii



Molucca Raspberry Locations 2012- current



Molucca raspberry

Rubus sieboldii

RubSie Psyke Rd

J Tamaariki
BIISC
2024

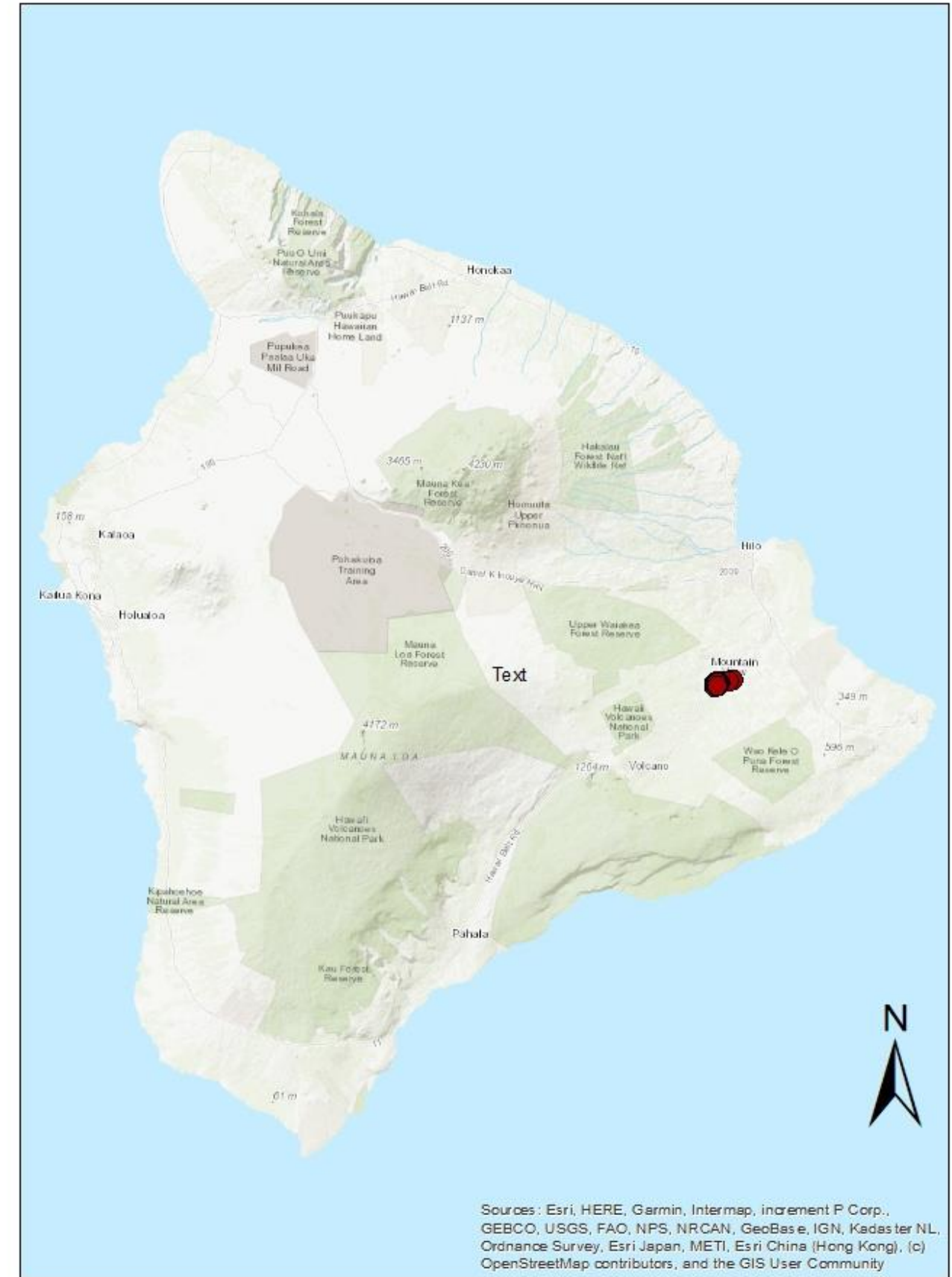


Sources: Esri, HERE, DeLorme, Swire, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



0 0.325 0.65 1.3
Kilometers

Molucca Raspberry Locations 2012- current



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBas e, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Molucca raspberry

Rubus sieboldii



Eradication effort started in 2013

Historic
sites:

1

Active
sites:

1

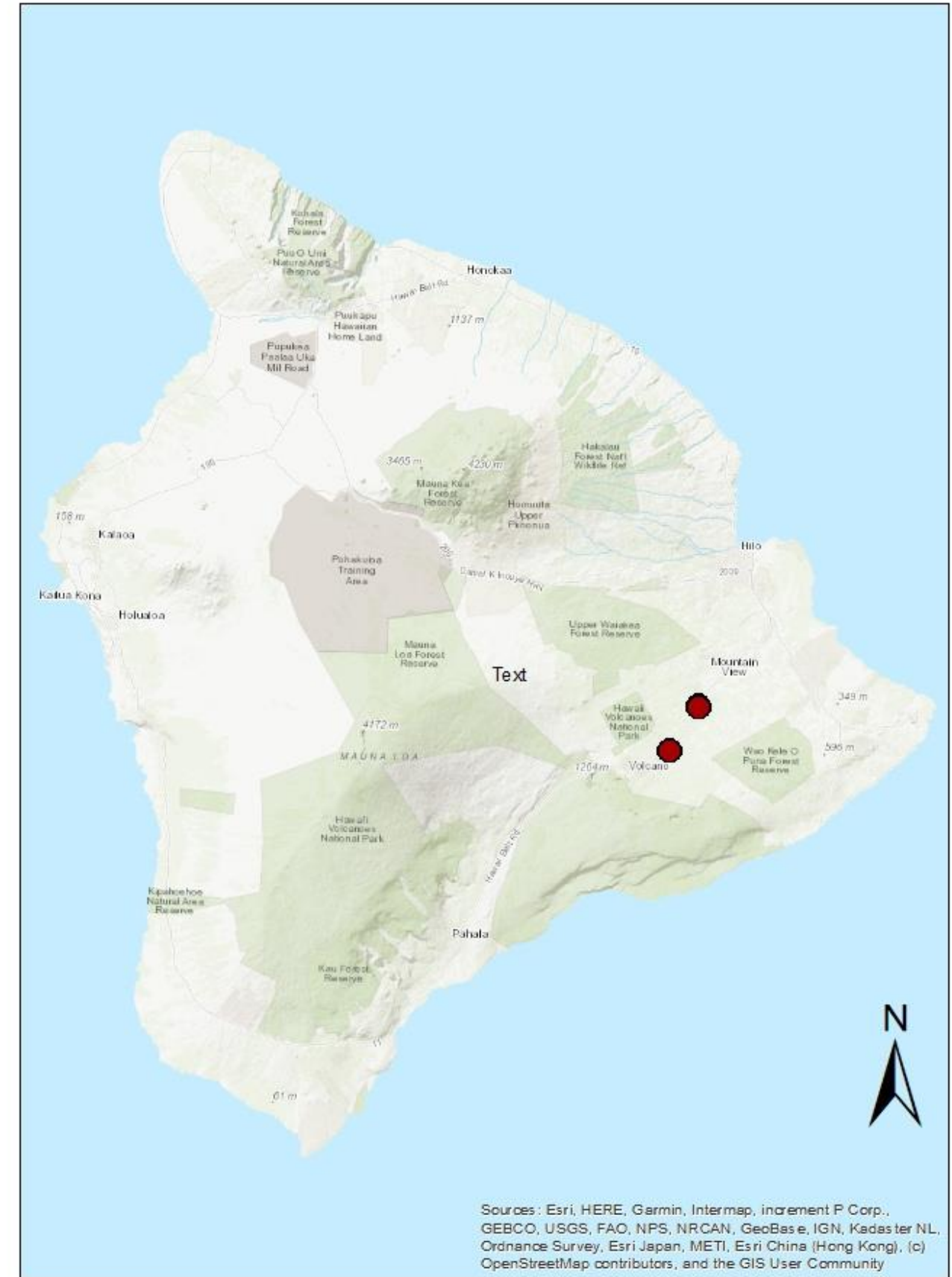
- **In 2022**, an assessment of the efficacy of over 10 years of control efforts was completed. It was clear the population core was not changing in acreage or structure, and herbicide control efforts were not effective in suppressing adult plants, allowing plants to mature and fruit.
- **In 2023, RubSie was moved to a containment species** based on the assessment.
- **Quarterly monitoring visits** are done on all roads 1000 meters around this population.

Dahoon Holly

Ilex cassine

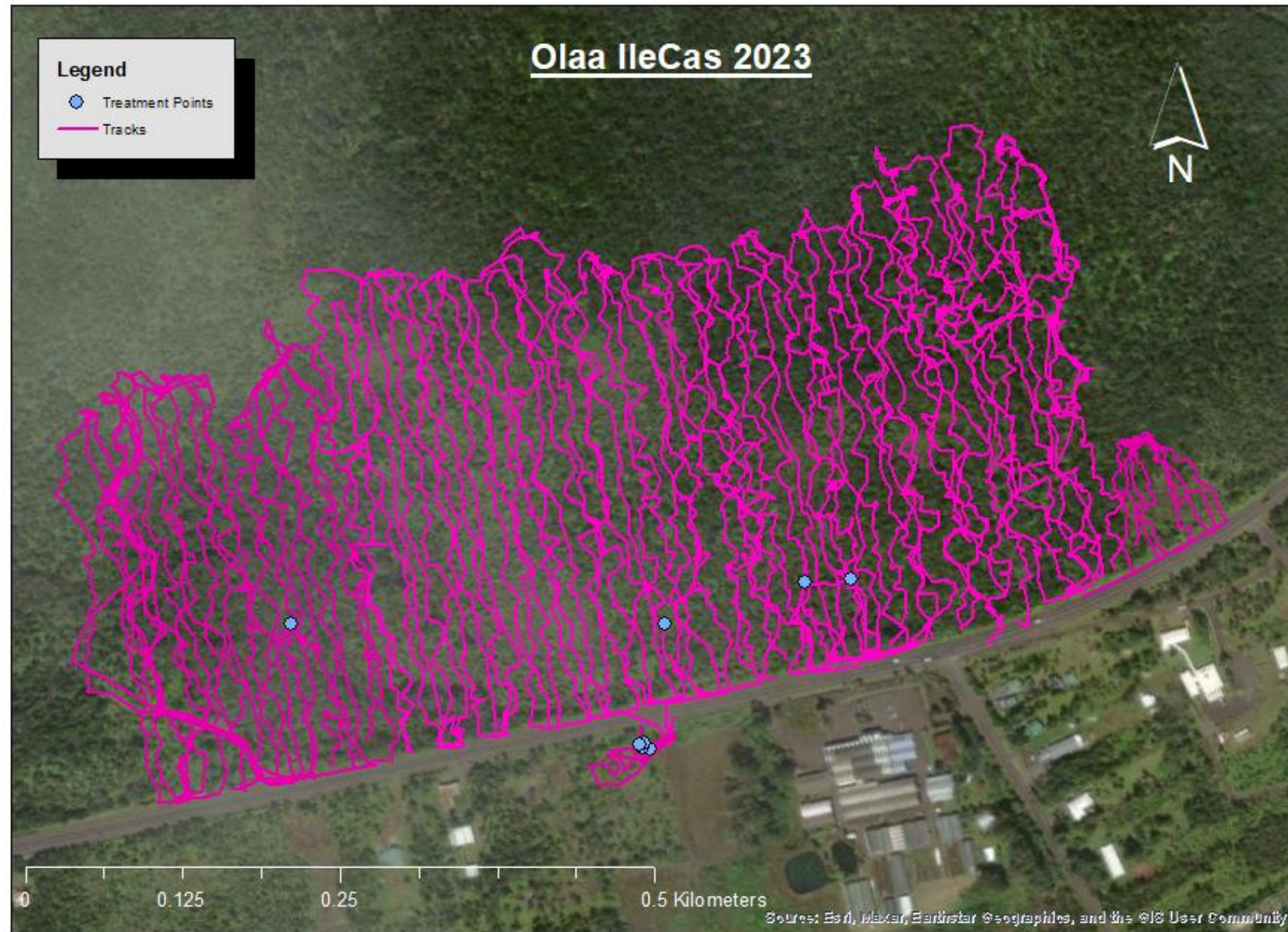


Dahoon Holly Locations 2014 - Current

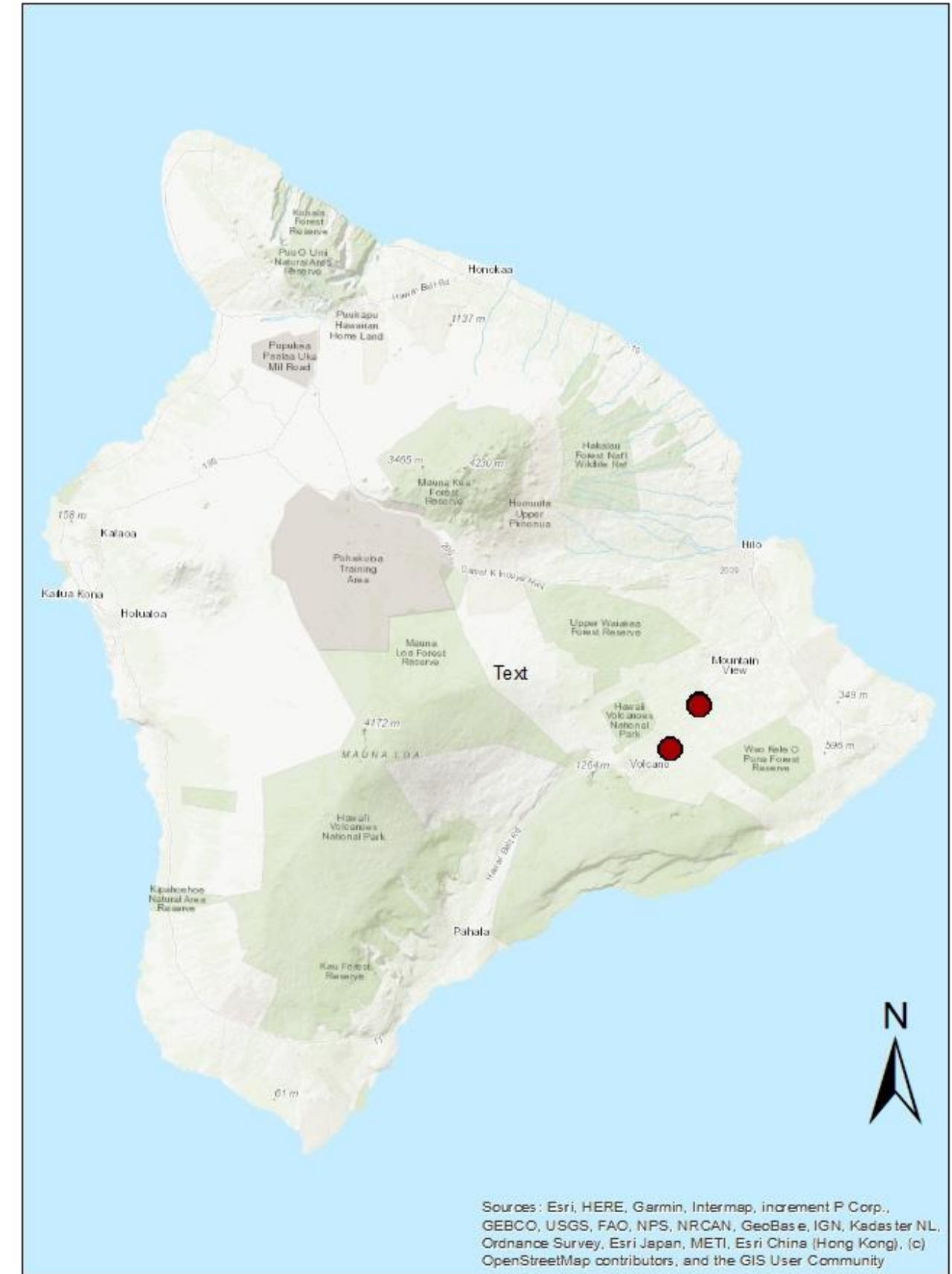


Dahoon Holly

Ilex cassine



Dahoon Holly Locations 2014 - Current



Dahoon Holly

Ilex cassine



Eradication effort started in 2014

Historic sites: **2**

Active sites: **2**

- **Control efforts are successful** for this target species
- Population densities have decreased and to date there are **no new sites detected on Hawai'i Island.**

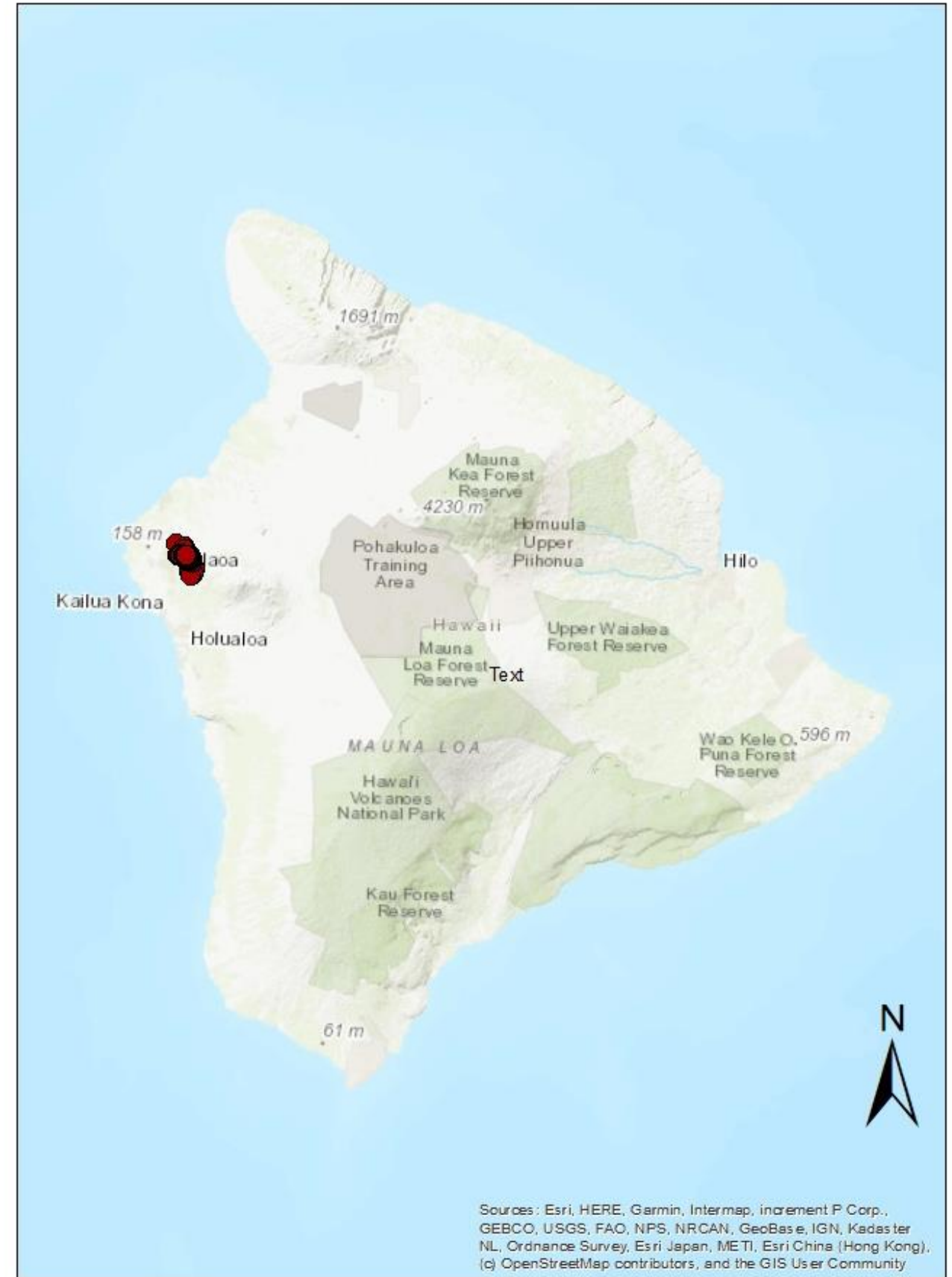


Phenax

Phenax hirtus



Phenax Locations 2020 - Current



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

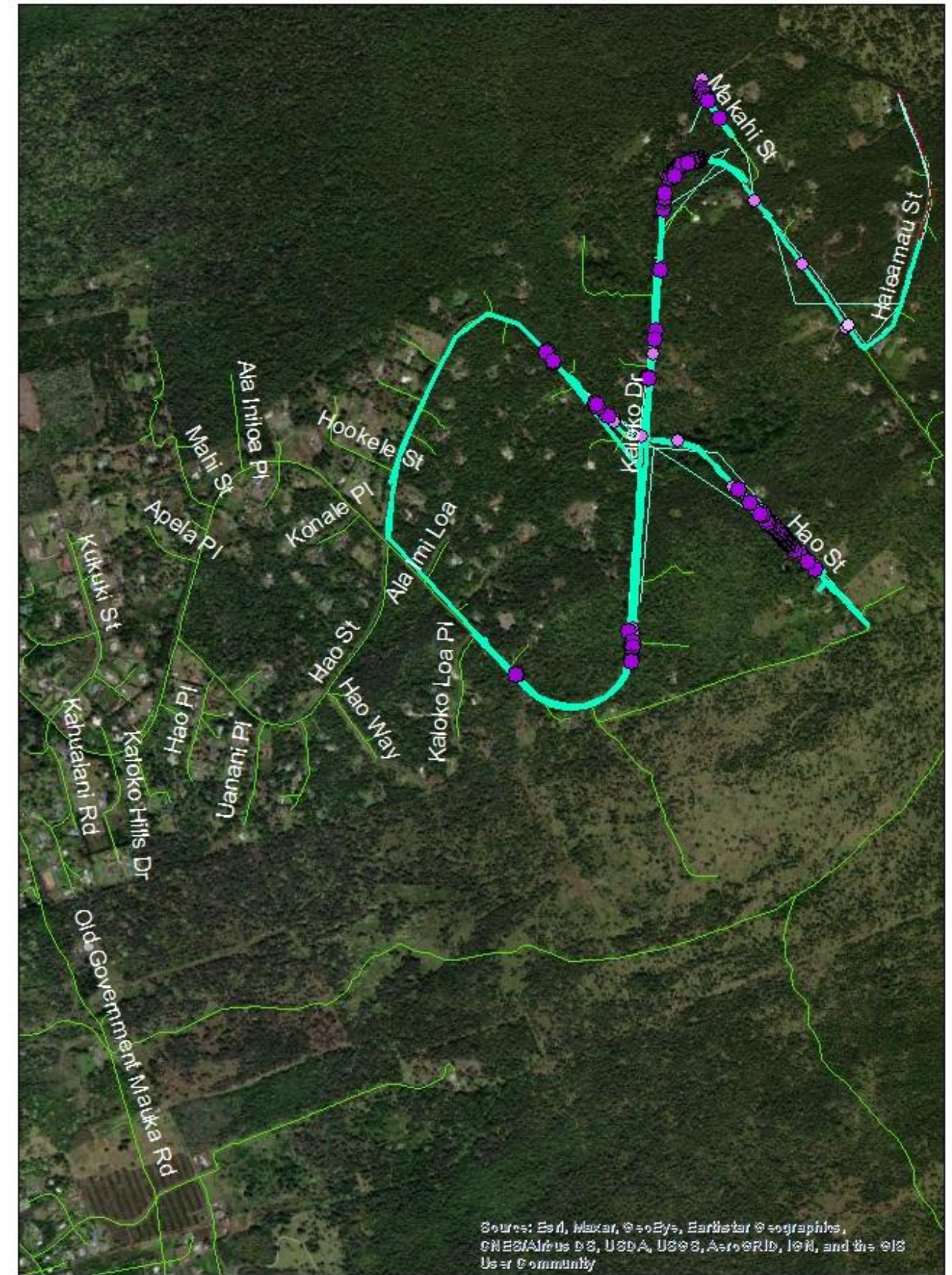
Phenax

Phenax hirtus



Phenax Kaloko Mauka

J Tamaariki
05/2024
BHSC



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Phenax

Phenax hirtus



Detected in 2017; containment started in 2020

Historic
sites:

1

Active
sites:

1

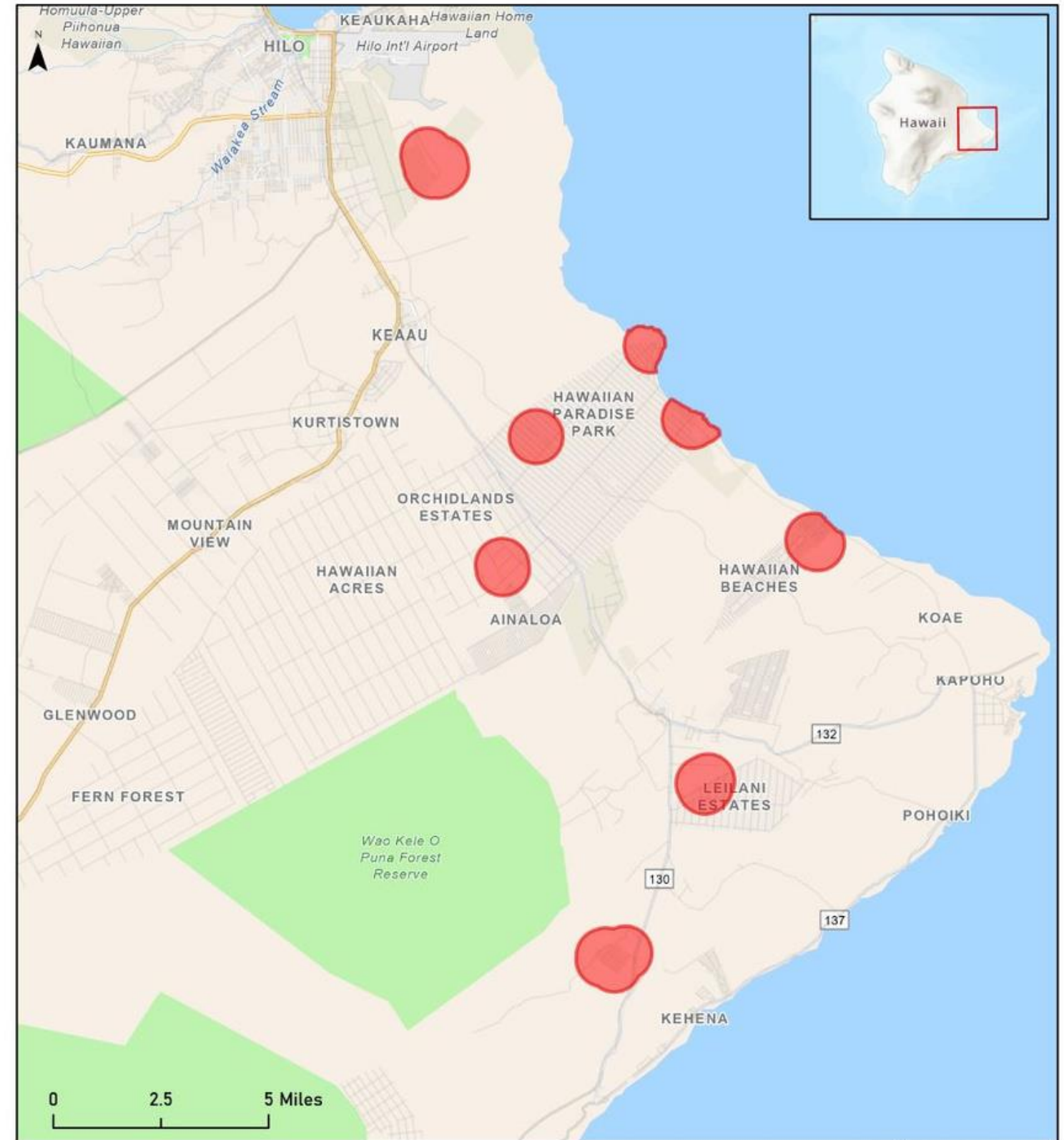
- Phenax is **only found in the upper elevations of Kaloko Mauka** in North Kona.
- **In 2021, quarterly control visits were conducted** in all known roadside plant locations to control the spread caused by vehicles, pedestrians, and roadside mowing.
- A population on the mauka and makai side of the upper Kona highway was treated twice with no recurrence of Phenax due to the rapid growth of other roadside weeds out-competing it.
- **Roadside populations are controlled with spot treatment every 4-5 months.**
- To date, **there are no other known populations on the island.**

Devil Weed

Chromolaena odorata



Current BIISC Devil Weed Control Areas



Data 11/3/2021 KLM

Devil Weed

Chromolaena odorata



CHRODO Hilo Dragstrip 2023



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Devil Weed

Chromolaena odorata



Detected in late 2020; eradication started in 2021

Historic
sites:

1

Active
sites:

10

- **Since first detected at the Hilo Drag Strip in 2020**, 9 new sites have been located throughout Lower Puna subdivisions.
- **Obtaining landowner permission in Lower Puna is challenging** however BIISC can control roadside populations in most areas.
- BIISC noticed **ChrOdo populations began to seed more quickly** once suppression methods were started, increasing our revisit frequency from 3-month to 2-month cycles of control.

Giant Burmese Honeysuckle

Lonicera hildebrandiana



LonHil Locations 2021 - Current



Giant Burmese Honeysuckle

Lonicera hildebrandiana



Detected in 2012, eradication started in 2021

Historic
sites:

1

Active
sites:

2

New
sites:

1

- **In 2012**, Lonhil was detected on 2 properties in Volcano Village.
- **In Jan 2017**, the plant was first collected and sent to Bishop Museum as a naturalized population.
- **Vines spread throughout the canopy**, and cause limb breakage and the take-down of 'ōhi'a

Giant Burmese Honeysuckle

Lonicera hildebrandiana



Giant Burmese Honeysuckle

Lonicera hildebrandiana



Detected in 2012, eradication started in 2021

Historic
sites:

1

Active
sites:

2

New
sites:

1

- **In 2021, herbicide trials began.** Being a honeysuckle, we are still working on effective treatment for the largest vine (12-16" dbh), the smaller vines (2"-6" dbh) were easily controlled using Garlon 4 Ultra at a 50% basal bark treatment.
- **In 2021, a new plant was found close to the initial population,** it took until 2024 to obtain permission to remove it. This plant was removed in 8 truck loads!

BIISC at Hakalau

Photinia & *European Holly*

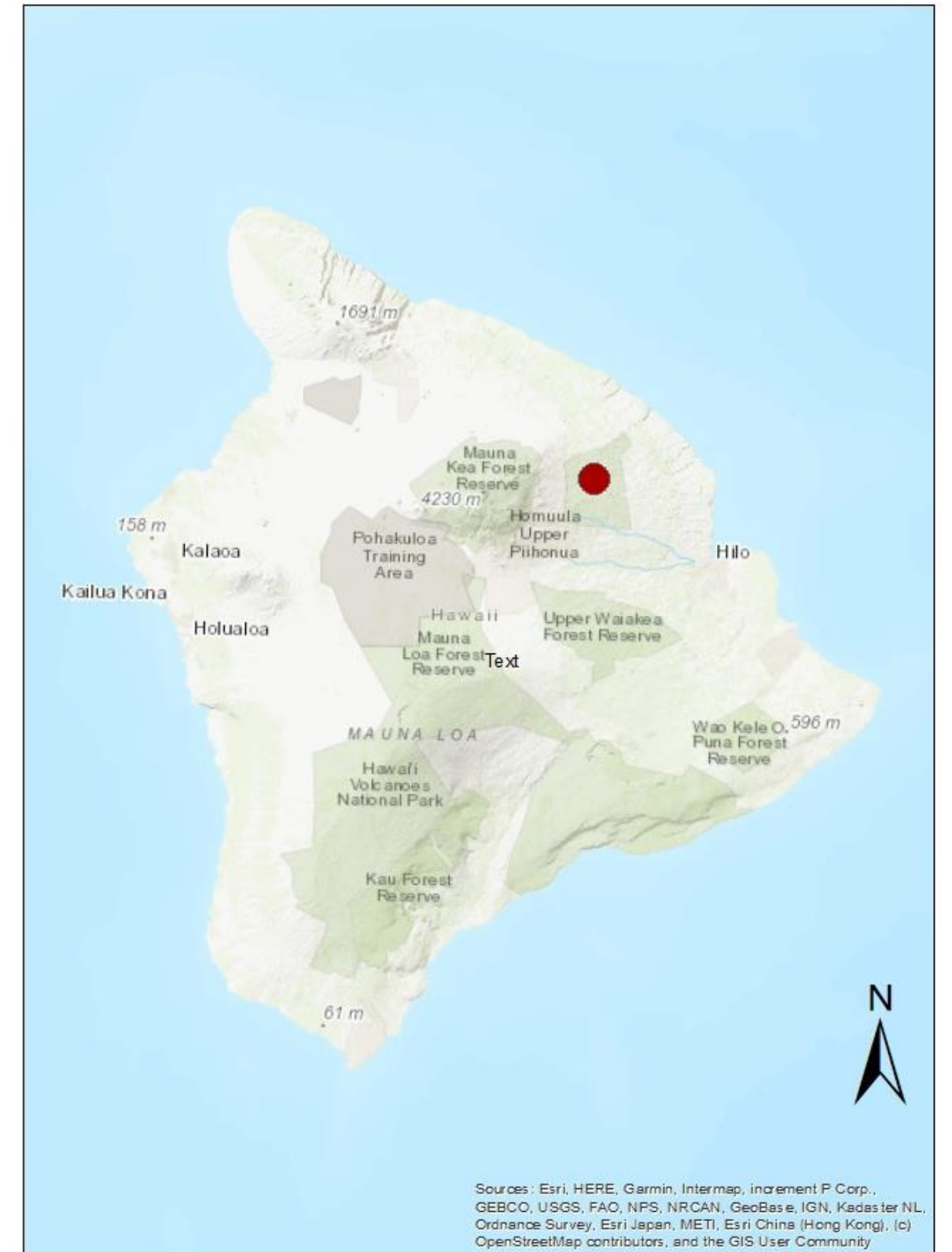


Photinia davidiana



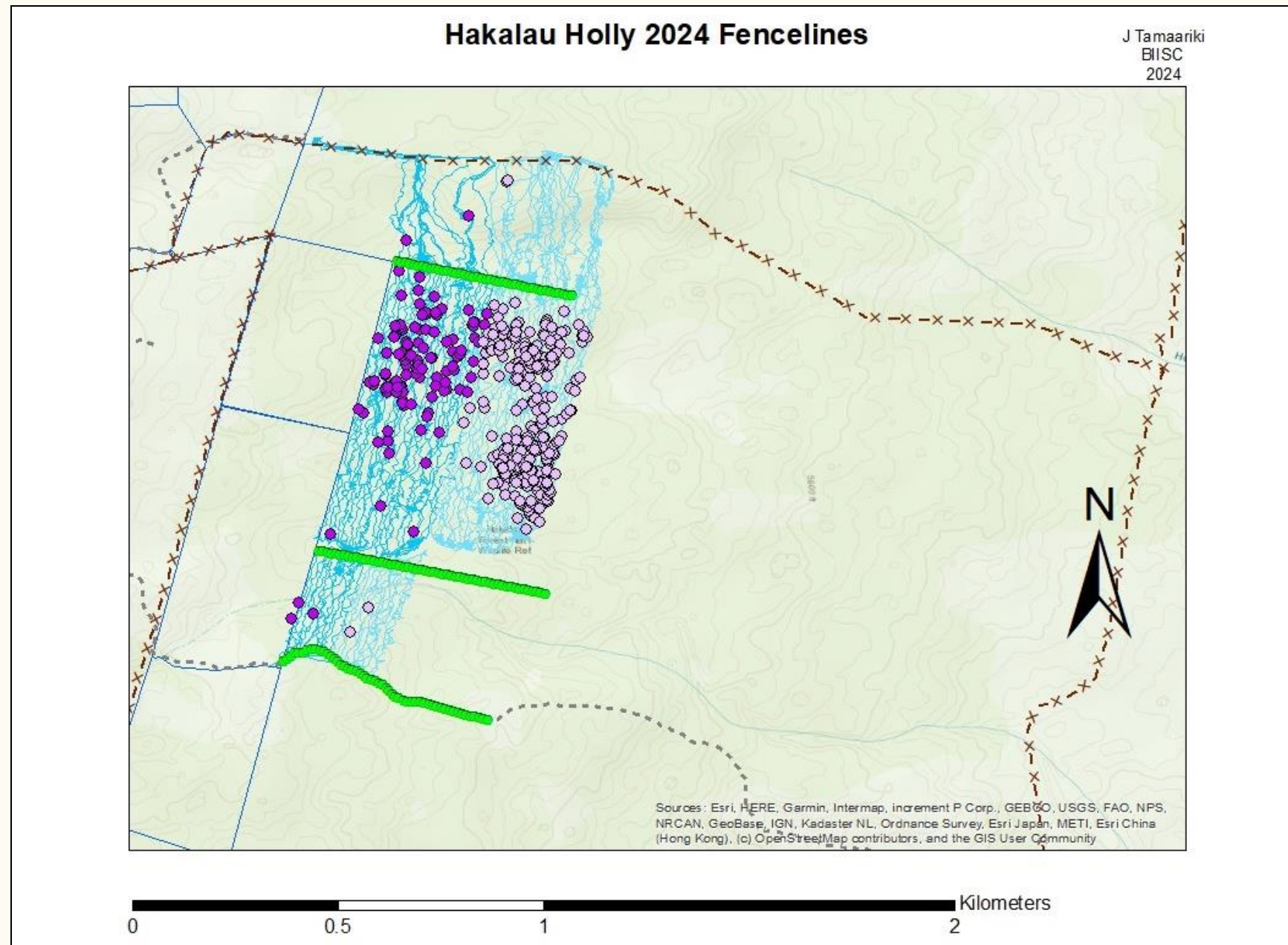
Ilex aquifolium

Hakalau Wildlife Refuge

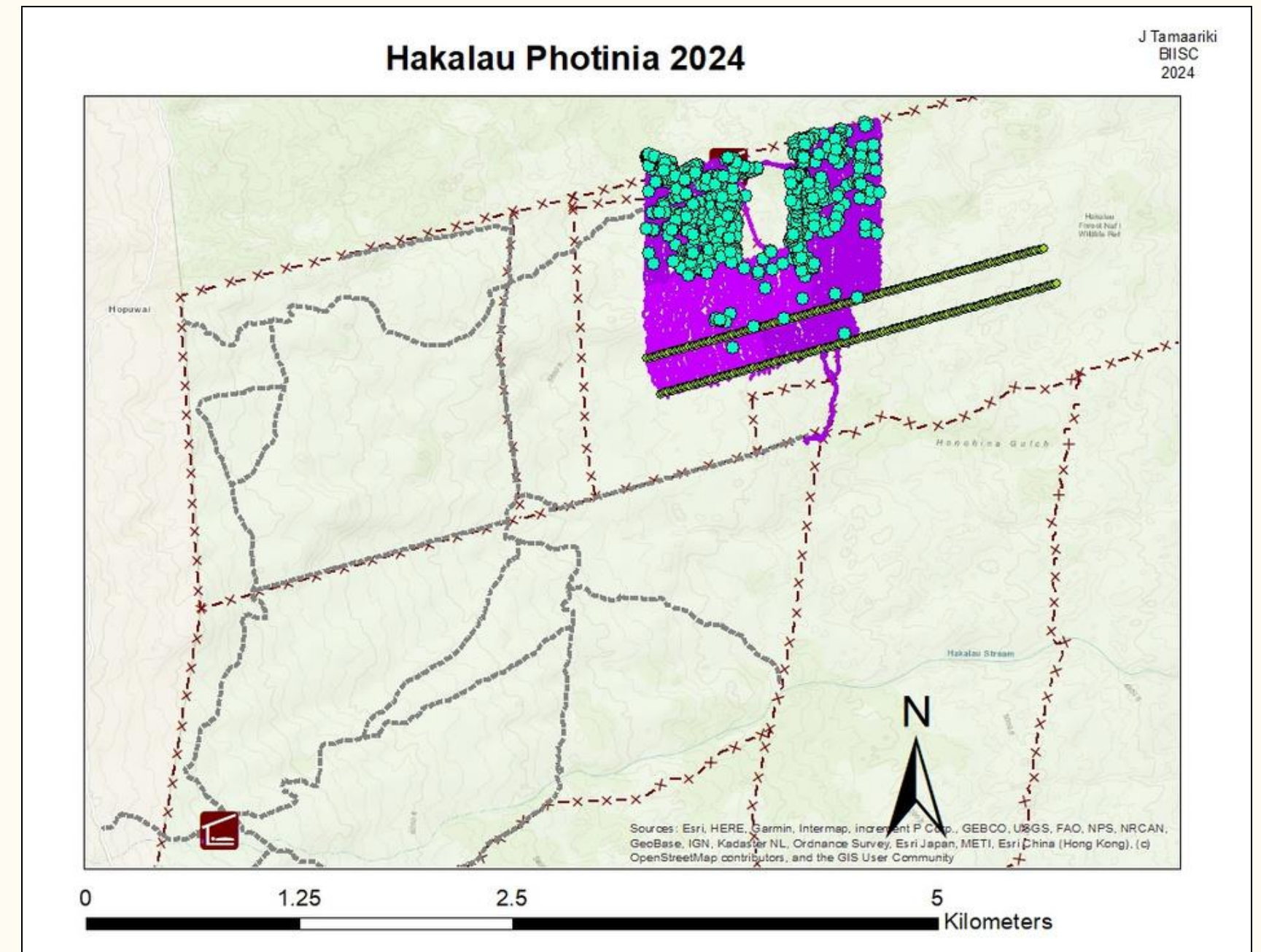


BIISC at Hakalau

Photinia & European Holly



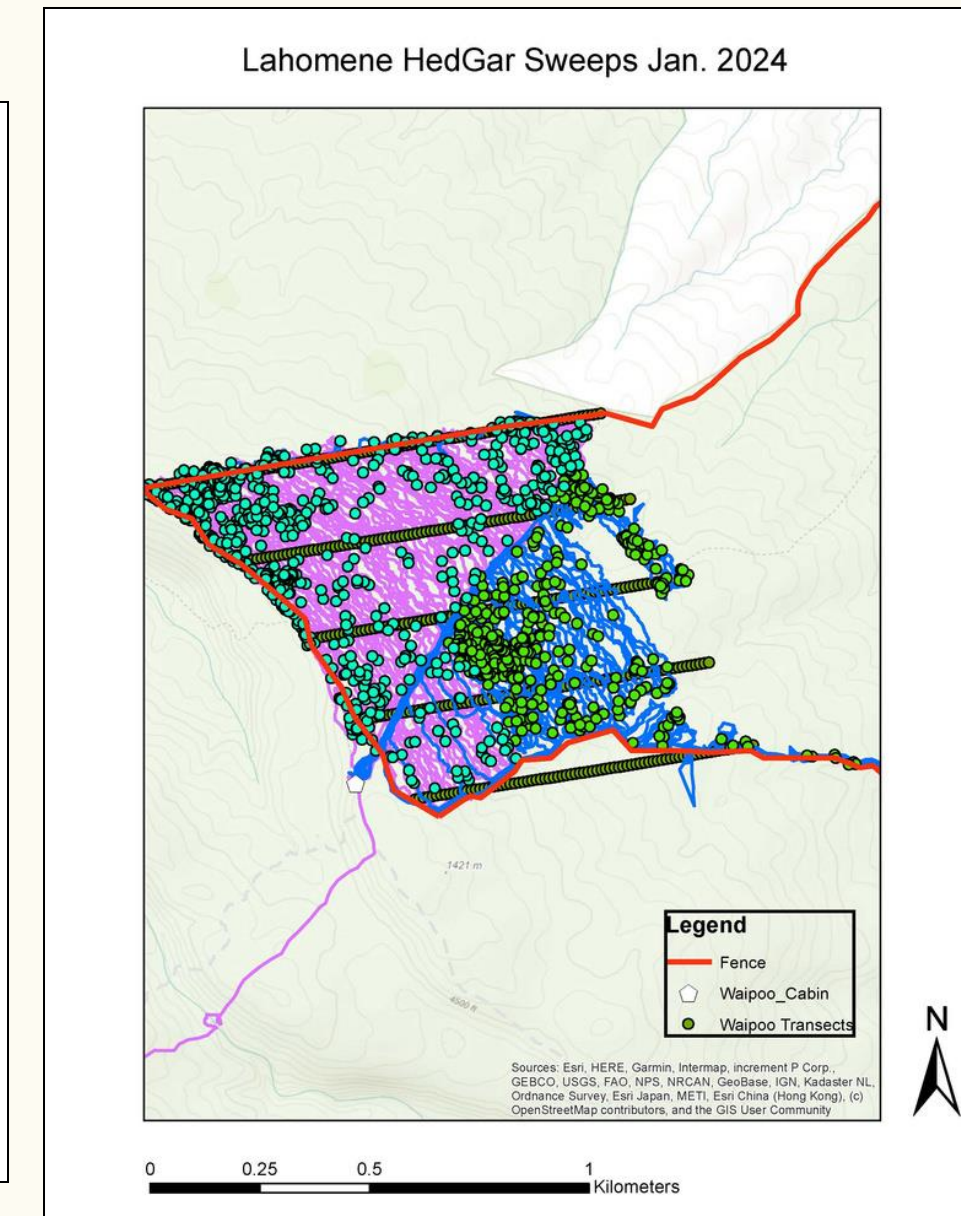
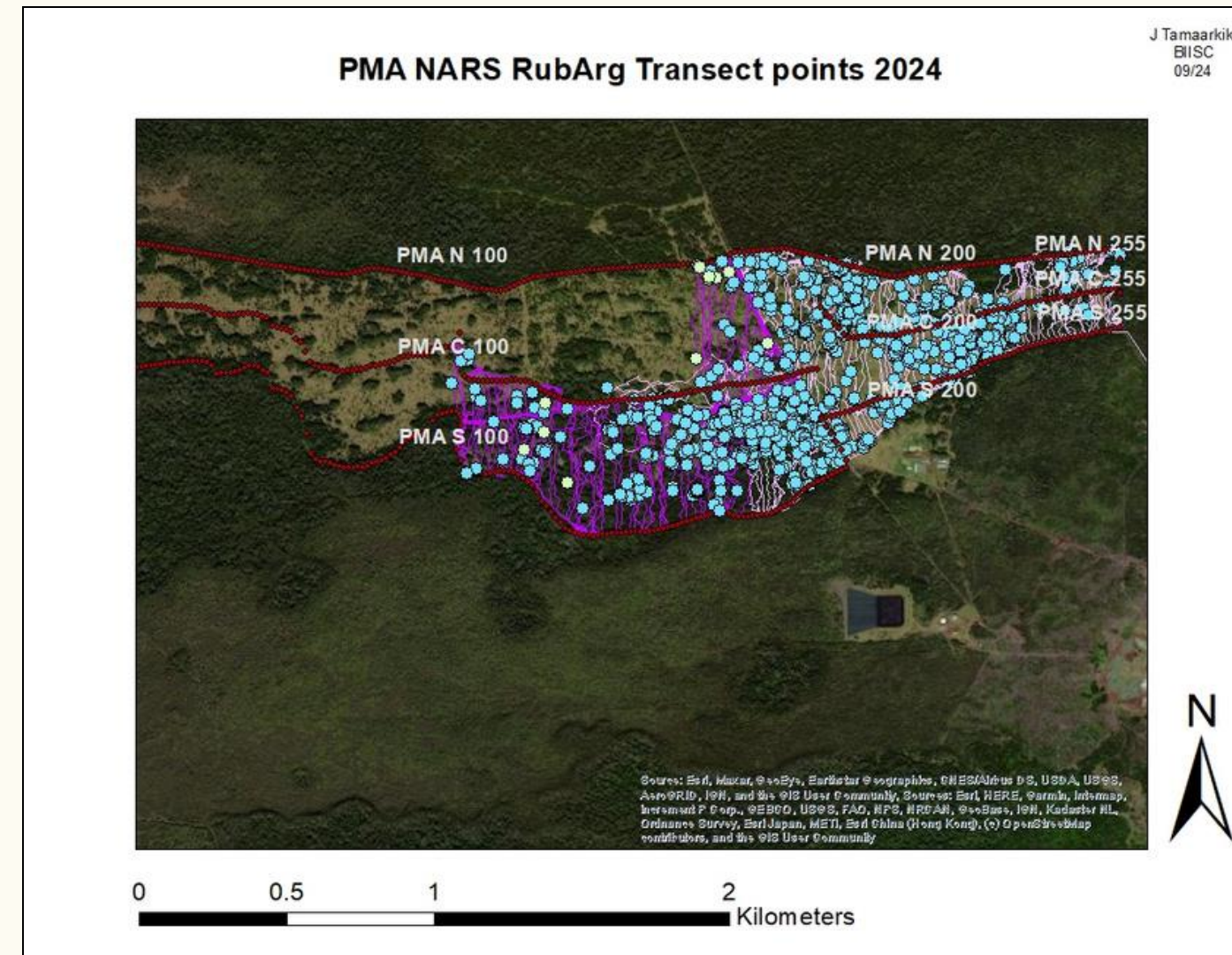
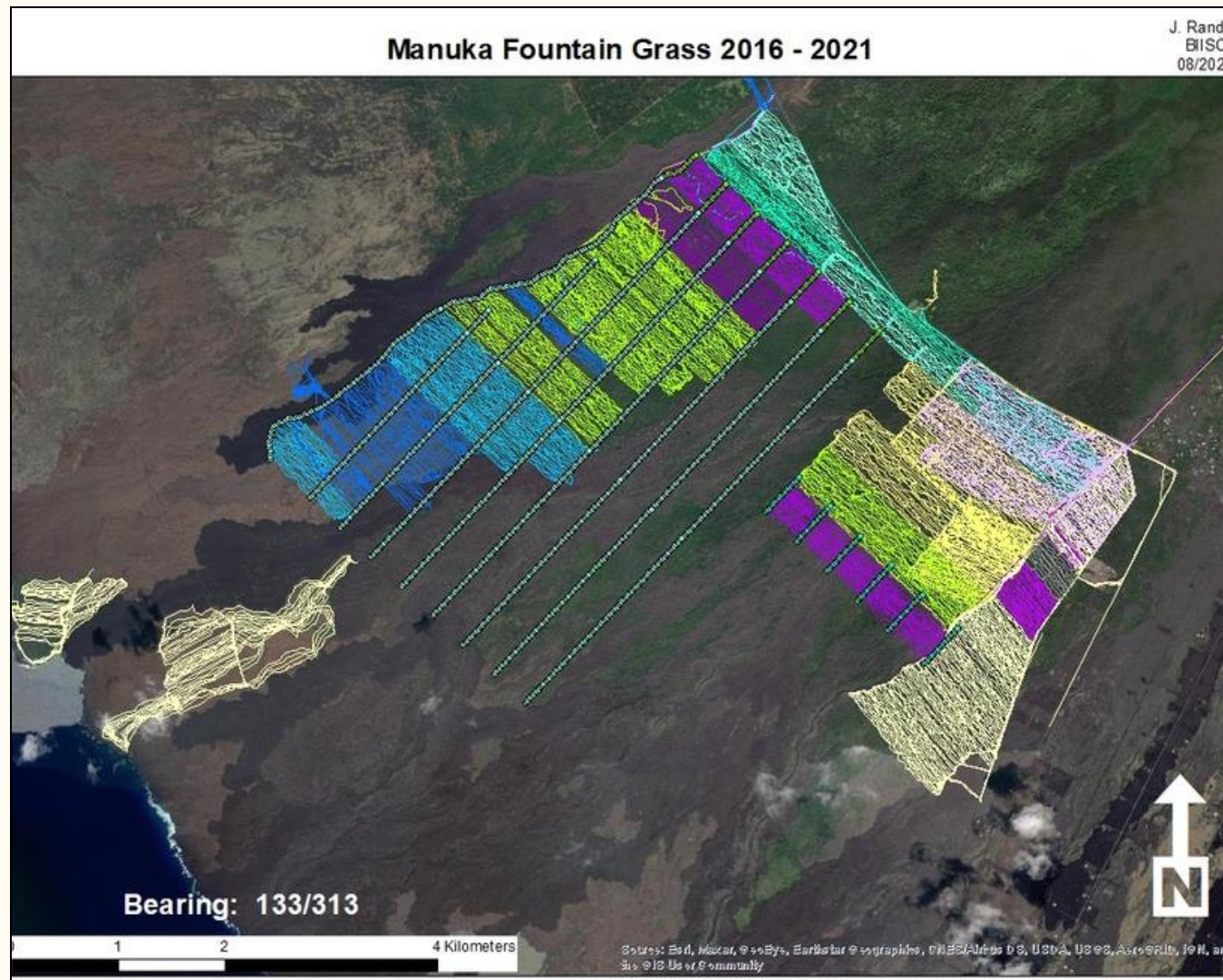
- **This month, BIISC completed Holly surveys and control** determining the extent of the population.



- **This summer crews completed Photinia survey and control around the known core.**
- A new set of 200 mt sweep points were added to the south of the control area and outliers were discovered.

BIISC & NARS

Fountain Grass, Blackberry, Bottlebrush Ginger



- **BIISC continues working with NARS staff to control invasive species targets** such as fountain grass, blackberry, and bottle brush ginger within their managed lands.

Exciting Innovations in spray equipment!

HOW PUMP ZERO WORKS

Comment fonctionne Pump Zero
Cómo funciona Pumpzero



Works with Liquids & Wettable Powders



NO MORE PUMPING!

1 YEAR WARRANTY
Garantía Por 1 Año
Garantie De 1 Ans



EASY TO MAINTAIN!
SEALS TAKE 5 MINUTES TO REPLACE



Large, Comfortable Pump Handle

Poignée de pompe confortable de grande taille

Mánija de la bomba grande y cómoda

Heavy Duty Reinforced Hose

Boyau renforcé robuste

Manguera reforzada de alto rendimiento

See-thru Tank with Fill Markings

Repères de remplissage et réservoir transparent

Tanque Transparente Con Marcas De Llenado

Premium Shut-off with Comfort Grip and Lock
Dispositif d'arrêt de qualité supérieure avec poignée confort et verrou
Cierre Superior Con Comodo Agarre y Seguro

Built-in Clasp for Wand Storage
Attache intégrée pour le rangement de la baguette
Subjectador incorporado para guardar la vara

Pressure Release Valve
Soupape de décharge
Válvula de liberación de presión

Extra Long, Heavy Duty Non-Corrosive Wand
Baguette non corrosive extra-longue et robuste
Vara extra larga, resistente y anticorrosiva

Protective Nozzle Storage
Rangement qui permet de protéger les buses
Espacio para guardar y proteger la boquilla



HARDWORKING



Trials were positive for comfort and ease of use, today the crew is out in the field testing out the system.



MAHALO!

