Port of Entry/Exit Pest Monitoring Program

Chelsea Arnott

Filling a Critical Gap
Pest Monitoring at Ports of Entry

- Airports and seaports create major biosecurity risks
- Opportunities for pest incursions:
  - Over **one million** aircraft operations (2017)
  - **600,000** shipping containers processed through Hawaii's seaports (2017)
  - More than **10.5 million** visitors (2019)

Port of Entry Monitoring Program

Funding

DOT funded the program as a pilot project. Funding expired March 31, 2022.

Program currently operates with HISC funds.

State Appropriation Bill SB3379 – Assigned to HDOA

Congressional Direct Spending (CDS). Includes budget for program expansion – Assigned to DLNR-HISC

Port of Entry Monitoring Program

Monitoring sites

Six airports:

- Lihue Airport
- Daniel K. Inouye International Airport
- Molokai Airport
- Kahului Airport
- Hilo International Airport
- Ellison Onizuka Kona International Airport

Four seaports:

- Honolulu Harbor
- Nawiliwili Harbor
- Hilo Harbor
- Kawaihae Harbor

Platform for Collaboration

- Brings together five different State departments (HDOT, HDOA, HDOH, DLNR & UH)
- Capitalizes on existing capacity from partner projects.
- Provides opportunities to train partner agency staff
- Sponsors research projects to evaluate new technology
- Economic analysis to evaluate the cost benefit of airport surveillance

KISC
KAUA'I INVASIVE SPECIES COMMITTEE

OISC
O'AHU INVASIVE SPECIES COMMITTEE

MoMISC
MOLOKA'I/MAUI INVASIVE SPECIES COMMITTEE

MISC
MAUI INVASIVE SPECIES COMMITTEE

BIISC
BIG ISLAND INVASIVE SPECIES COMMITTEE

Port of Entry Monitoring Program

Targets

Mosquitoes (*Aedes* spp., *Culex* spp., *Anopheles* spp.). Lead DOH

Africanized bees -AHB (*Apis mellifera scutellata*). Leads UH & DOA

Coconut rhinoceros beetle - CRB (*Oryctes rhinoceros*). Lead DOA

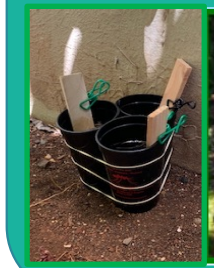
Ants (*Solenopsis invicta* & *Wasmannia auropunctata*). Lead DOA

Japanese beetle (*Popillia japonica*). Lead DOA

Mosquitoes

- Mosquito ID training for Maui VC office
- Successful interception of *Aedes aegypti* at OGG in Nov. 2017
- SOP for mosquito monitoring at airports
- Increased mosquito surveillance capacity
- Funded research to test existing technology and develop new trapping technology
- Activation of notification chain protocol in Aug. 2021 - Interception of *Ae. aegypti* at Honolulu Harbor

Mosquito traps





Mosquitoes

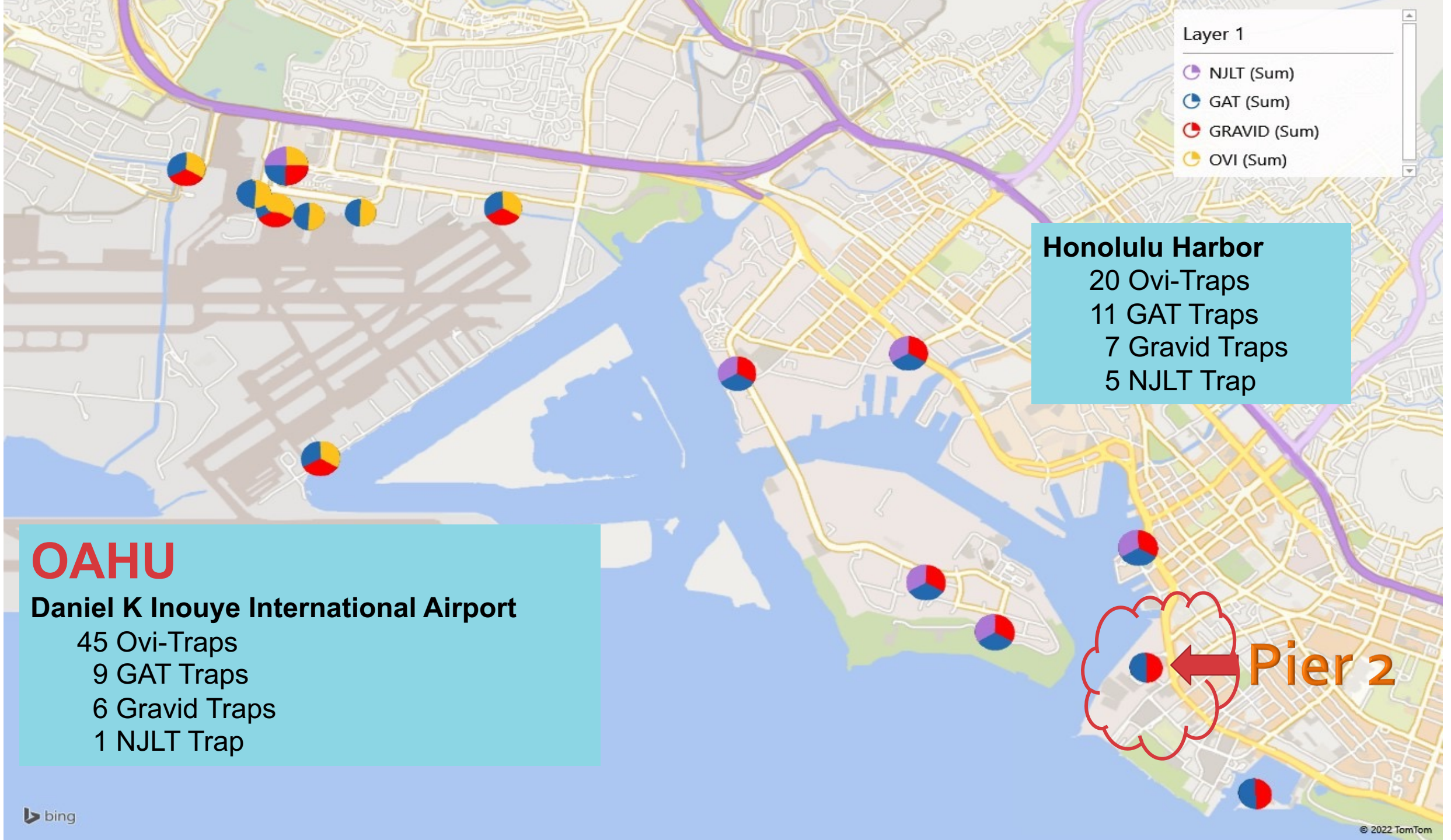
Setting up a Biogents trap at Kona airport

Setting up a CDC light trap at Hilo airport

Maui staff setting mosquito traps at Kahului airport

Current Mosq

TRAP TYPE	Daniel K Inouye	Honolulu Harbor	LIHUE	Nawiliwili Harbor	Kahului	Hana	Hilo	Kona
Ovi-Trap 	45	15	45	15	15	2	25	25
GAT 	10	11 +2 in 2023	0	0	0	0	Used for Potential Response	
Biogents (BG) 	0	0	13	2			7 +4 in 2023	5 +4 in 2023
NJLT 	1	5	3	1			Occasional	Occasional
Gravid 	6	11	13	3			0	0


Layer 1
NJLT (Sum)
GAT (Sum)
GRAVID (Sum)
OVI (Sum)
Honolulu Harbor
20 Ovi-Traps
11 GAT Traps
7 Gravid Traps
5 NJLT Trap
OAHU
Daniel K Inouye International Airport
45 Ovi-Traps
9 GAT Traps
6 Gravid Traps
1 NJLT Trap
Pier 2
bing
© 2022 TomTom

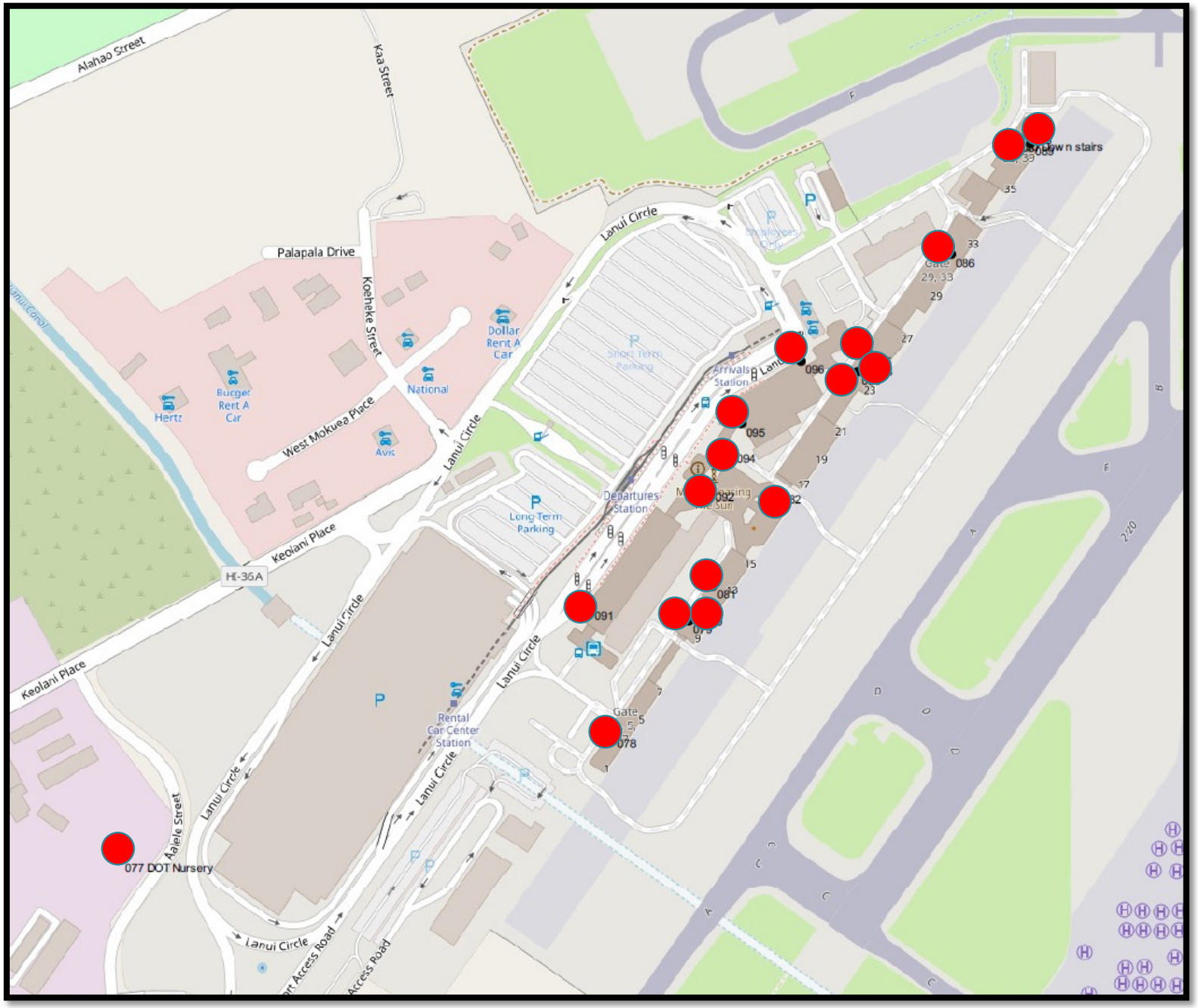
Intensive trapping at Pier2:
Second year since the capture of A.aegypti in 2021

- Restricted area
- Ovi-traps
- Gravid traps
- GAT

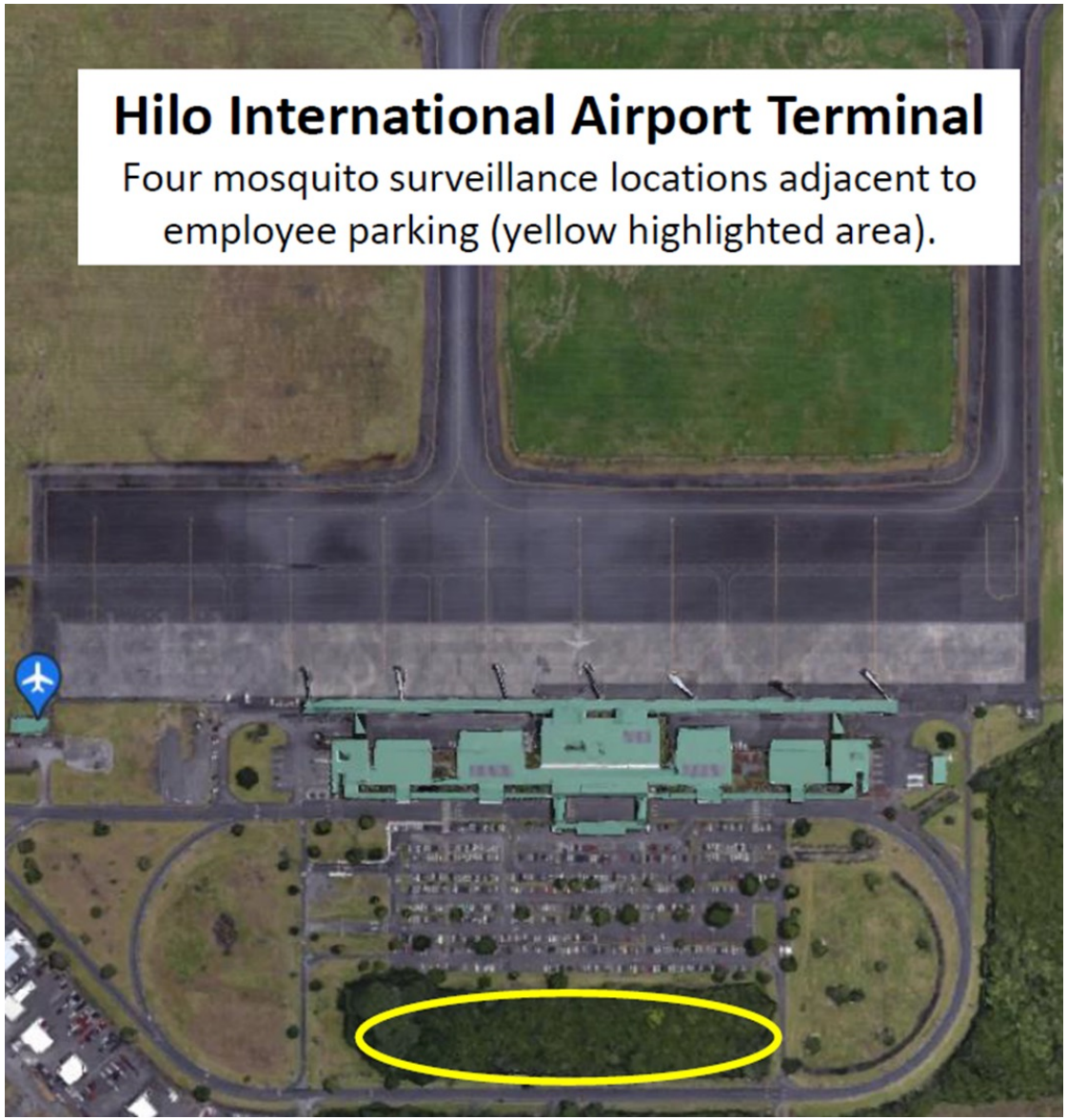
MAUI

Kahului International Airport

Kahului : 15 ovi mosquito traps
Hana : 3 ovi traps



HAWAI ISLAND



Africanized Bees

- Capacity to perform DNA analysis at UH
- Increased frequency of monitoring
- Capacity for swarm trap processing
- Each island has internal capacity
- Facilitation of AHB action plan meetings
- AHB training in AZ for HDOA staff
- Procured materials/supplies for response
- 152 swarms intercepted to date (all AHB negative)

HDOA staff Training the ISCs

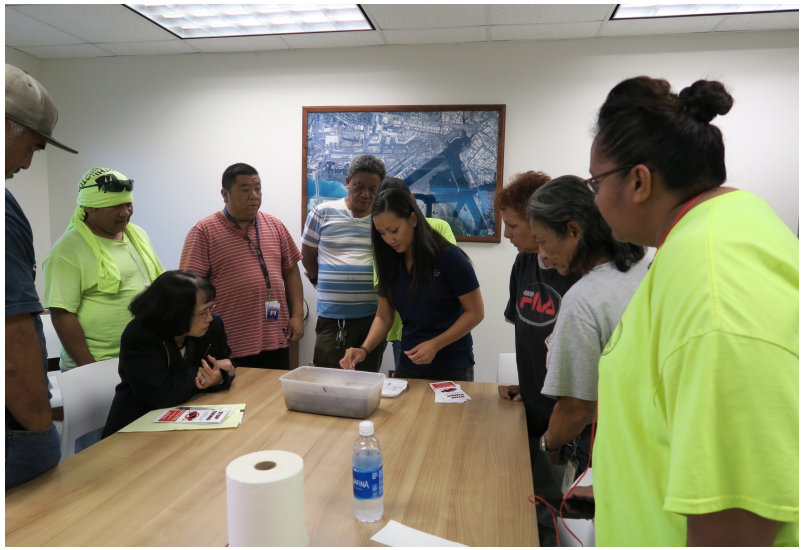
Setting Up Swarm Traps

Swarm Trap Processing Training

Africanized Bee Training in Arizona

Coconut Rhinoceros Beetle

- Training to ISCs & DOT staff
- 2 CRBs detected at HNL
- Each island has internal capacity
- Palm surveys
- Database (NRDS)
- Signs
- BMPs



CRB Training for the ISCs

CRB Training for Airport Staff

Invasive Ants

- Routine surveys at all airports
- Reduction in LFA infestation at ITO
- Streamlined survey system – NRDS (app tracks barcodes in vials)
- Improved communication with DOT staff at ITO and KOA
- BMPs
- Signs

NRDS App

Sample Trap

Repeat

Return to scan

Baits *

J	No bait	Other - see notes	PB	SPB

Targets

Solenopsis geminata	Solenopsis invicta	Wasmannia auropunctata

Japanese Beetle

- Widespread and destructive pest of turf, landscape, and ornamental plants and field crops in the US.
- Highly polyphagous species (feeds on > 300 plant species)
- Currently the most widespread turfgrass pest in the US
- Can have significant effects on Hawaii's urban forest and landscape industry and diversified agriculture.

BMPs for program targets

Ants

1. Training on LFA
2. Clean and visually inspect machinery and tools
3. Quarantine or test high risk items for LFA
4. Require staff to report ant infestations

CRB

1. Training on CRB
2. Inspect CRB host plants
3. Inspect soil and mulch bags
4. Minimize use of mulch and compost
5. Require staff to report CRB damage or activity

Africanized Bees

1. Training on AHB
2. Inspect structures so they don't allow a swarm to settle
3. Avoid using plants that will attract bees
4. Require staff to report bee activity

Mosquitoes

1. Training
2. Actively reduce breeding sites
3. Actively reduce resting sites
4. Require staff to report mosquito infestations

Future of the Program

- Expand targets.
- Expand to all seaports.
- Expand to military installations.
- Establish collaboration with other states and islands in the Pacific Region.

Thank you!

Hawaii Invasive Species Council (HISC)
Port of Entry/Exit Pest Monitoring Program
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