



First Confirm Band-rumped Storm Petrel Colony in the Hawaiian Islands at the U.S. Army Garrison – Pōhakuloa Training Area, Hawai‘i



3 June 2021, Rogelio E. Doratt

Band-rumped Storm Petrel Management

Gain insight and understanding of the extent of the Band-rumped Storm Petrel colony, breeding phenology, behavioral characteristics, and identifying factors that impact their long-term survival at PTA while maximize military training capacity

2019-11-07 07:48:58 PM

59°F ●

M 2 ⚡



TA21 PB803



Band-rumped Storm Petrel Management

Gain insight and understanding of the extent of the Band-rumped Storm Petrel colony, breeding phenology, behavioral characteristics, and identifying factors that impact their long-term survival at PTA while maximize military training capacity



Detector Dog

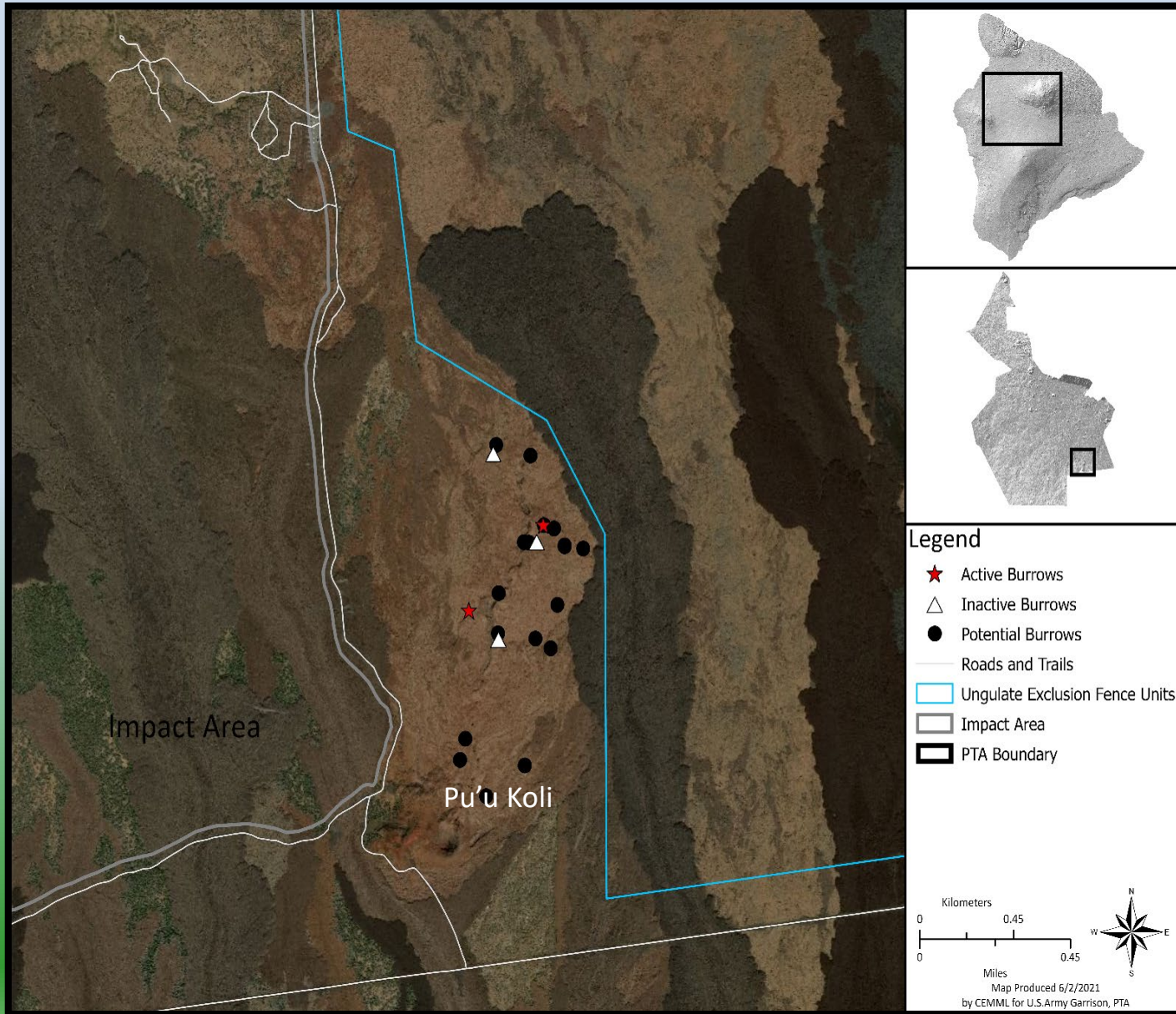


Camera Surveillance



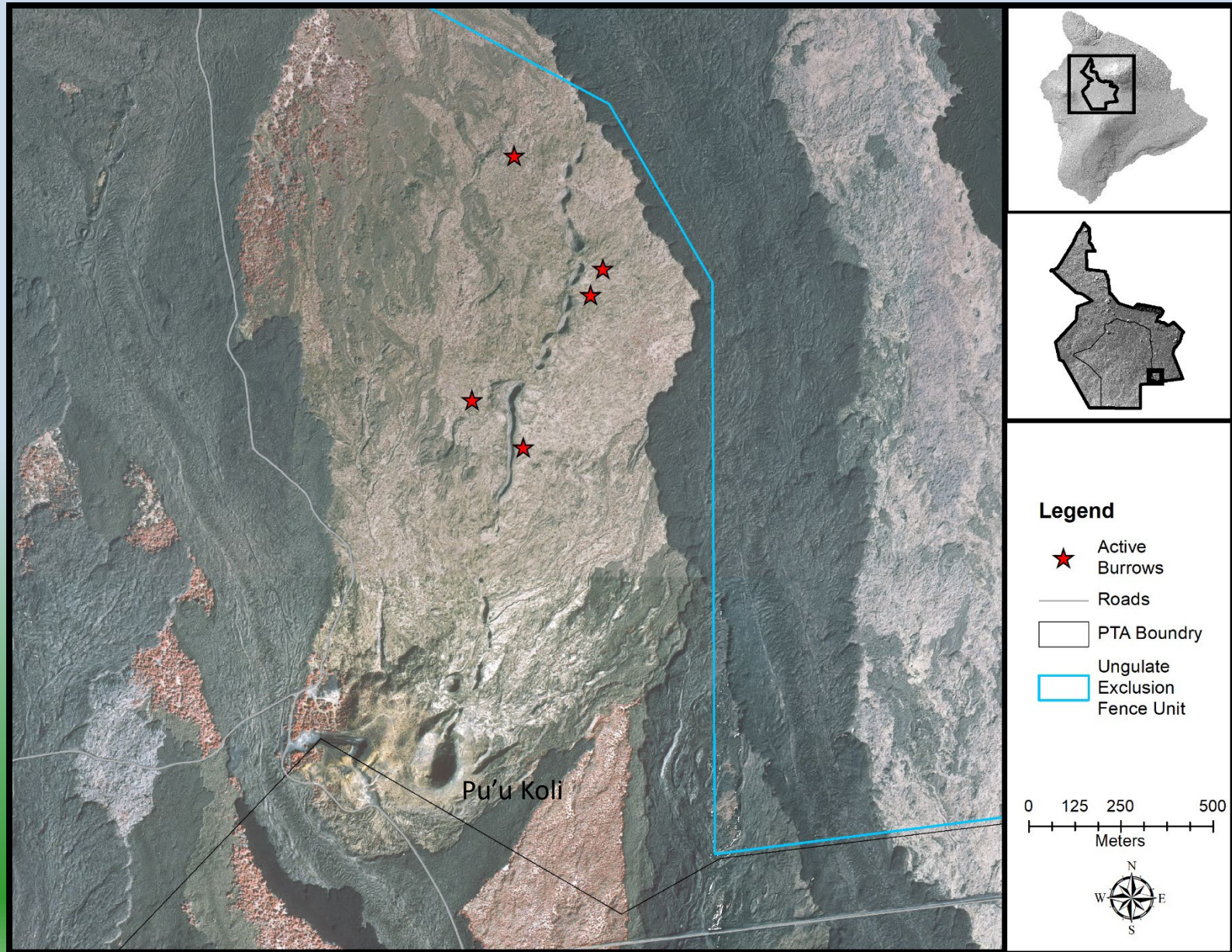
Predator Control

BSTP Colony Site



- 2015 BSTP Monitoring
- Slopes of Moana Loa
- ~2,100m elevation
- Terrain 'a'ā lava
pāhoehoe lava
- 2015-2020
 - 5 Active burrows
 - 18 potential burrows
- 2020
 - 2 Active burrows
 - 3 Inactive burrows

BSTP Colony Site



Band-rumped Storm Petrel Management

Burrow Survey with Search Dog

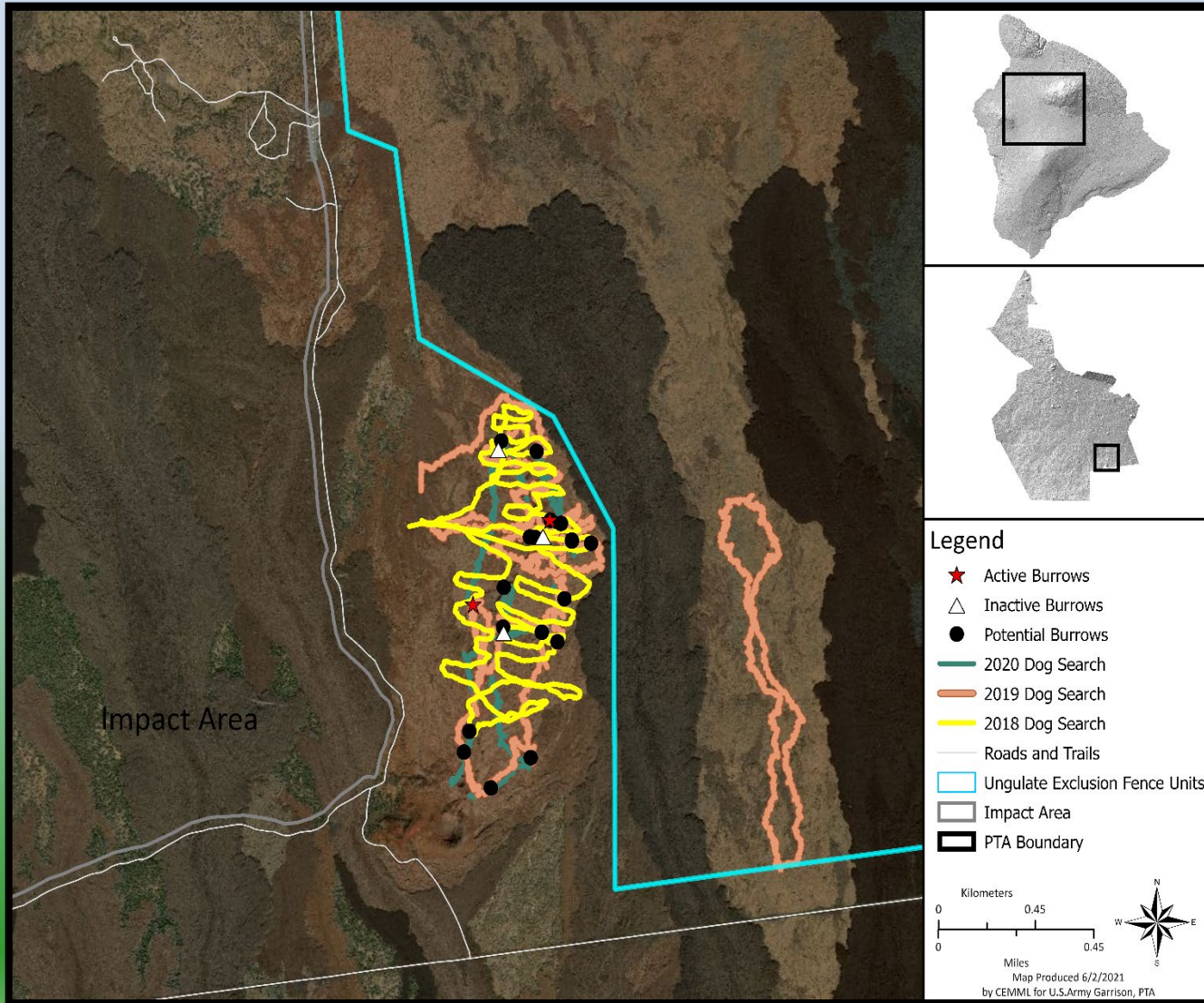


Astro Garmin GPS device
Astro T-5 collar device
~5 hrs searches

Makalani and Teresa Gajate

Band-rumped Storm Petrel Management

Burrow Survey with Search Dog



June, August, September

2018 (13 km)

3 active burrows

3 new potential burrows

2019 (28 km)

3 active burrows

3 new potential burrows

2020 (12 km)

2 active burrows

1 previous potential burrows



Band-rumped Storm Petrel Management

Burrow Camera Surveillance



N01

May- November
Collect SD cards and change batteries
every 2 weeks

Reconyx XP9 Trail Camera

Settings

Motion sensor

- Take 1 picture and
- 30 sec video recoding

Time Lapse setting

- Take 1 picture every
30 seconds
- (8:00 pm -10:00 pm)
(3:00 am – 5:00 am)

Band-rumped Storm Petrel Management

Burrow Camera Surveillance



N01



N02

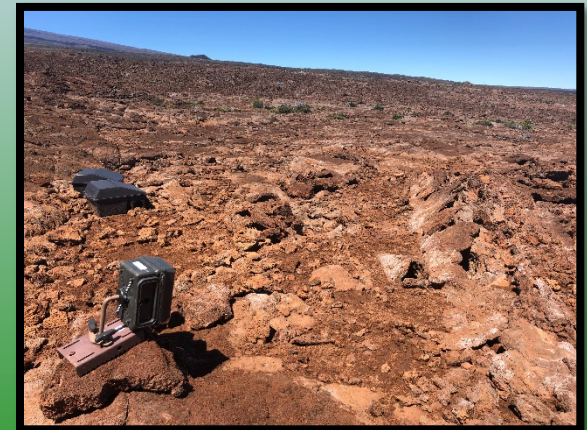


N03



N04

2020
9 Burrows
Recorded 211 days
769,794 pictures
2,787 videos



N05

Band-rumped Storm Petrel Management

Burrow Camera Surveillance



N05

Band-rumped Storm Petrel Management

Burrow Camera Surveillance



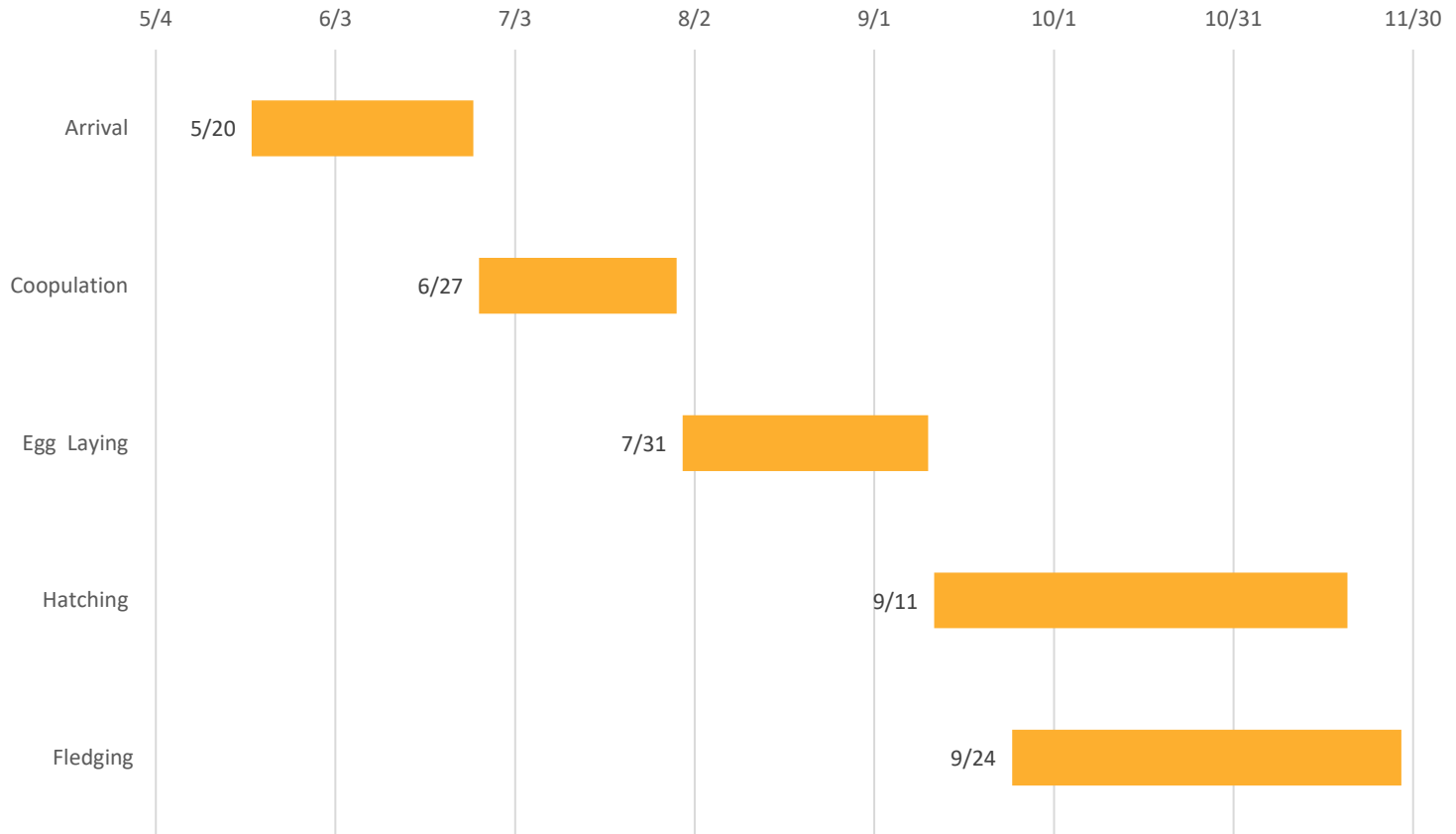
N05



2018 September Discovered by Makalani
2019 October adult and November fledging
2020 28 May @ 2:08 am
2021 28 May @ 1:58 am

Band-rumped Storm Petrel Management

BSTP Predicted Phenology



Galase NK. 2019. First confirmed Band-rumped Storm Petrel *Oceanodroma castro* colony in the Hawaiian Islands. Marine Ornithology. 47:25-28.

Band-rumped Storm Petrel Management

2020 BSTP Behaviors at the Burrows

Burrow ID	Band-rumped Storm Petrel Behaviors at the Burrow			
	Inside the Burrow	Outside the Burrow	Entering the Burrow	Exiting the Burrow
N01	37	10	10	21
N02	0	0	0	0
N03	0	0	0	0
N04	0	0	0	0
N05	1	0	0	21
PB706	0	0	0	0
PB900	0	0	0	0
PB901	0	0	0	0
PB902	0	0	0	0

Band-rumped Storm Petrel Management

Predator Control

CAM1 09/16/2017 02:10:24



Band-rumped Storm Petrel Management

Predator Control

Feral Cat Control

Rodent Control (black rats and house mice)



Live traps



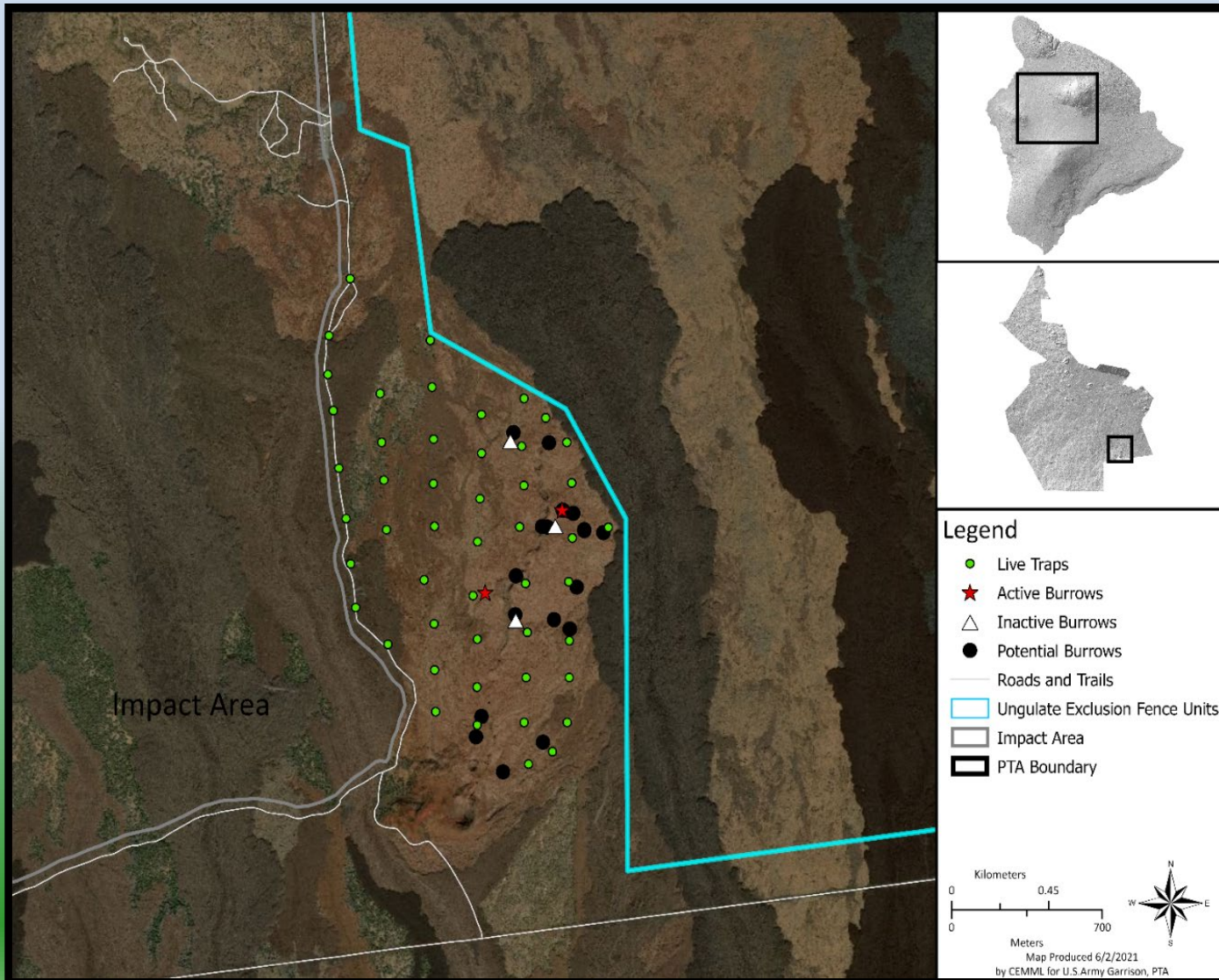
Goodnature® A24 rat traps



Rat and mouse snap traps

Band-rumped Storm Petrel Management

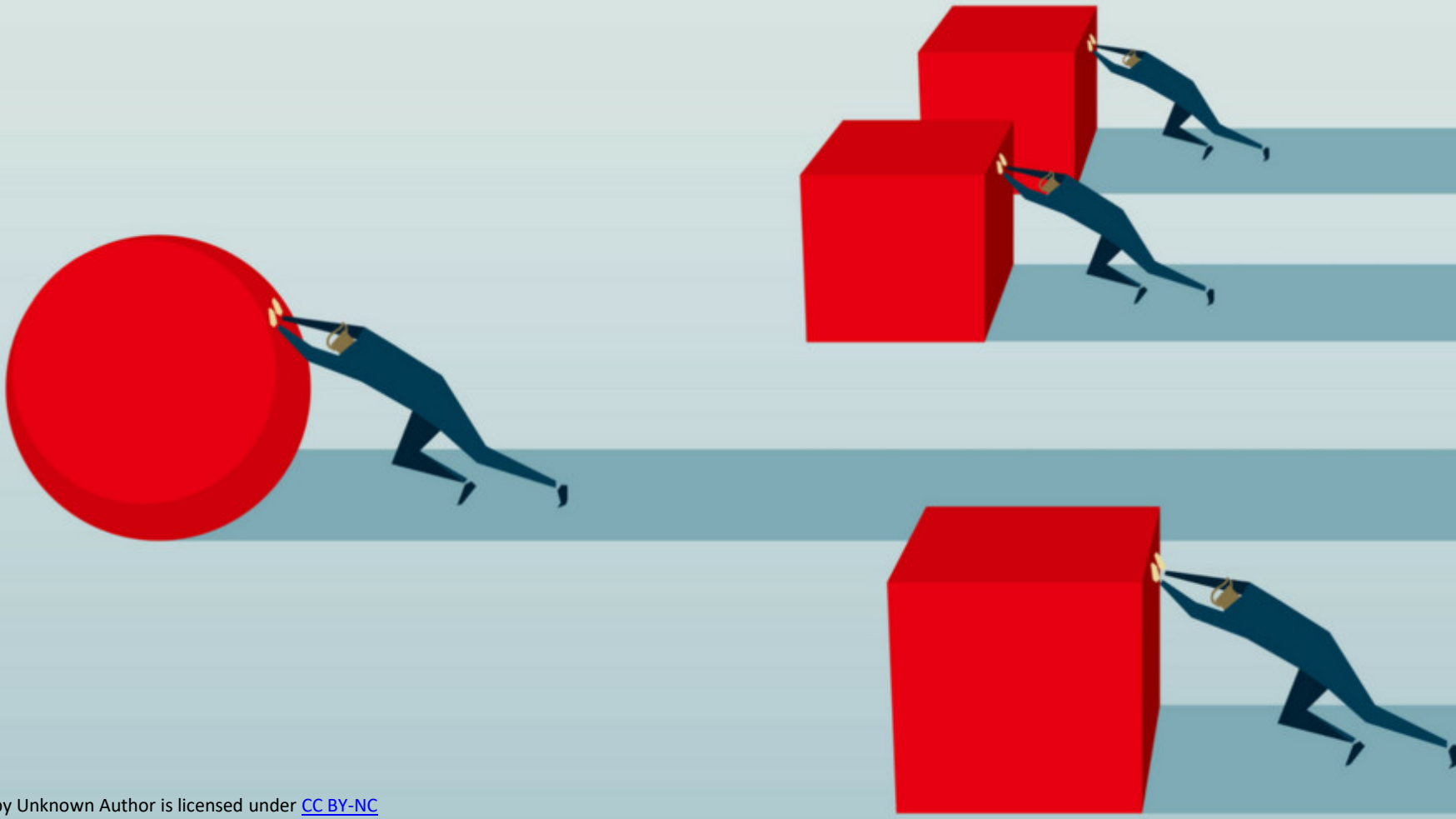
Live Traps



- 2020 Trap year round
- 7 days a week
- Trap cover 400 ac
- 49 traps
- 200m apart
- Baited with Sardines
- Bait replaced 1 once month
- Traps maintained 1 once month

Band-rumped Storm Petrel Management

Live trapping takes lots of time, money and effort



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Band-rumped Storm Petrel Management

Trap Sensors “Skyhawk®”



Band-rumped Storm Petrel Management

Trap Sensors “Skyhawk®”

Skyhawks trap sensors

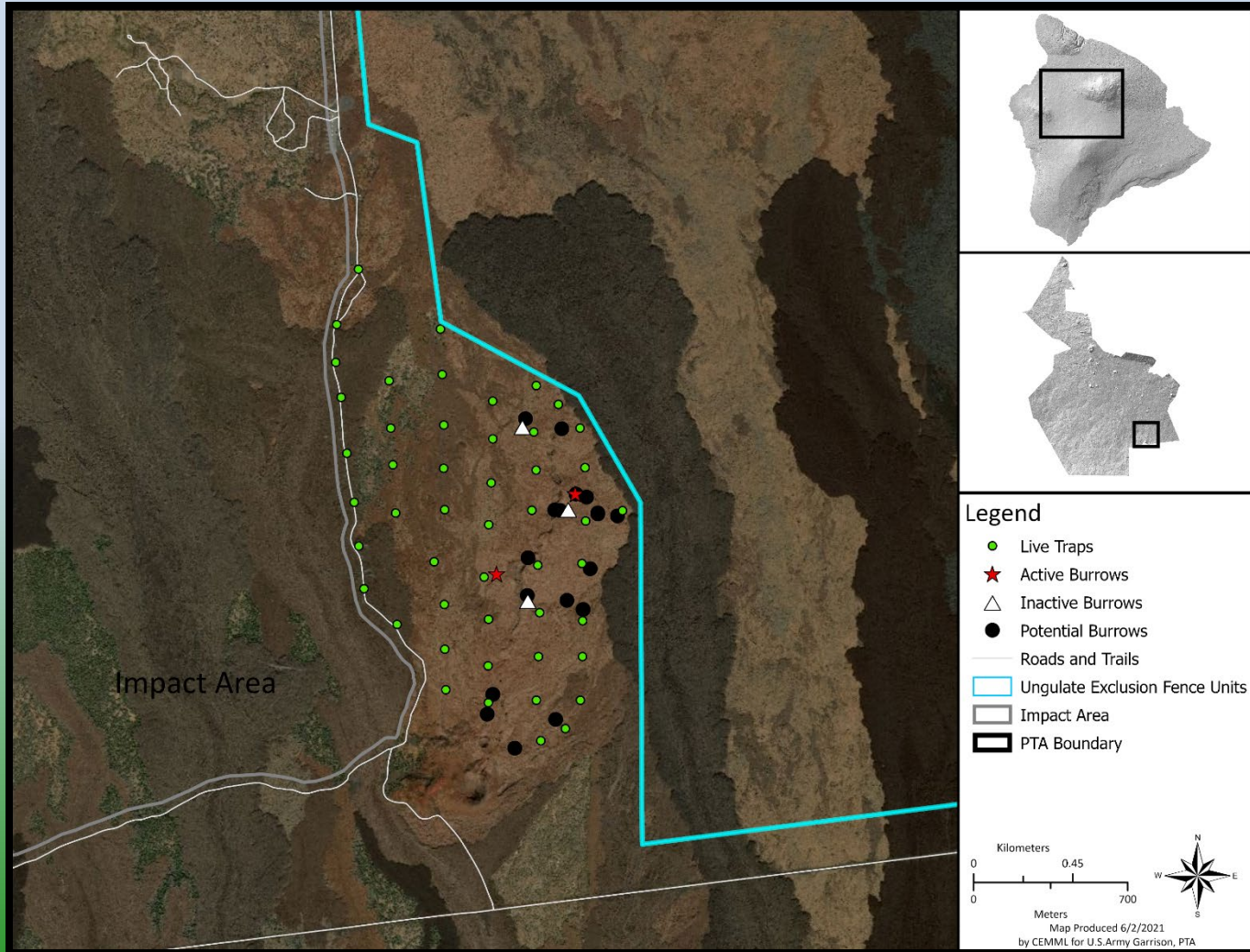
- No Skyhawk devices
 - (6 weeks), we ~ 40 deployed traps for 3 nights per week
 - 17 total trap nights
 - 134 personnel hours
- With Skyhawk devices
 - (5 weeks), we ~ 40 deployed traps for 7 nights per week
 - 31 total trap nights
 - 31 personnel hours

\$4,100 savings at an averaged, estimate labor cost for a field technician (\$41 per hour, fully burdened with fringe benefits and overhead costs)



Band-rumped Storm Petrel Management

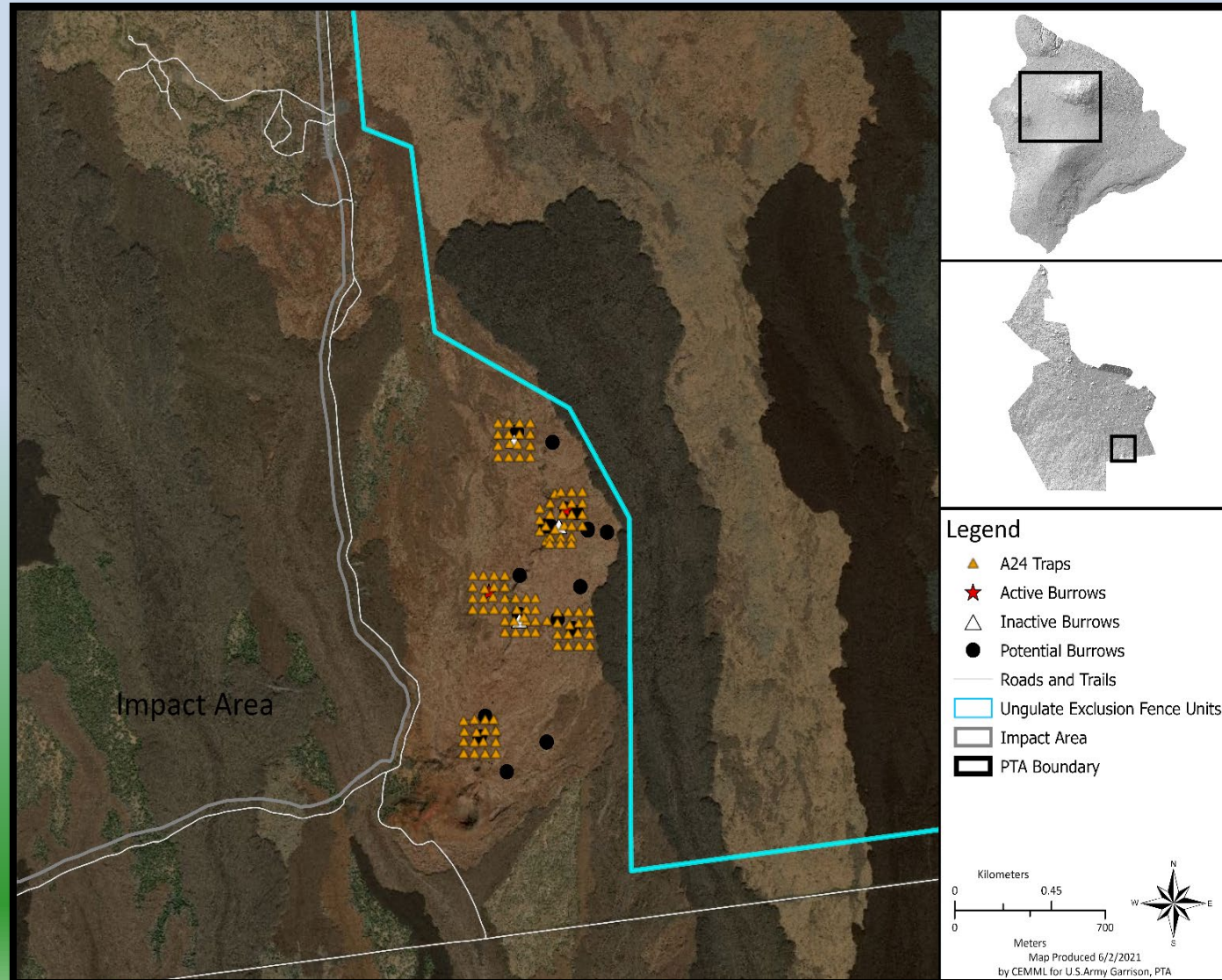
Captures



- 2018-2019 (3 months)
3 cats
1 black rat
- 2020 (12 months)
5 cats
1 black rat
- 2021 (6 months)
4 cats
1 black rat

Band-rumped Storm Petrel Management

A24 Traps

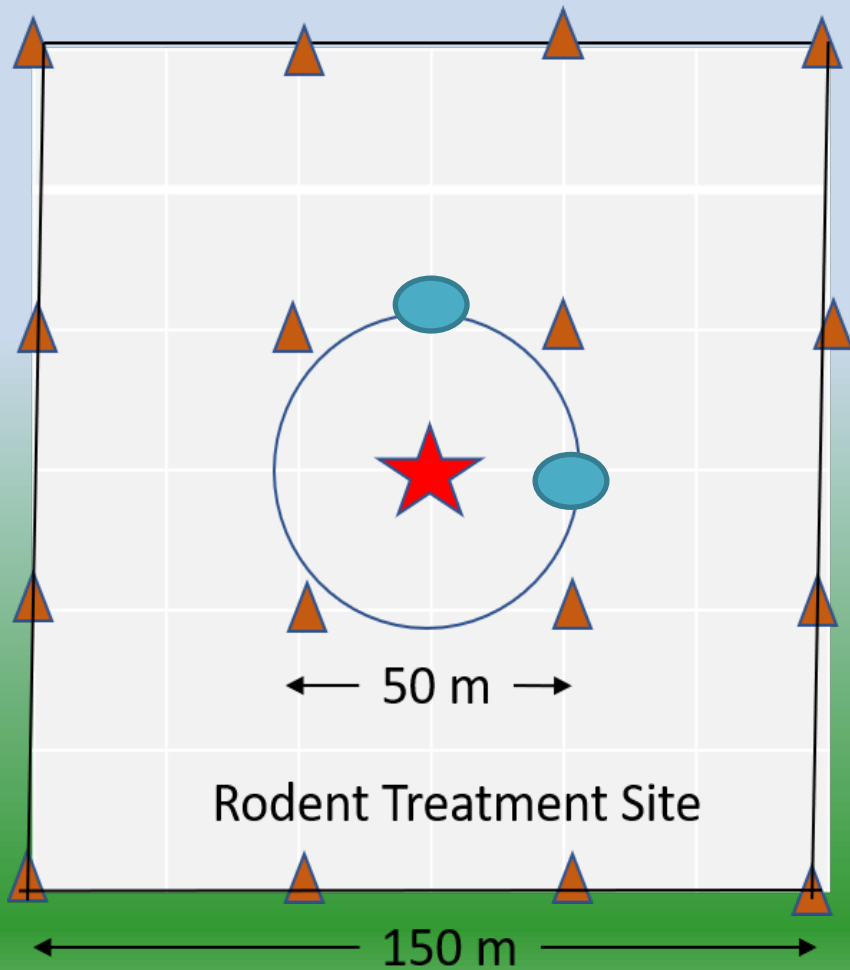


- 2020 Trap year round
- 5 Rodent Treatment Sites
 - 5 Active burrows
 - 3 Potential Burrows
- 50m apart
- 106 A24 Traps
- Baited with A24 Chocolate Lure
- Bait & CO2 canister replaced ~ 3 month
- Carcass collection every 2 weeks

Band-rumped Storm Petrel Management

A24 Traps/Snap Traps

▲ A24 Trap ★ Burrow ● Snap traps



Band-rumped Storm Petrel Management

A24 Captures

2020

- 34 Black rats
- 48 mice

Cameras

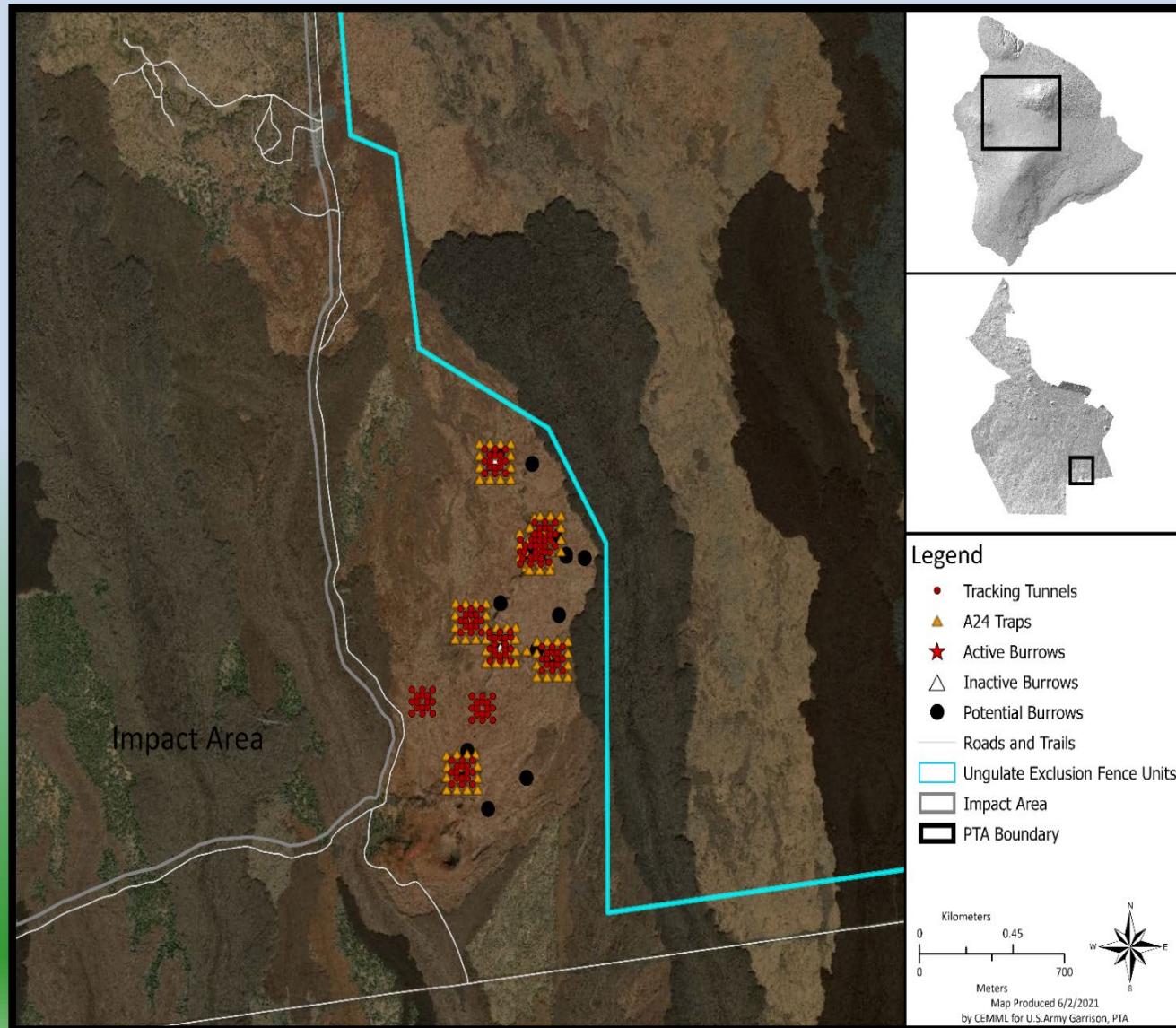
0 non-target take from A24
0 Barn owls

2 detected Cats
Multiple Rodents
Multiple Game birds



Band-rumped Storm Petrel Management

Tracking Tunnels



- 2020 Trap year round
- 5 Rodent Treatment Sites
2 Control Sites
- 25m apart
- 152 Tunnels
- Baited with A24
Chocolate Lure
- Monitoring Cycle
~ 3 month



Band-rumped Storm Petrel Management



- 2015-2020 camera surveillance
 - 5 Active burrows
 - 3 Detections of BSTP fledging events
 - 2020 detected 2 BSTP outside of NO1

Drop in BSTP carcasses at the colony

- 2015-2017 (limited predator control)
 - 8 carcasses discovered
- 2018-present (Predator control)
 - Increase in rodent and cat removals
 - 0 BSTP carcasses discovered



Any Questions?