



Chromolaena Odorata Detection

Dog Program

from proof-of-concept to operational

Conservation Dogs of Hawaii

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WHO WE ARE

Conservation Dogs of Hawai'i (CDH) is a Hawai'i non-profit organization based on O'ahu.

Our mission is to facilitate the wider use of detection dogs in Hawai'i to:

- Detect invasive species to mitigate their impact on wildlife and ecosystems
- Detect endangered and protected species for research and conservation purposes

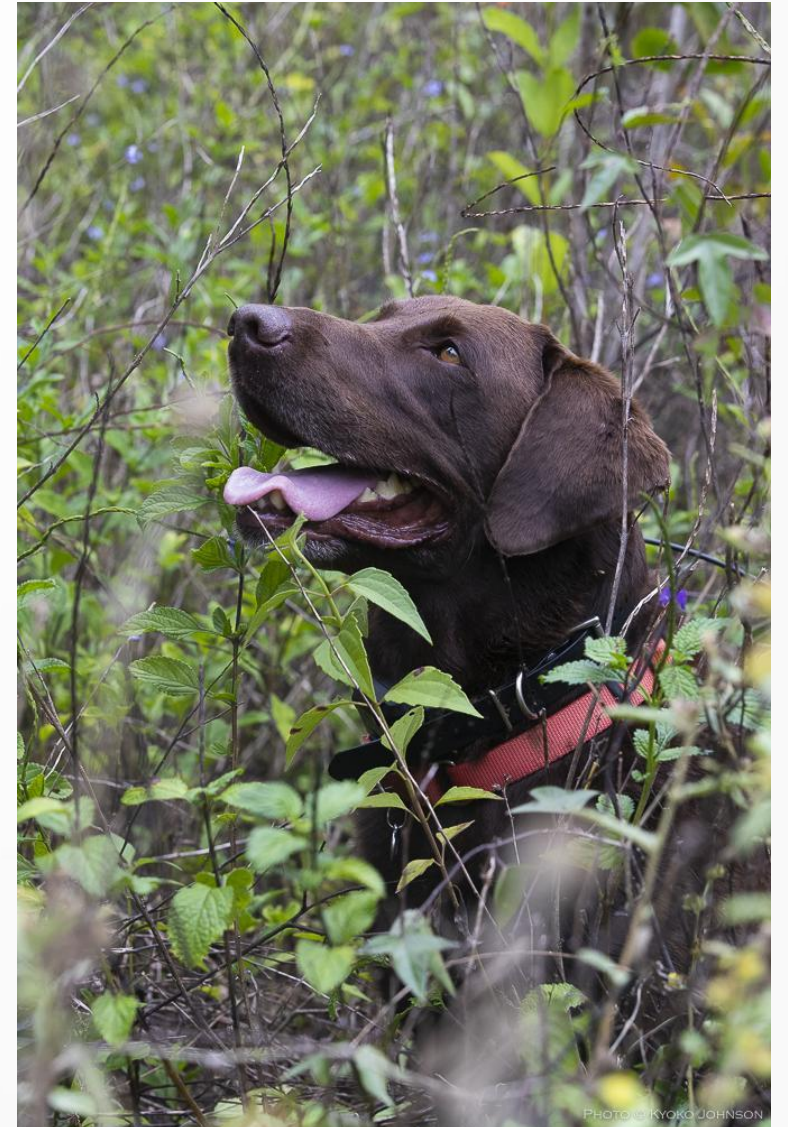


PHOTO © KYOKO JOHNSON

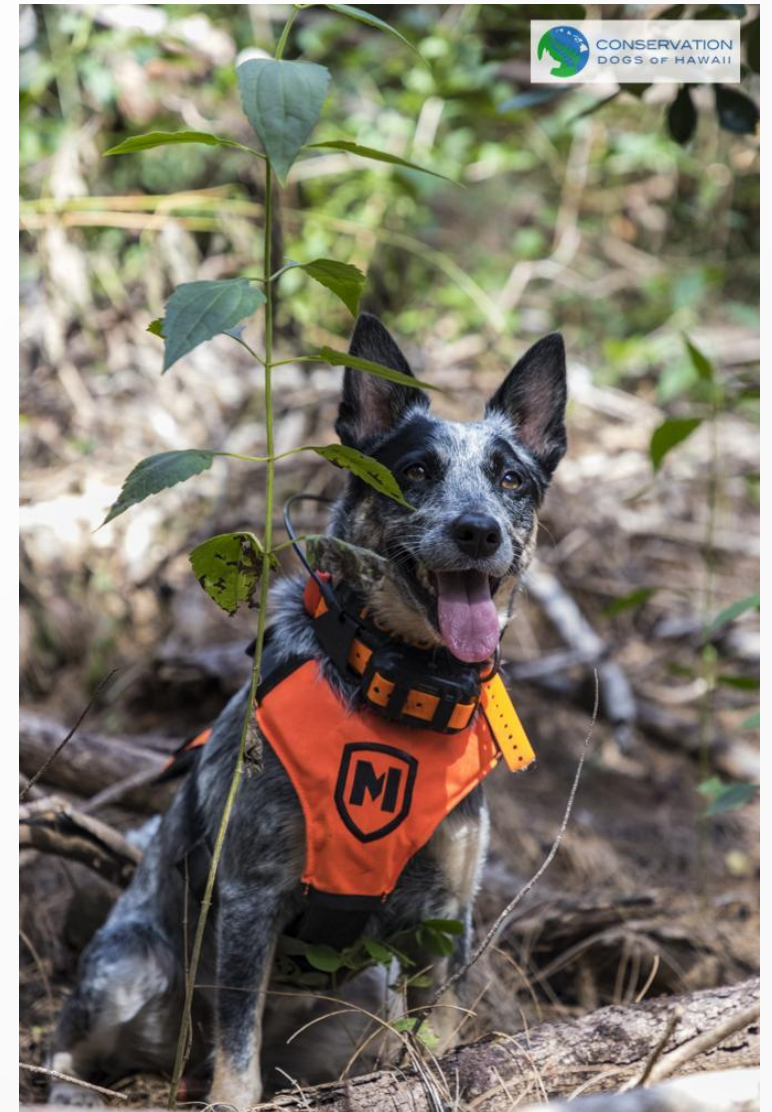
ChrOdo Background

- First detected in Kahuku Training Area in 2011.
- Believed to have arrived on military equipment or vehicles from Guam.
- Impedes the growth of other plants and releases toxins into the soil.
- Toxic to livestock, therefore important to keep out of agricultural lands.
- Called “*devil weed*” for 3-prong veins



Program Goals & Location

- Island-wide eradication on O‘ahu is no longer possible, so containment is the main goal.
- Assist in the effort led by OISC and ANRP.
- Identify hot spots and find individual plants to prevent further spread
- Most surveys are conducted on high priority hiking trails
- Our program is based on O‘ahu, however we will do surveys on Hawai‘i island in 2022



Program History (cont'd)

- 2018 - Contacted OISC for recommendation on an invasive species target.
- 'Ākia was selected for initial proof-of-concept.
- ~10 dogs participated in final odor recognition, scent discrimination and field tests.
- 90+% pass rate results were submitted to OISC.



2019 – Conducted similar tests with devil weed; launched operational program, supported by volunteer dog-handler teams and trainer.

Program History (cont'd)

Devil weed was selected as a target species for a few reasons:

- Survey areas consist of public hiking trails where dogs are allowed.
- No restrictions on possession; permit not required.
- Not dangerous to dogs or handlers, as opposed to say, LFA.
- Devil weed has a strong odor.
- Devil weed is not rare, therefore:
 - 1) Easy to acquire samples in order to train dogs
 - 2) Able to train dogs on “real thing”
 - 3) Frequent opportunities for dog teams to find targets (contributes to motivation)



Program Logistics

Odor Imprinting Method:

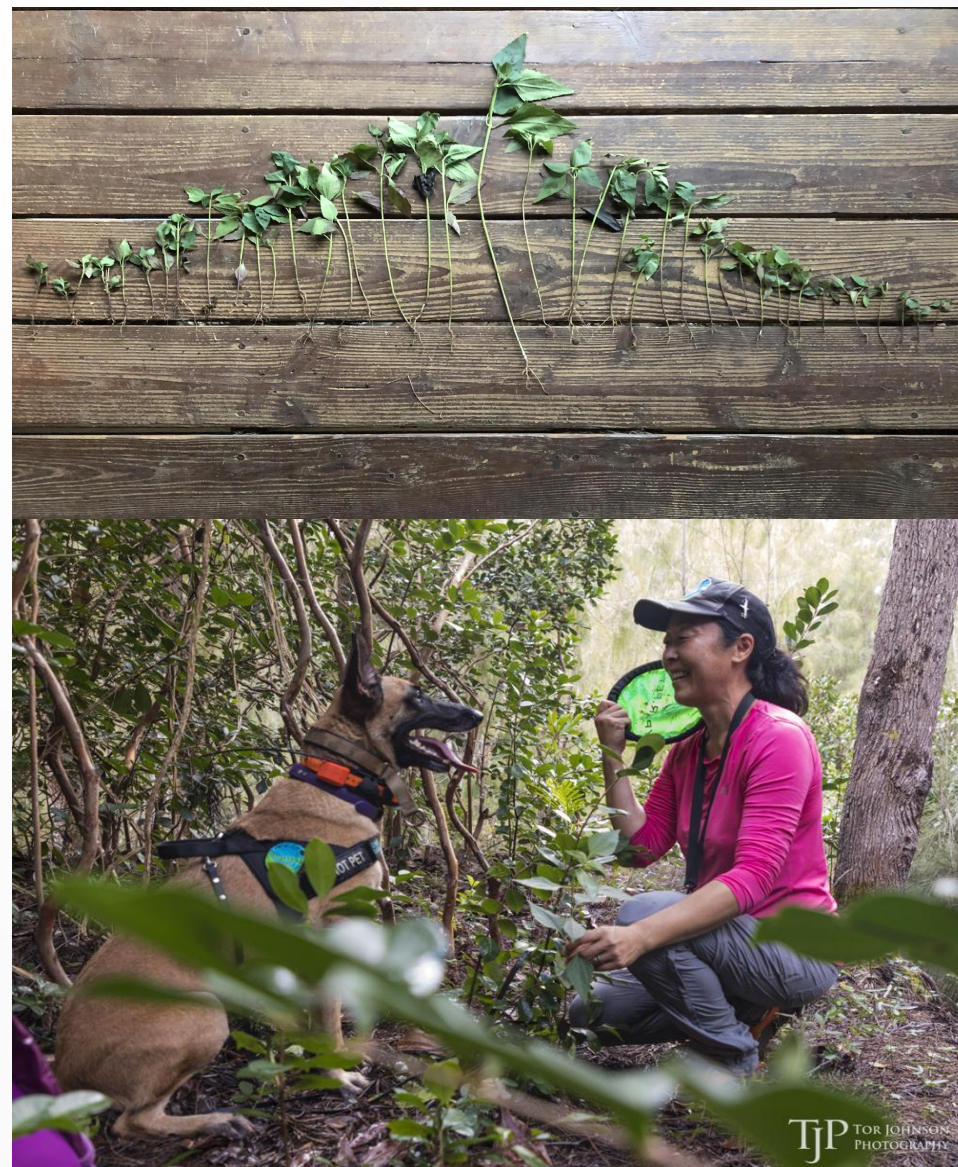
- Classical Conditioning (Pavlov)
- Target Odor = Toy or Food

Training Sample Progression:

- Dried and fresh leaves
- Potted plants
- Wild plants

GPS Tools for Surveys:

- Collar (dog track)
- Handheld device for dog handler (handler track, waypoints for COBs and targets)



Successes

- Dogs have detected targets up to 90m away
- Dogs can detect targets that are not visible
- Enables fast coverage of large area
- Complements human/visual finds (different detections)



Field Data



2021-12-27 K9 Qana's track

- Initially found a few small plants.
- Qana dropped frisbee and disappeared.
- 7 mature plants and 11 immature plants found in additional spot ~80m away.
- Close to a former Devil Weed Crew Hot Spot.

Field Data



2022-03-30 Ruger's track

- K9 Ruger "caught odor" from downwind trail
- Could not get through vegetation
- Handler took him to upwind trail, walked him into vegetation
- Ruger led us to plant
- Original detection from downwind trail was ~55 meter away

Challenges

- 1) Difficult terrain and obstacles
- 2) Variable wind conditions
- 3) Covering downwind areas



Measuring Success

Record and analyze data:

- Survey times
- Distance/area covered
- Number of plants found
- Detection distances

Stopgaps towards success:

- Group training
- Discussions of field challenges and successes
- Continuing education



Number of Volunteer Dog Teams

2019: 2
2020: 3
2021: 5
2022: 6

Statistics of Detected Plants

2019 Immature total: 54
2019 Mature total: 3

2020 Immature total: 578
2020 Mature total: 15

2021 Immature total: 1075
2021 Mature total: 217

2022 Immature total (as of March): 110
2022 Mature total (as of March): 32

2019-2022 Immature total: 1817
2019-2022 Mature total: 264

*** The above does not include a Halawa hot spot previously treated by OISC, where CDH teams discovered a reinfestation of 4000+ plants.*

Questions?

CONTACTS

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