



BocFru: Extent and Strategies for control

Bocconia frutescens – Tree poopy

- Native to Tropical America
- Bird dispersed
- 10+ feet tall, heavily branched near base, in low elevation dry sites, Leeward Haleakala
- 25+ feet tall, with single large trunk, in mid elevation moist sites, Leeward Haleakala
- Most vigorous growth observed between 4,000 – 5,000 ft.

History on Maui

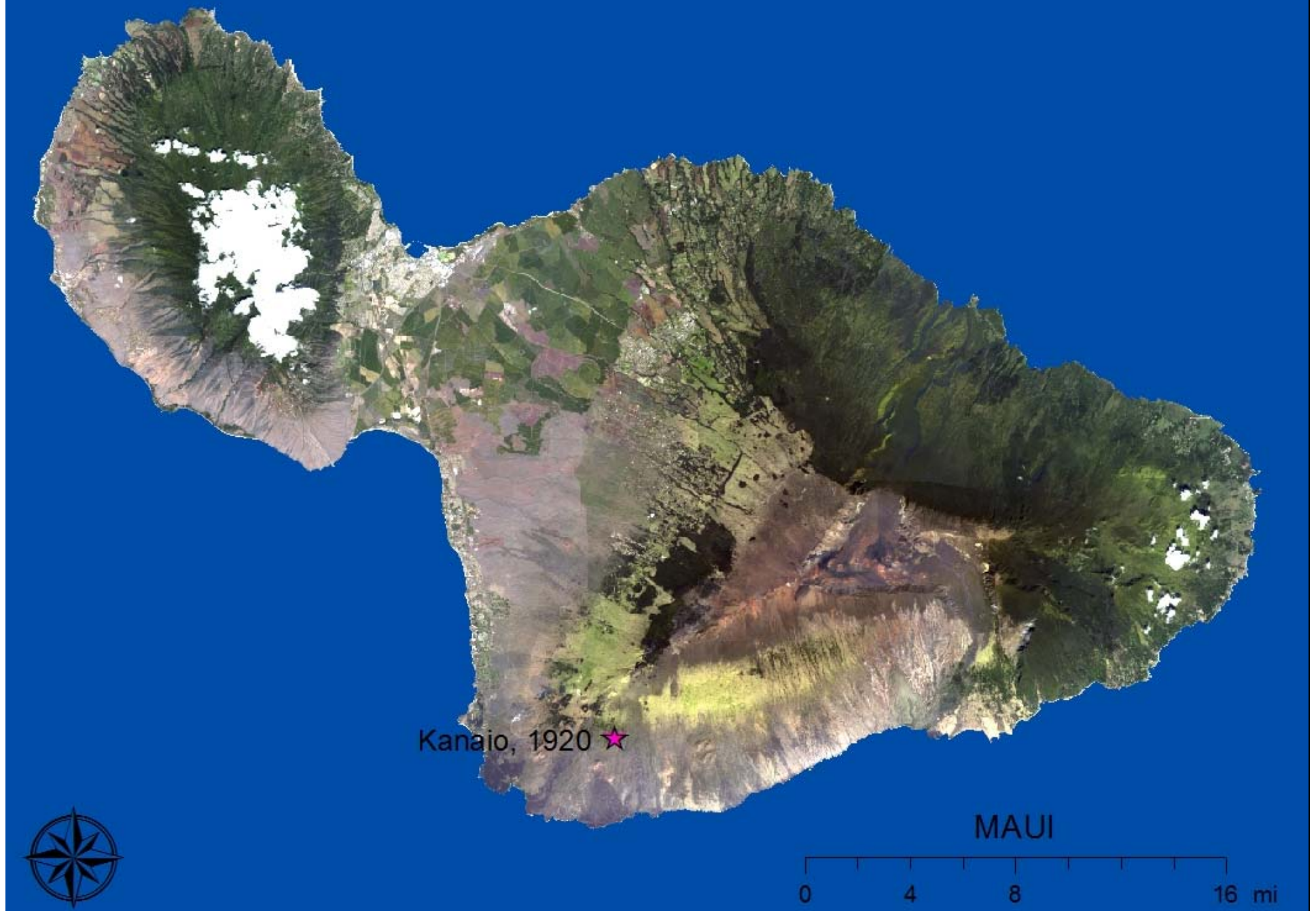
- 1920 - First collected in Kanaio, Southern Haleakala
- 1961 - naturalized in Kanaio
- 1974 - mature plants seen on Crater Road
- 2000 - efforts to control Bocconia begin
- 2015 - widely naturalized on Leeward Haleakala; Windward Haleakala forest at risk

Bocconia frutescens
***Bocconia frutescens* L., Sp. Pl. 505, 1753.**
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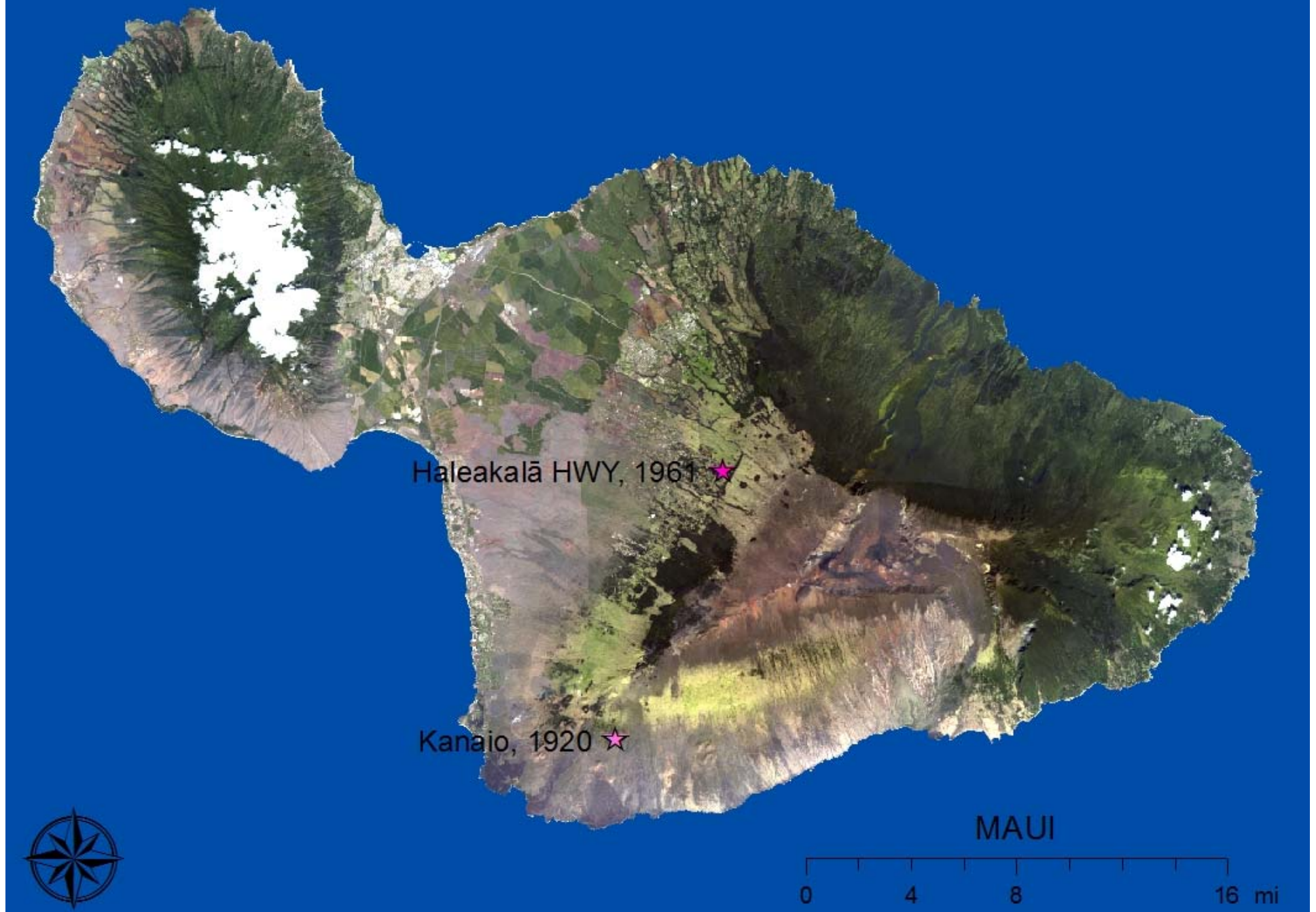
In 1961 this species was very sparingly and locally naturalized, a few plants only, in East Maui, just south of Ulupalakua Ranch, as reported by Fosberg (1969:17).

On 14 April 1974, it was seen to have spread some distance from the locality noted in 1961. Many well-grown shrubs were seen for some distance along the road south. A single seedling several decimeters tall was seen in the fenced nature preserve at Auwahi, and a mature shrub was growing in Kula, along the road to Haleakala Crater some hundreds of meters above the junction with the Upper Kula Road at perhaps 1200 m elevation. It would seem to be still possible to eradicate this shrub if desired. The fleshy aril or caruncle of its seed probably assures its wide distribution by mynahs and other introduced frugivorous birds.

Bocconia frutescens invasion on Maui



Bocconia frutescens invasion on Maui



LHWRP Objectives

- Control plants that are incipient
- Prevent spread into Makawao Forest Reserve and TNC Waikamoi Preserve
- Control plants that threaten rare species
- Determine estimates for feasibility of initial control and maintenance.
- Facilitate research on biological control
- Long-term dream – create an adult free conservation area at Kahikinui





Control methods

- Physical control: seedlings can easily be pulled by hand. Labor intensive
- Chemical control:
 - Cut stump: very effective with 20% Garlon 4 and Biodeisel; sap will burn your eyes!!
 - Basal bark: effective with 20% Garlon 4 and Biodeisel
 - Foliar: only effective on seedlings Roundup 2%.
 - HBT: Proven effective on smaller diameter trees.
 - Hack n squirt: No data

Challenges and Limitations

- Steep and vertical terrain – labor intensive
- Unidentified rare plants in control areas
- Bocconia spreading unnoticed through communities
- Prolific seed banks – retreatment required quarterly to annually

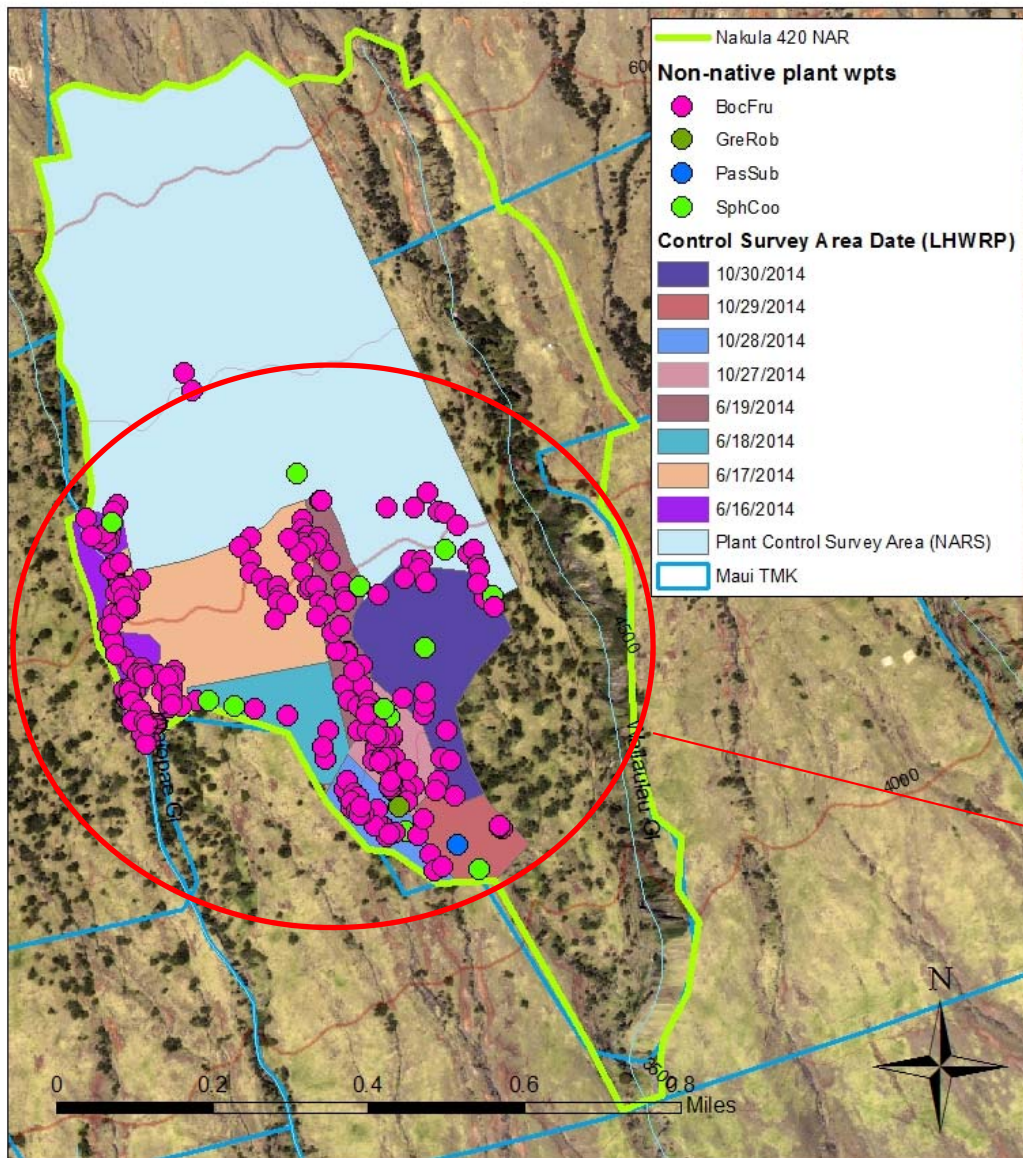






2015 Outcomes

- Control around rare native species
- Assist with control at Nakula NAR
- HBT trials at Kahikinui
- Roadside survey of Olinda and Pi'iholo road
- Aerial survey extent of distribution on West and South slope

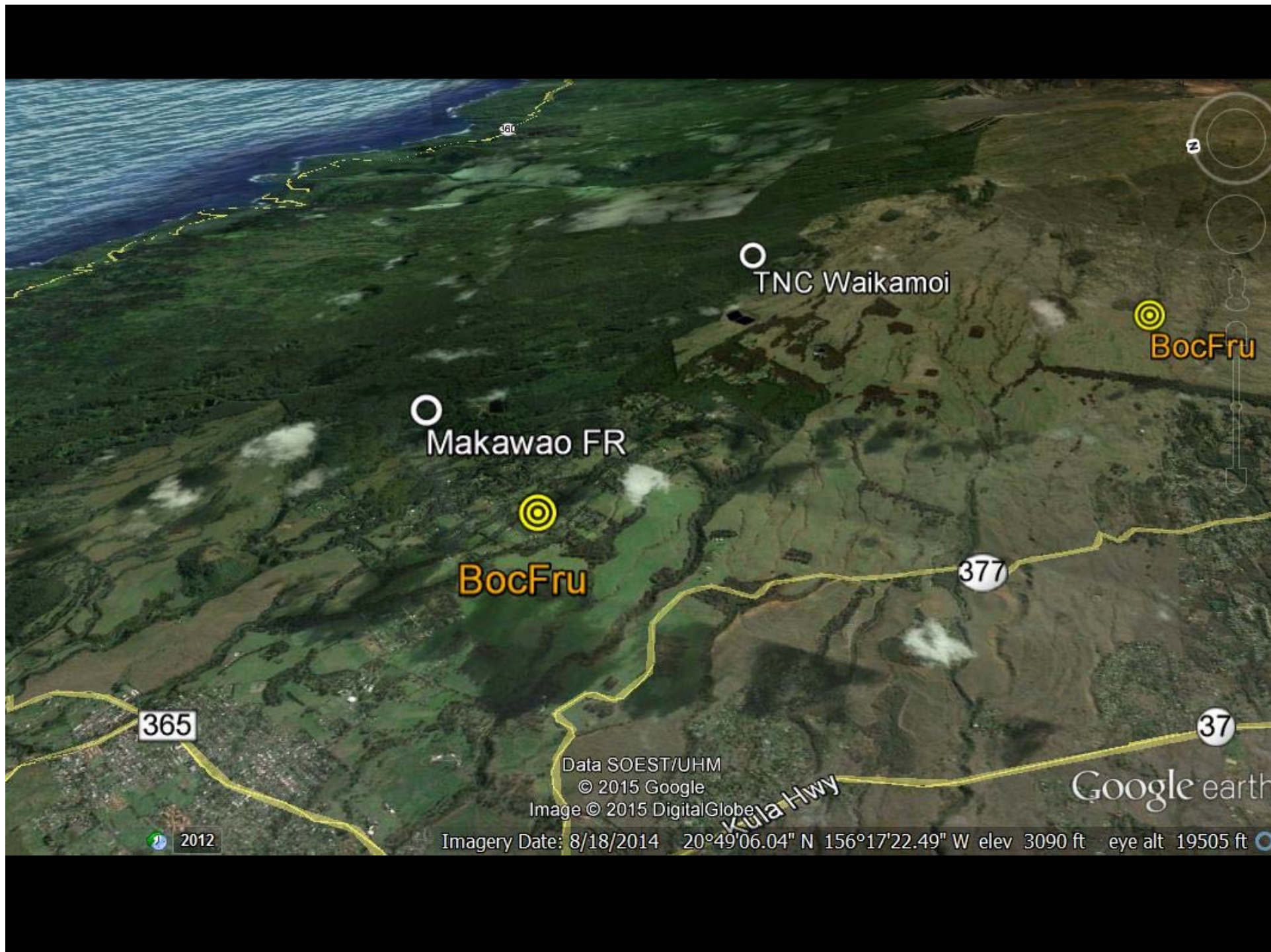


Weed Control Efforts Nakula 420 NARS, Maui

INITIAL GROUND CONTROL
 4 crew
 100 hrs.
 97 acres surveyed
 9 acres controlled
 \$12,000 in staff time







2016 Goals

- Control incipient plants in Olinda and Kula
- Train staff to rappel as treatment option at Kahikinui and continue HBT trials/treatment
- Control around rare species in Kahikinui/Auwahi and Nakula.
- Expand survey area on West slope
- Survey Kaupo
- **Educate the community**
- Prevent spread beyond Pi'iholo road and Pu'u-nianiau
- Prevent spread into Kaupō and Kipahulu

Acknowledgements

LHWRP staff, Fernando Juan, Bryon Stevens and NAR staff, Chuck Chimera, Jordan Jokiel and Haleakala Ranch, Pat Bily and TNC, Art Medeiros, Forest and Kim Starr for all the pics, Loyd Loope, Windward Aviation, Dr. James Leary, All of you, Garlon and Biodeisel, and the A\$\$ hole who brought it to Maui