
ʻŌNAEHANA HOʻOMALU AINA KŪLOHELOHE
MAUI NUI

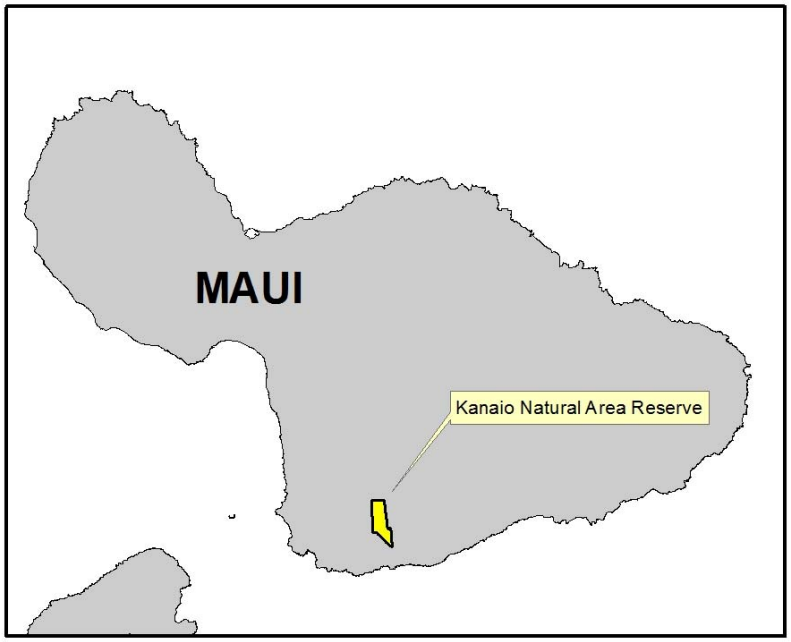
Bocconia control at Kanaio NAR

Bryon Stevens DLNR Forestry & Wildlife

Natural Area Reserve designated 1992

Dry forest & shrubland on recent lava flows (3-5 Kyr)

Fence completed 2012; encloses 1425 acres



Bocconia is widespread throughout the Reserve
Just one of several weedy tree species present
Entire area has been affected by disturbance:
Fire, cows, goats, pigs and deer

Considerations for undertaking this project:
Target is easily identified & treated
Defined area, able to cover 100%
CONTROL not ERADICATION
Weather and access ideal

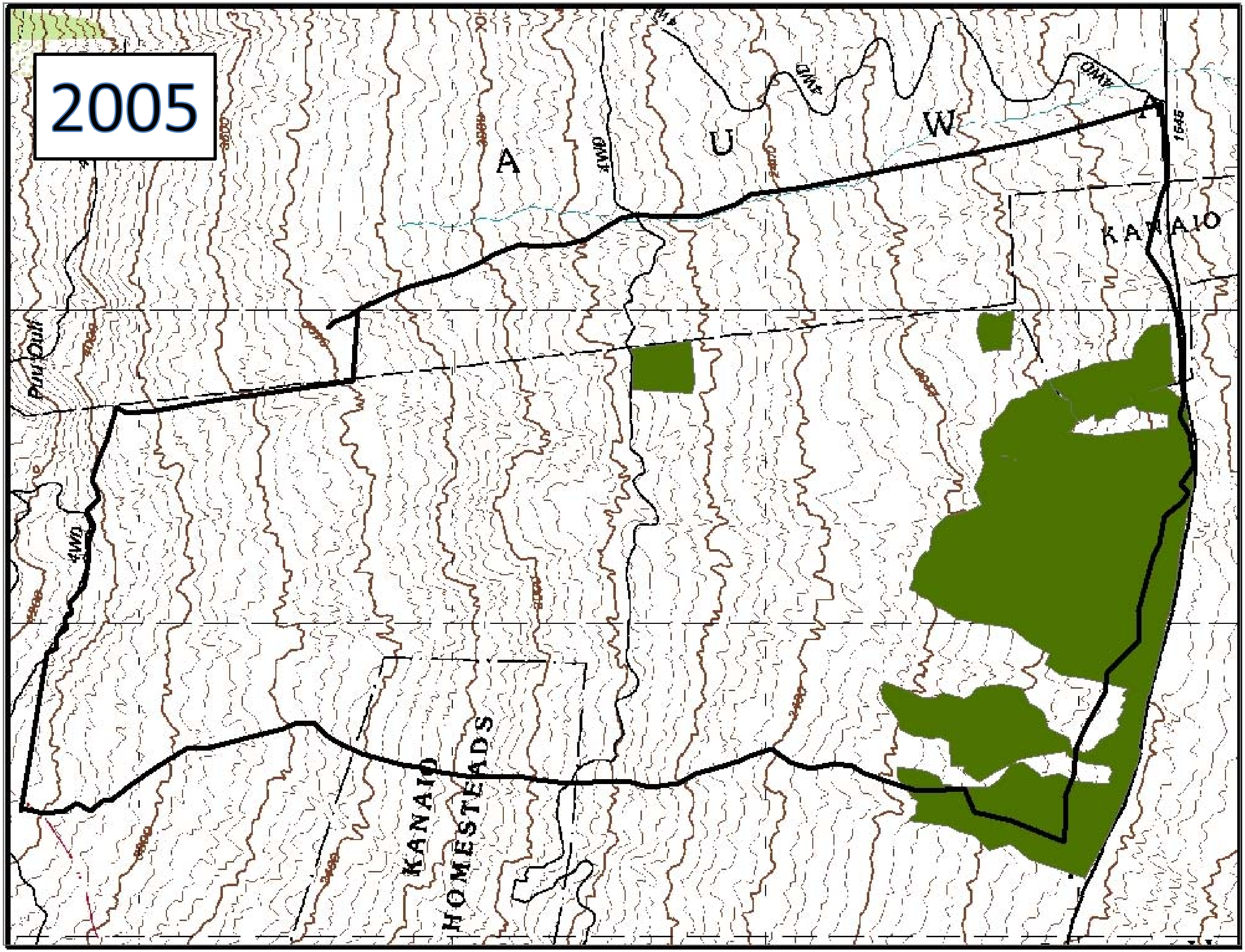
Bocconia frutescens (Papaveraceae)

"tree poppy", "plume poppy"

Native to South/Central America
"first collected on Maui in 1920"

Garlon 4 @ 20% in Biodiesel carrier
Basal bark application

Coincidence… or CONSPIRACY?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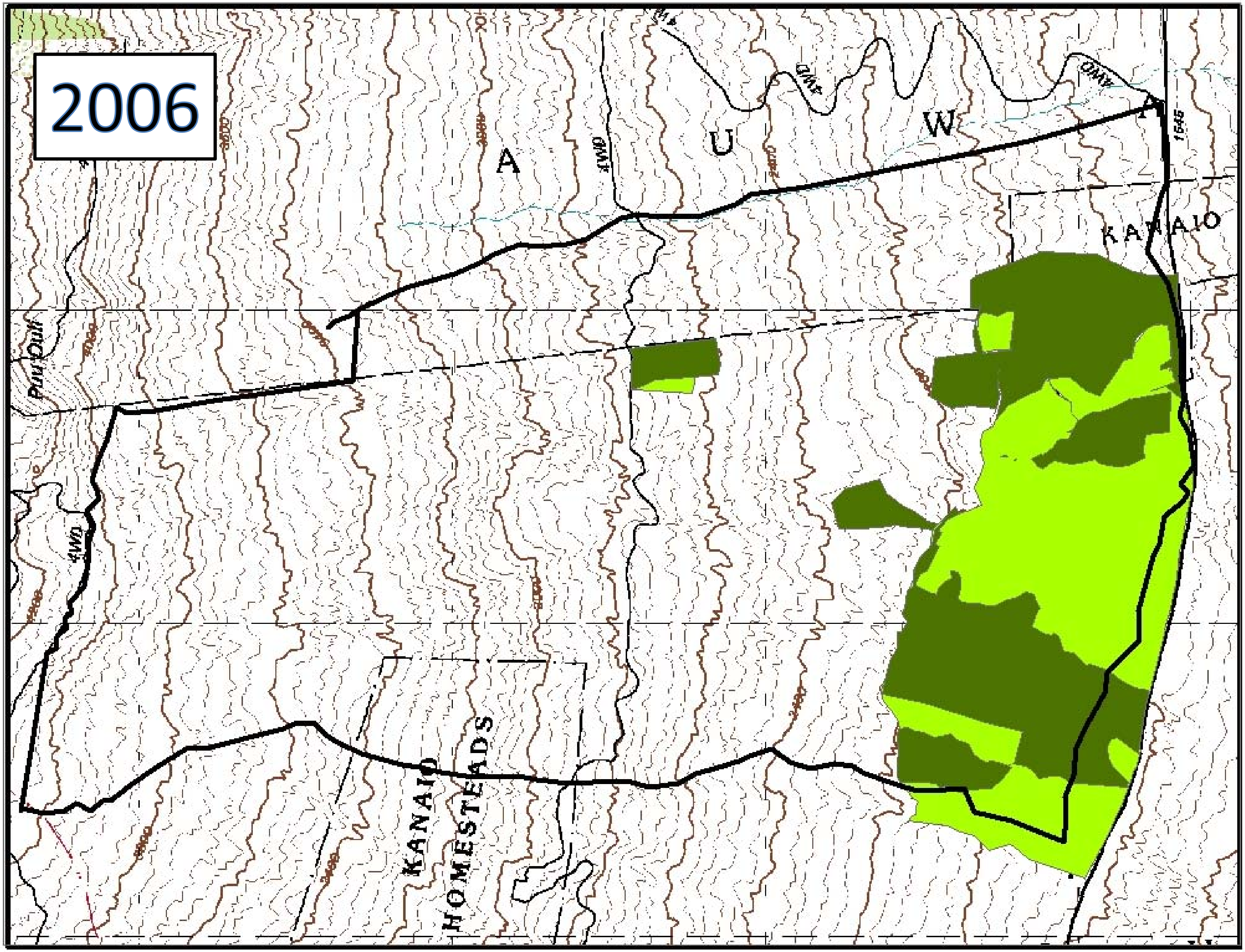
KANAIO
HOMESTEADS
4WD
Pu'u Ouli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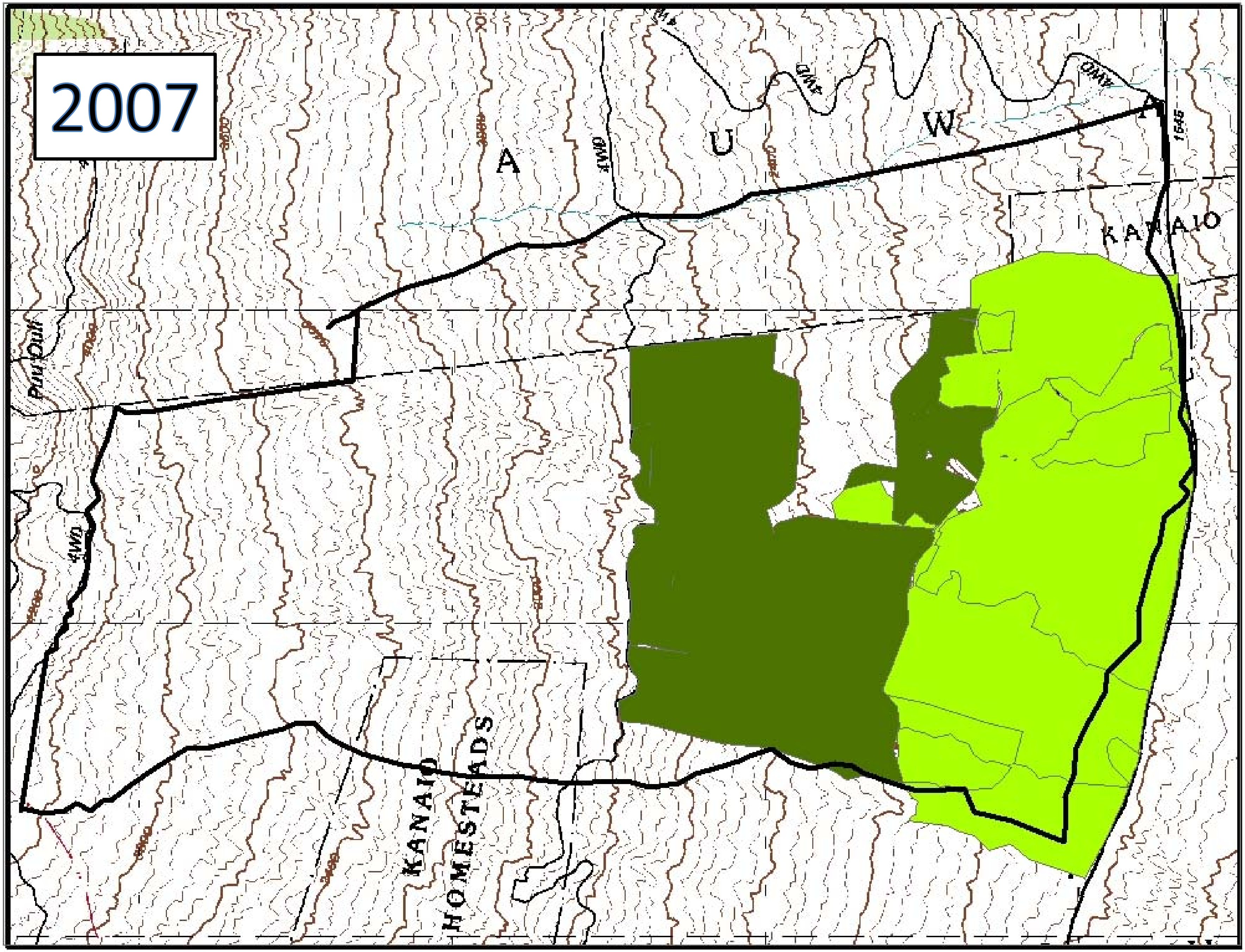
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HOMESTEADS
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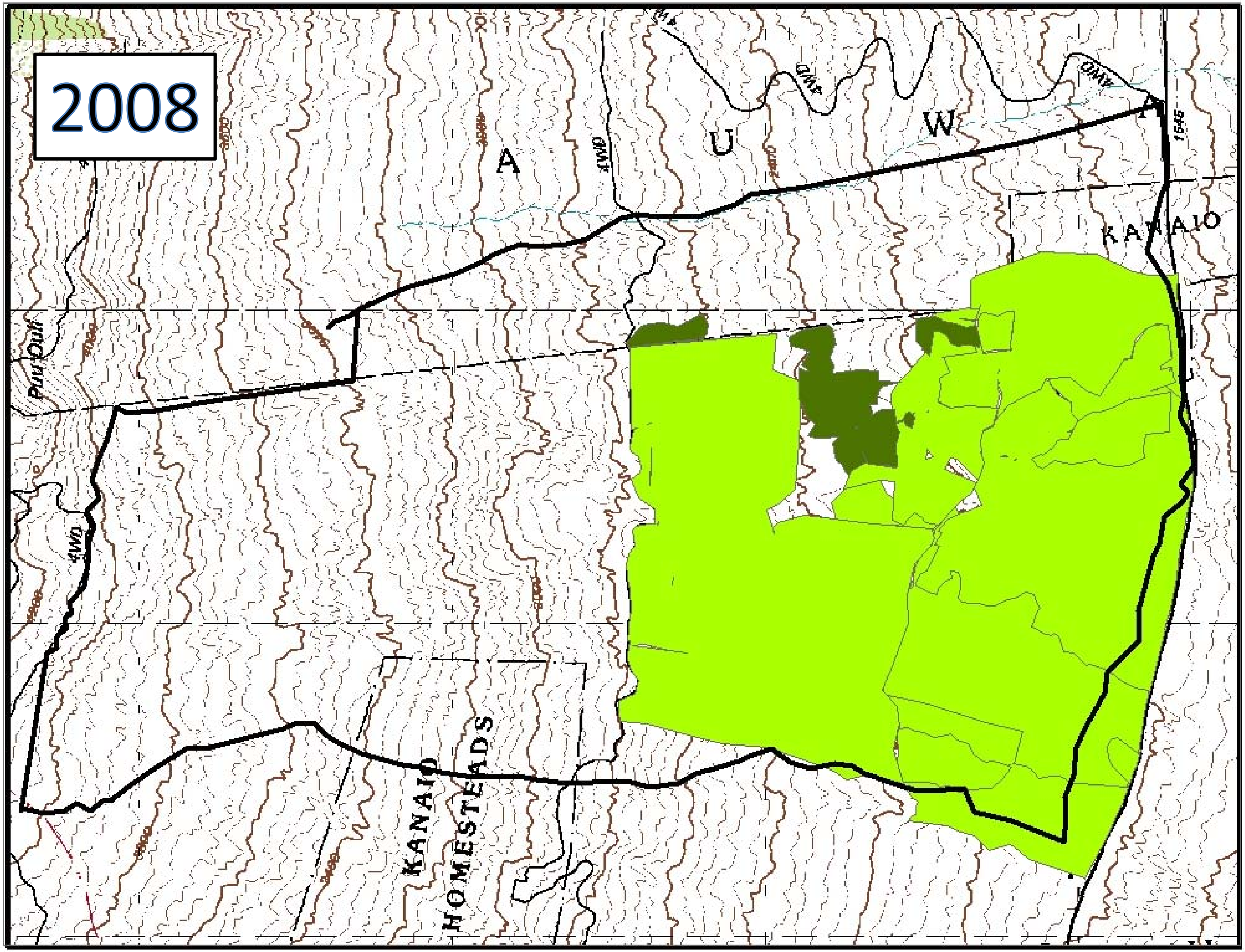
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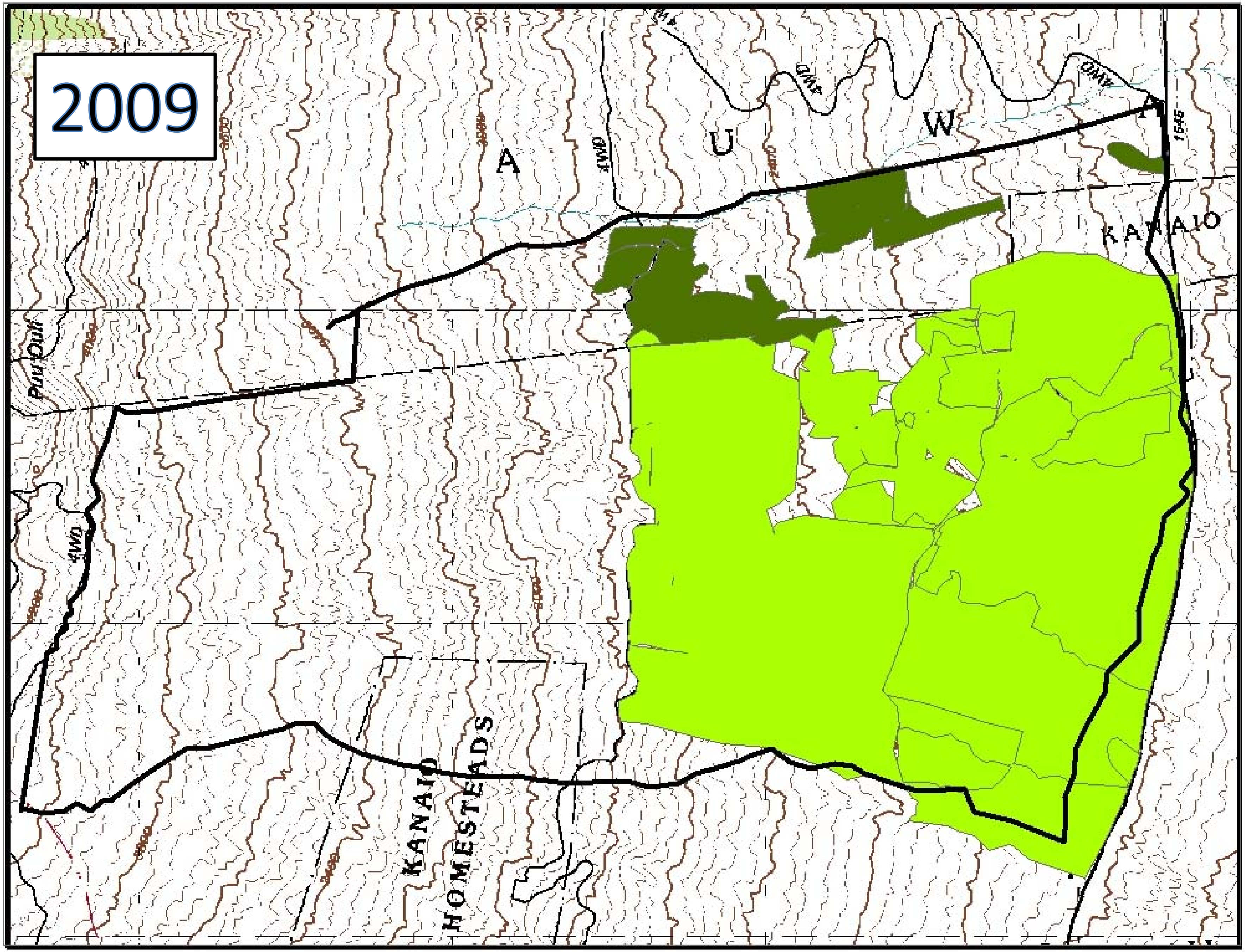
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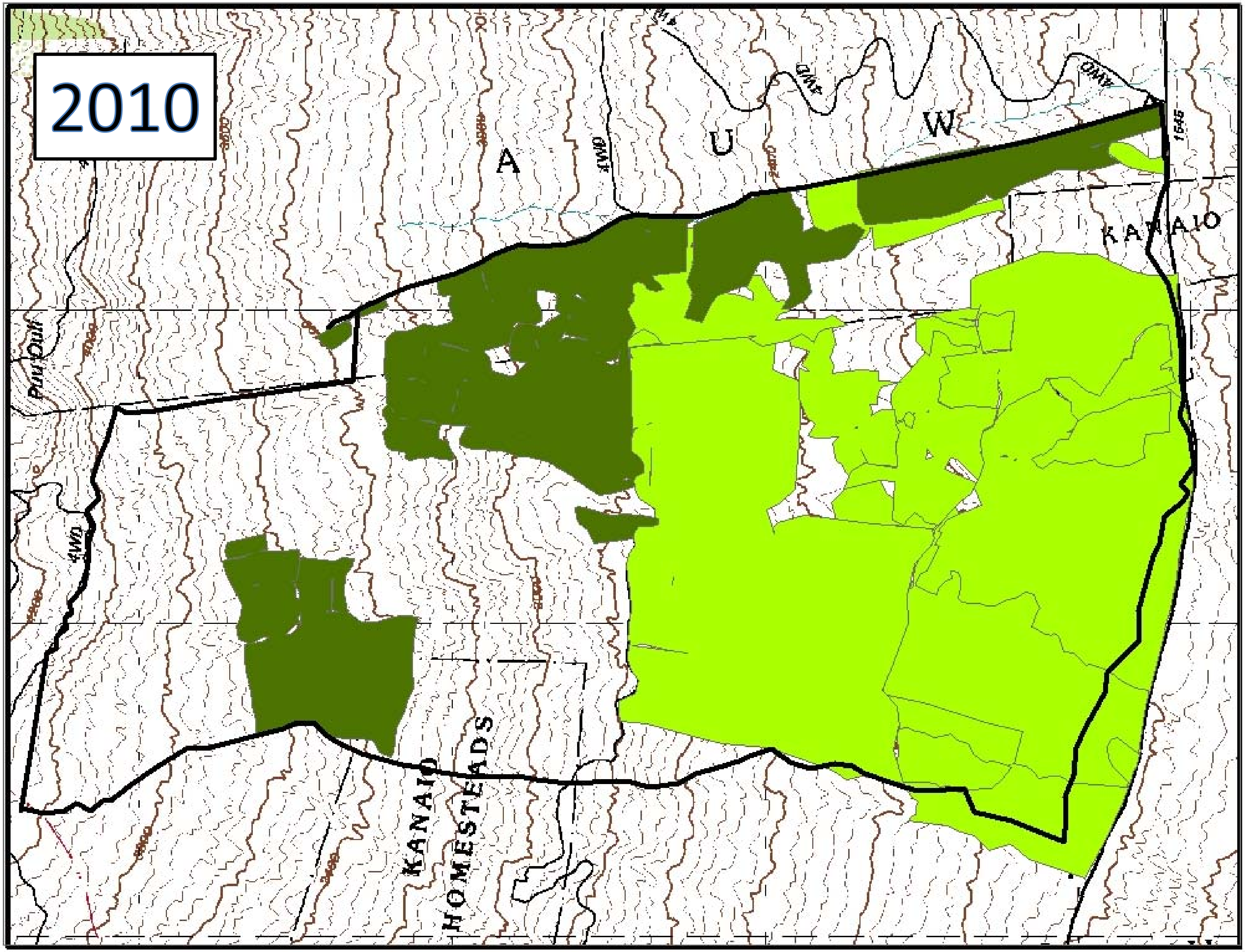
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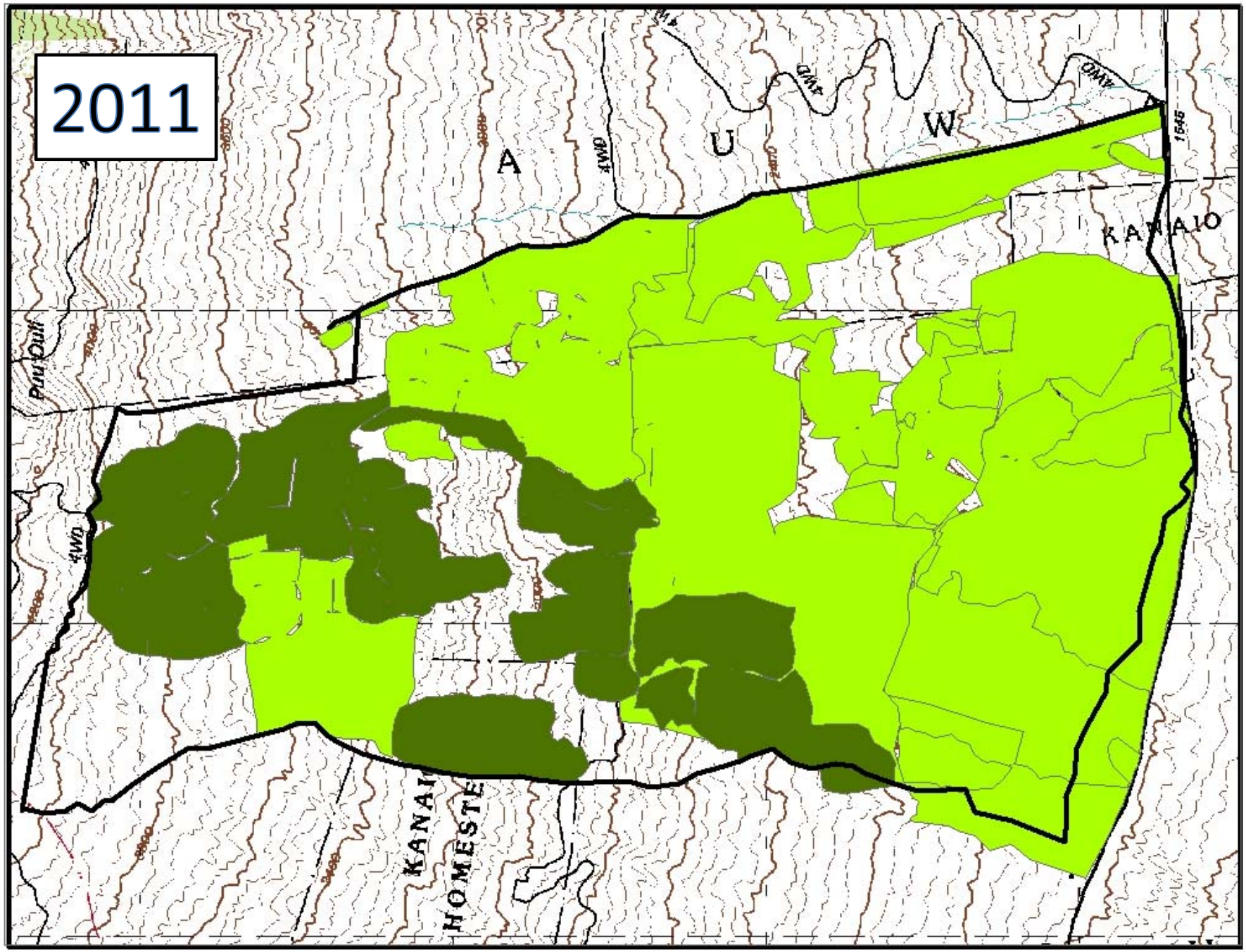
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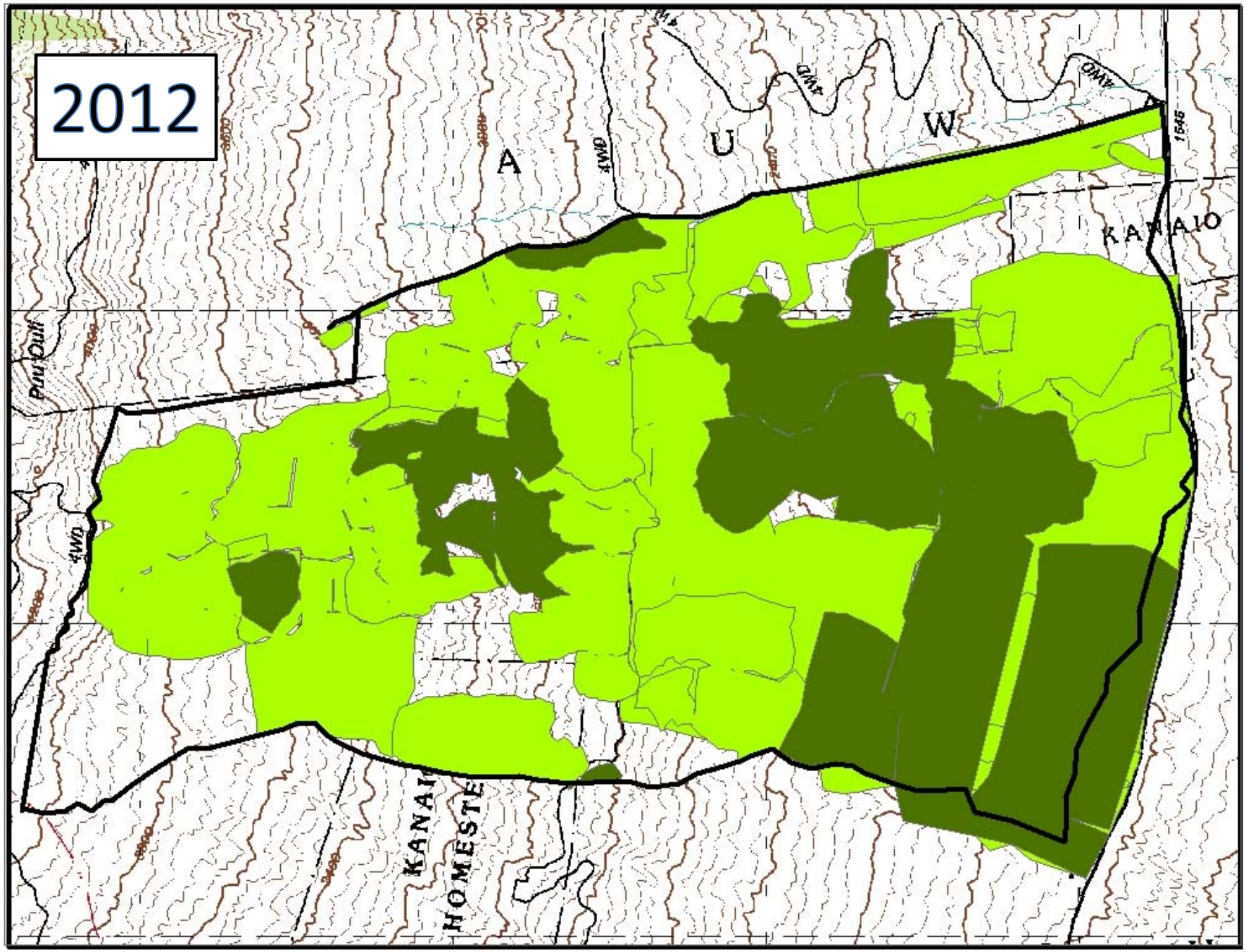
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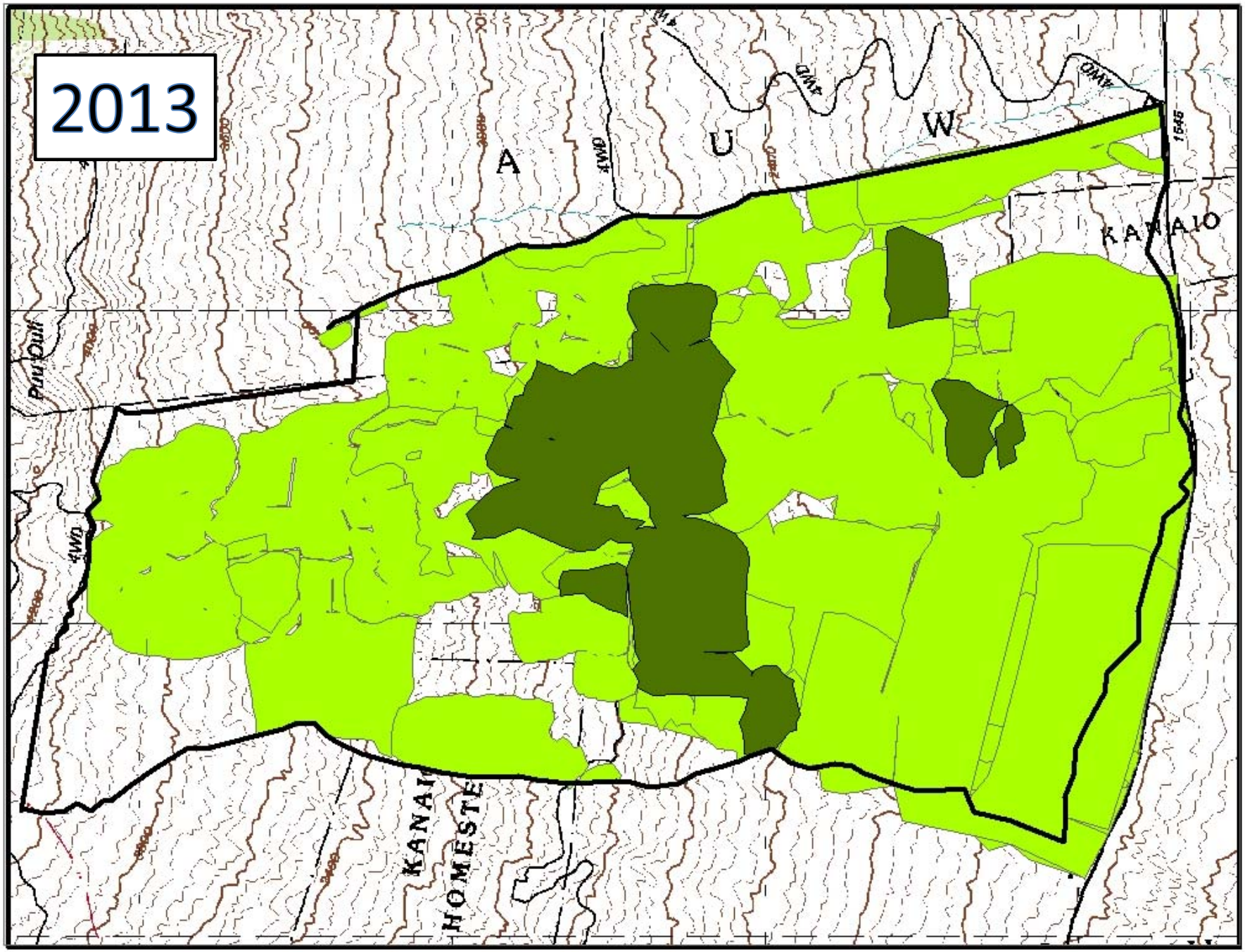
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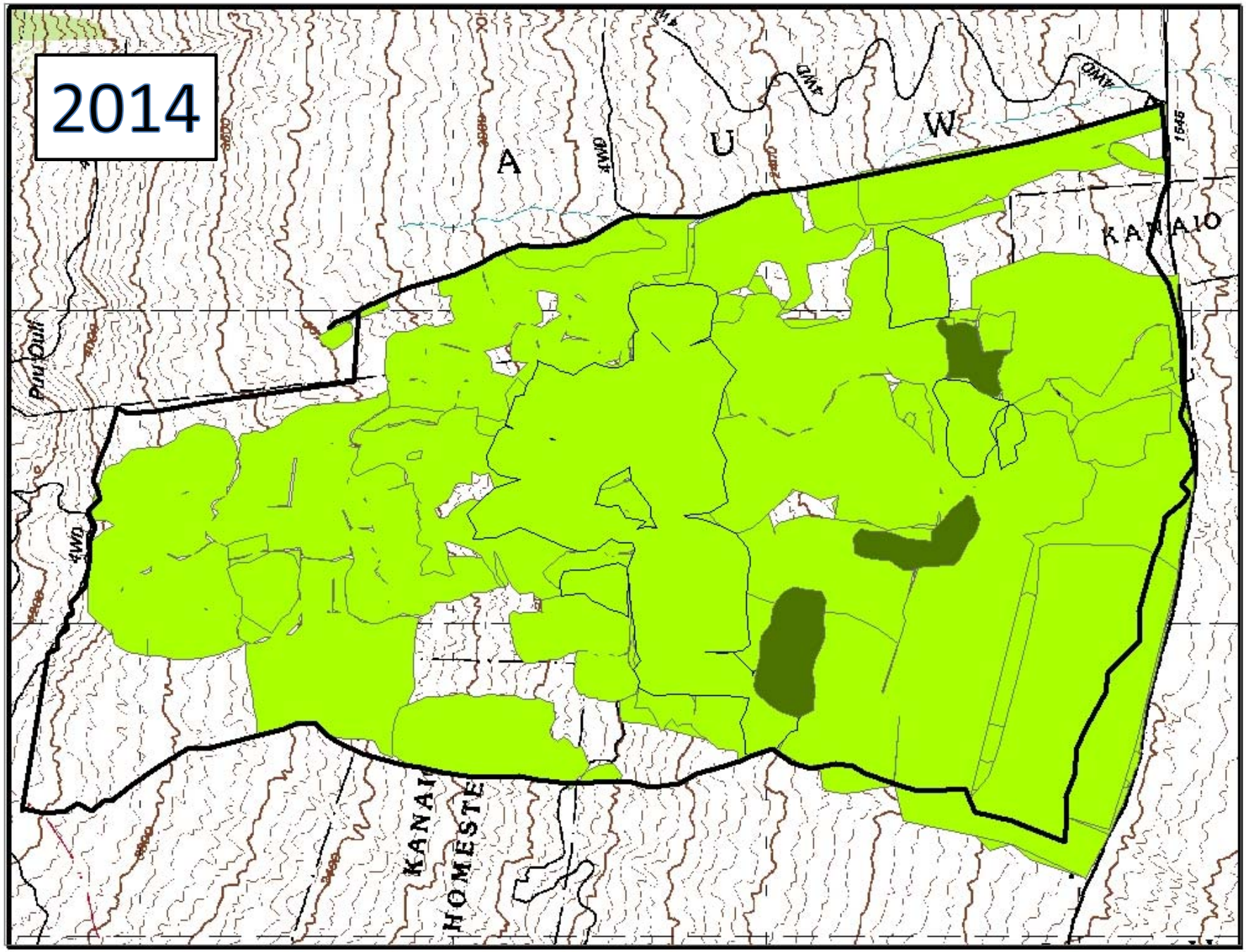
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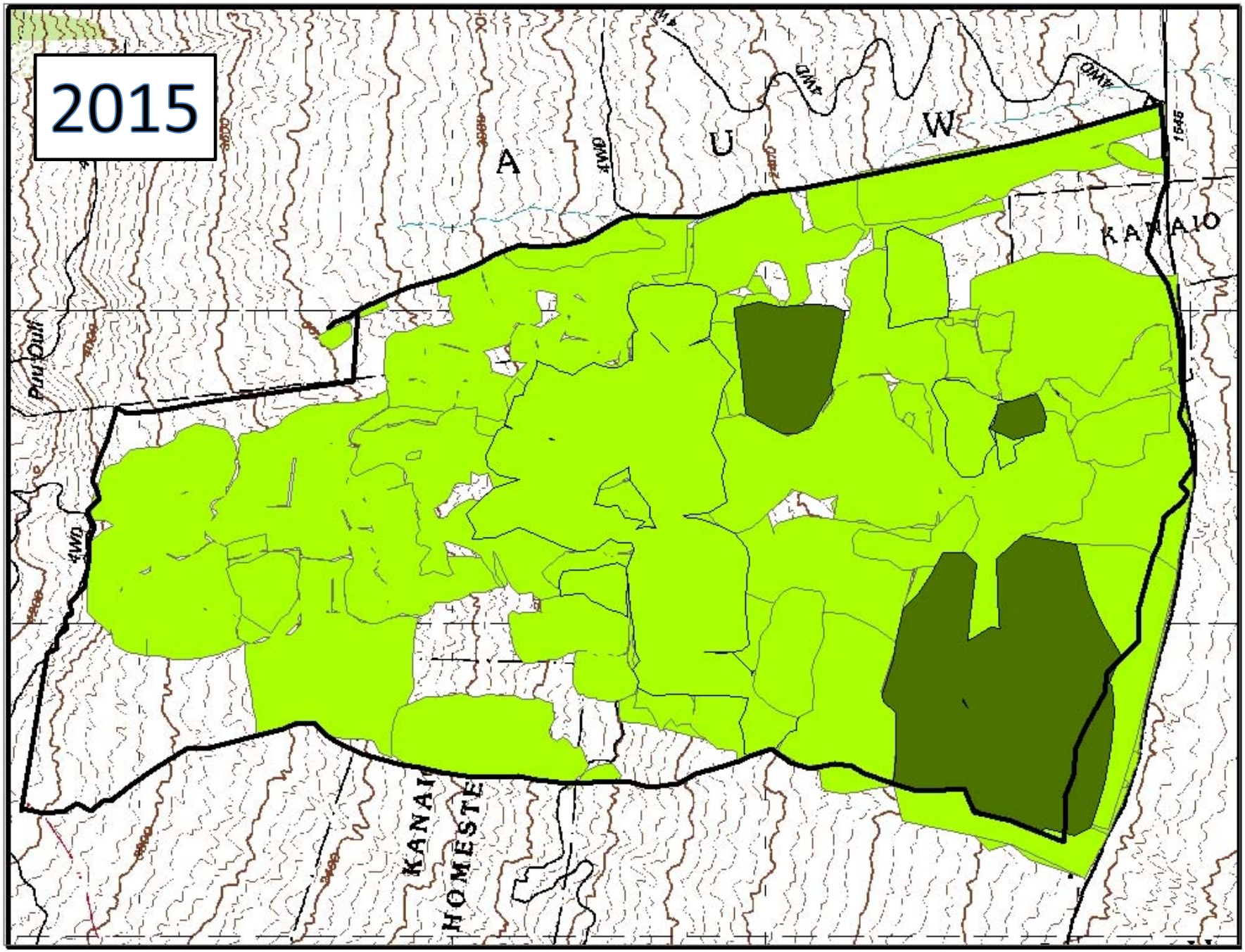
2015
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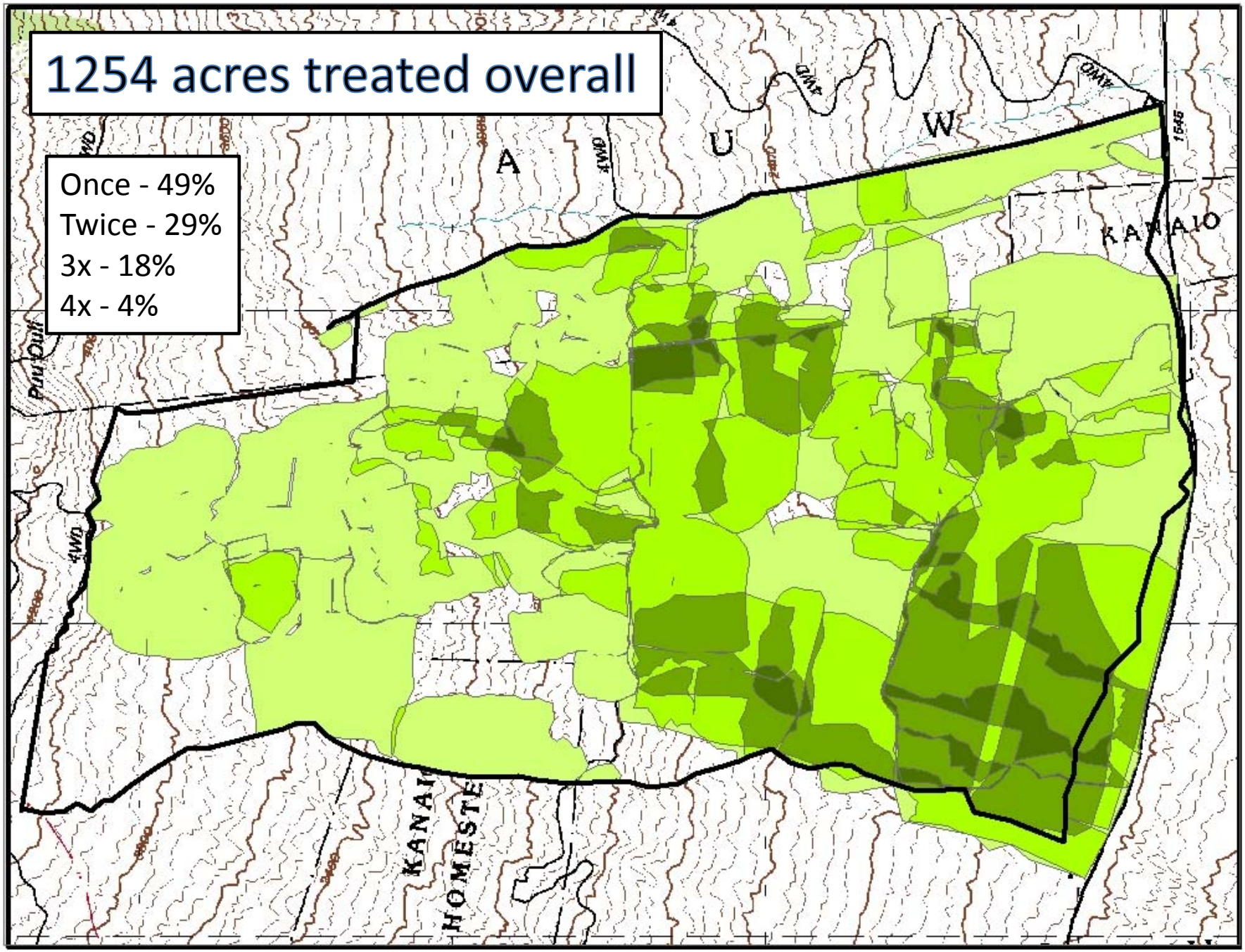
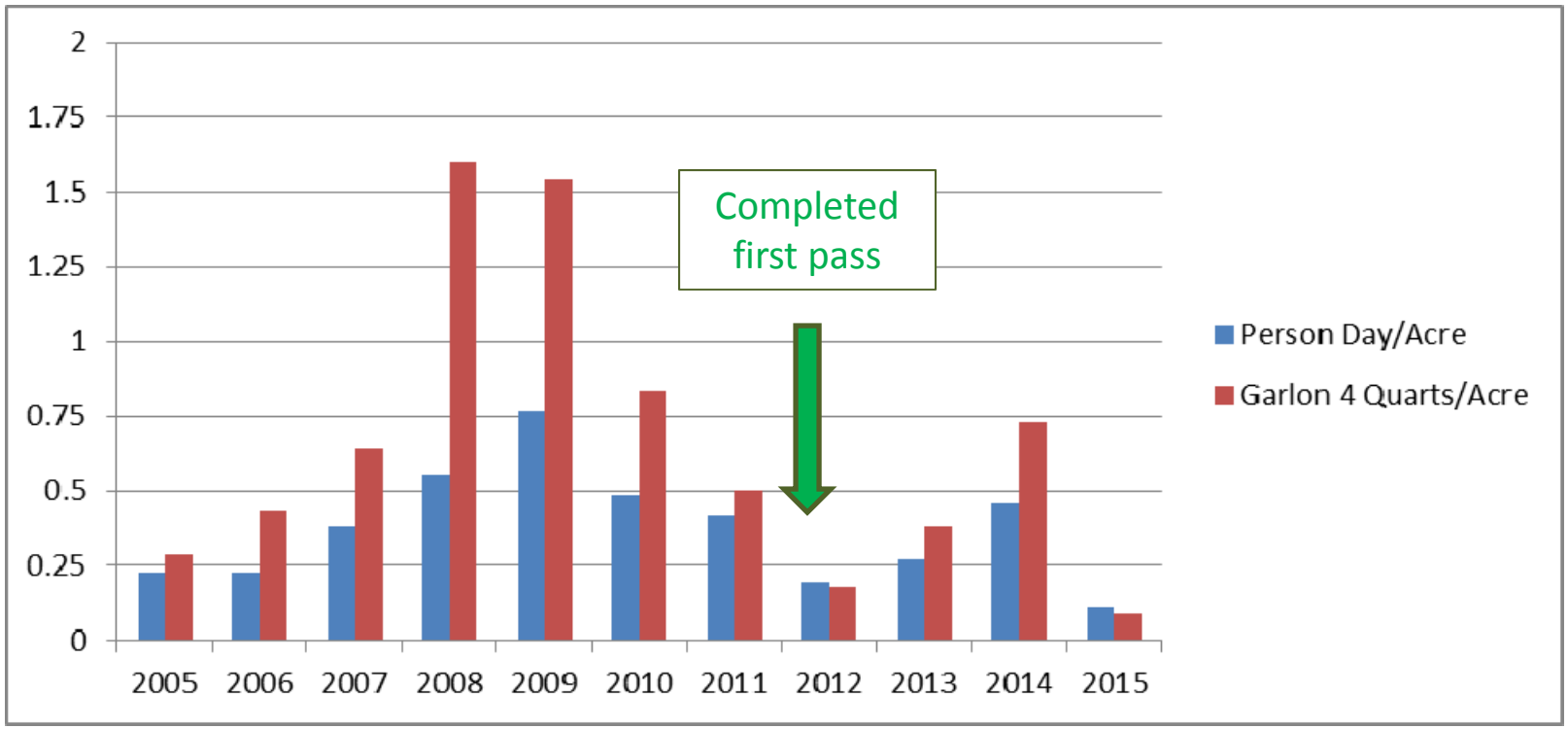

1254 acres treated overall
Once - 49%
Twice - 29%
3x - 18%
4x - 4%
KAHAIO

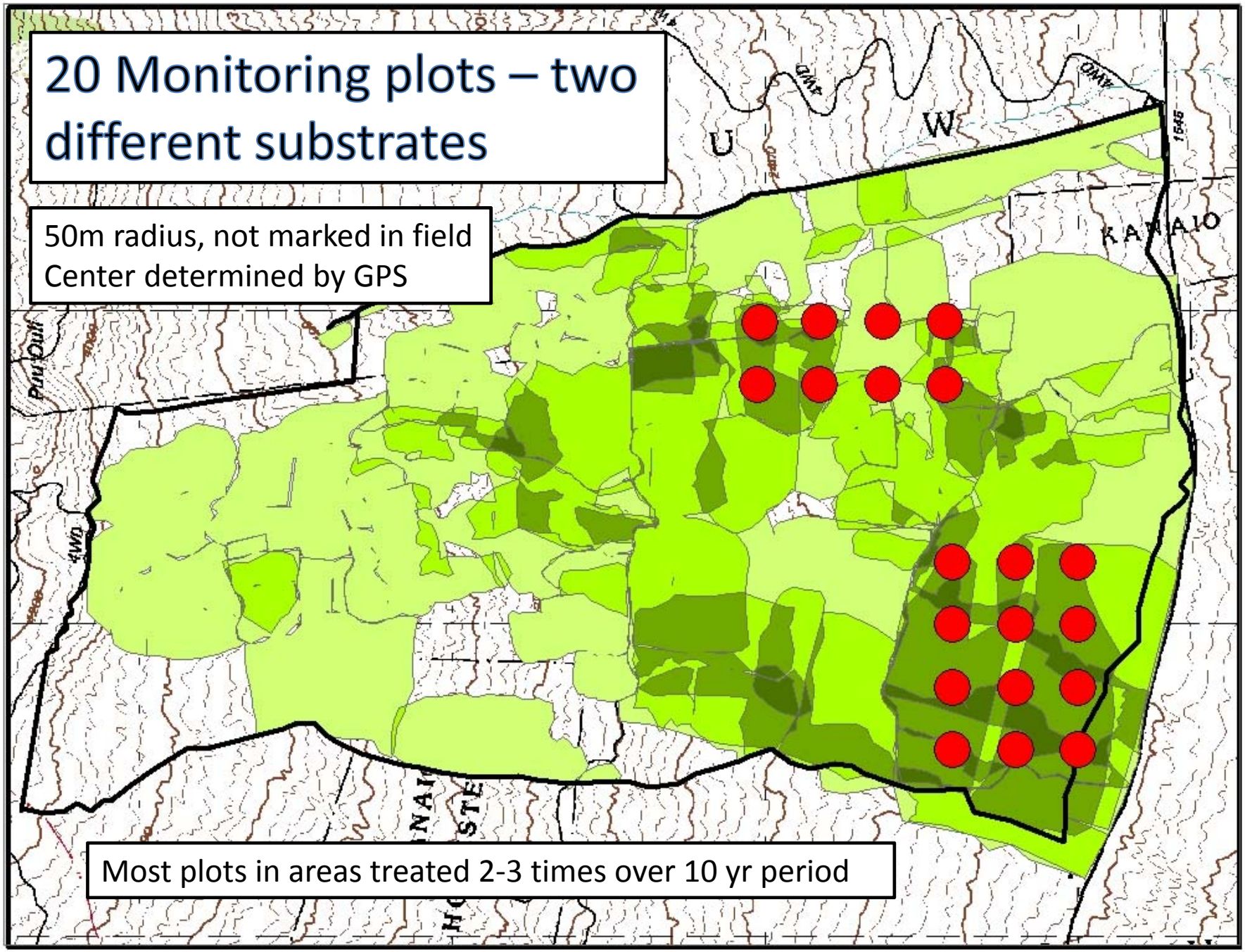
Bocconia control effort and herbicide expended



708 person days over 10 years = < ½ FTE

Garlon 4 label for forest use = 8 qt/a/year

25 gallons/year average @ $100/gal


20 Monitoring plots – two different substrates
50m radius, not marked in field
Center determined by GPS
Most plots in areas treated 2-3 times over 10 yr period
U
W
KAMAIO
4WD

Different substrates

Recent Lava Flows
Lower count plots (n=12)

“Lava with soil”
Upper count plots (n=8)

Bocconia Monitoring

Count of individual plants per plot

“Terminal Leaf Clusters” on each plant - TLC

Bocconia Monitoring height classes

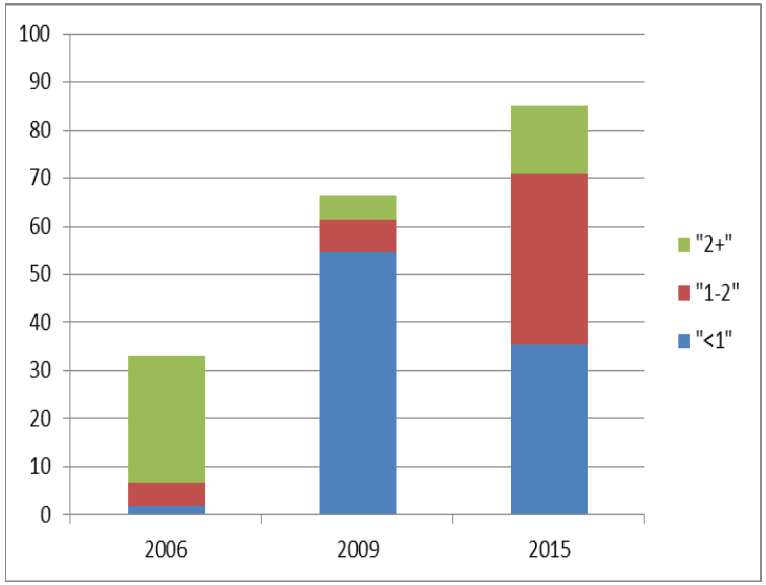
Less than 1m tall

1 to 2 meters

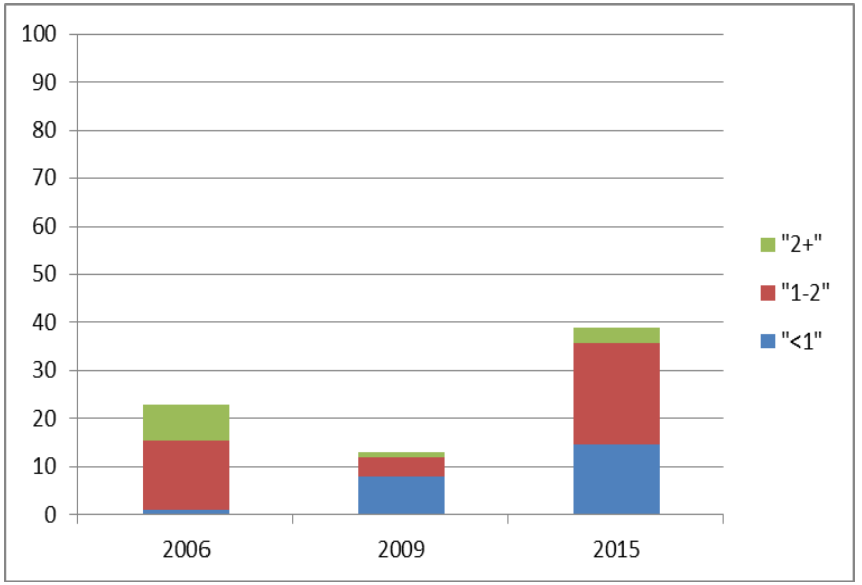
> 2m

RESULTS

Plants per acre



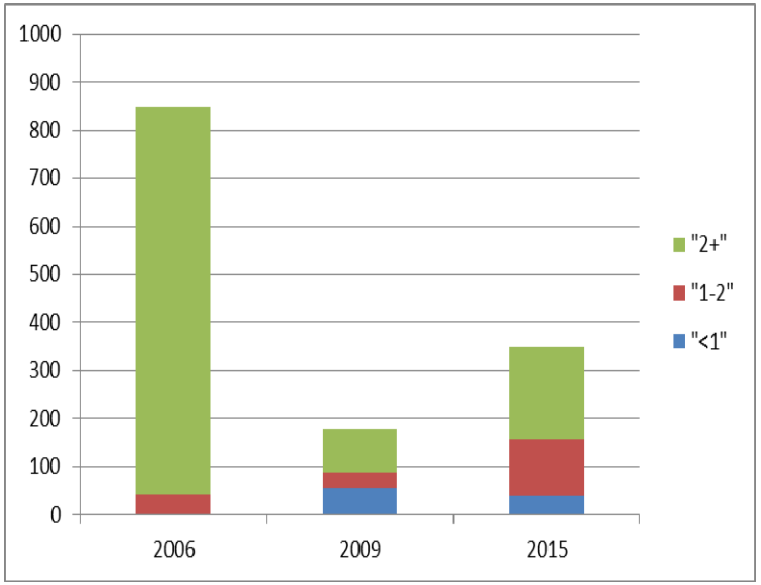
Upper Plots



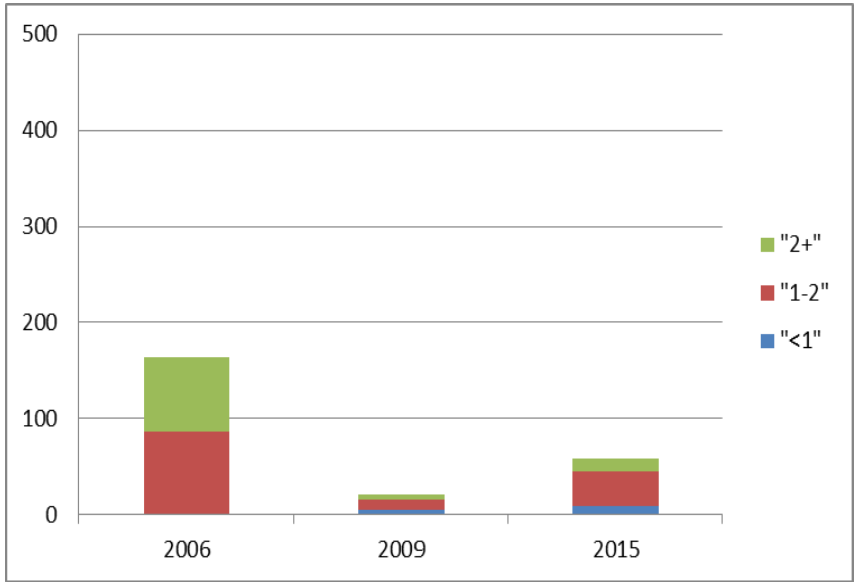
Lower Plots

RESULTS

Reproductive potential - TLC per acre



Upper Plots

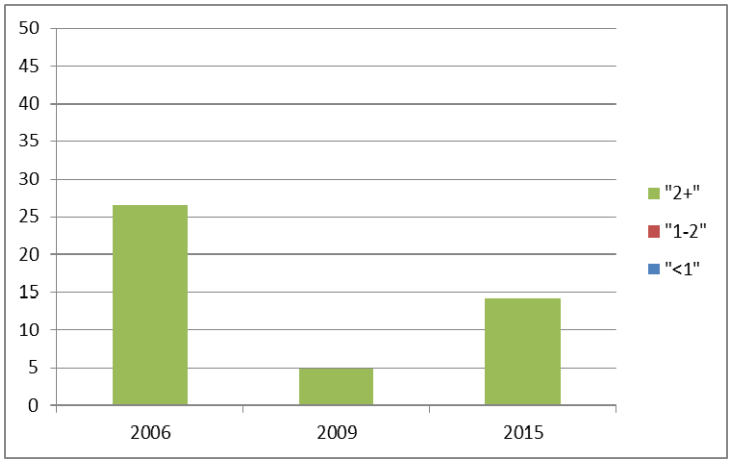


Lower Plots

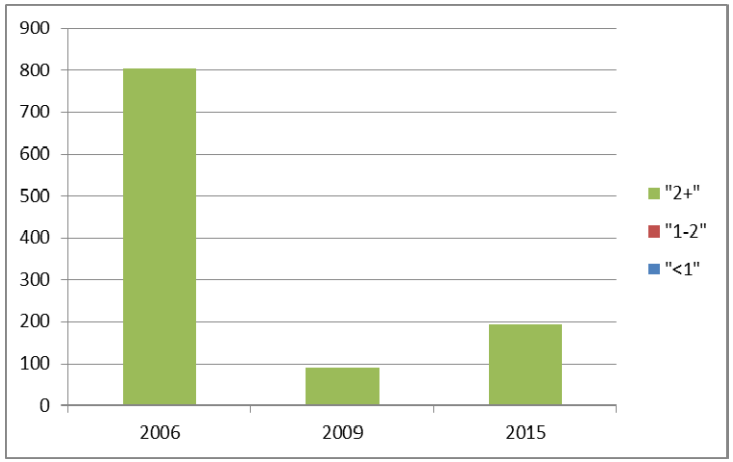
SPIN DOCTORED RESULTS

Plants less than 2m tall disregarded as “Non-reproductive”

Upper Plots

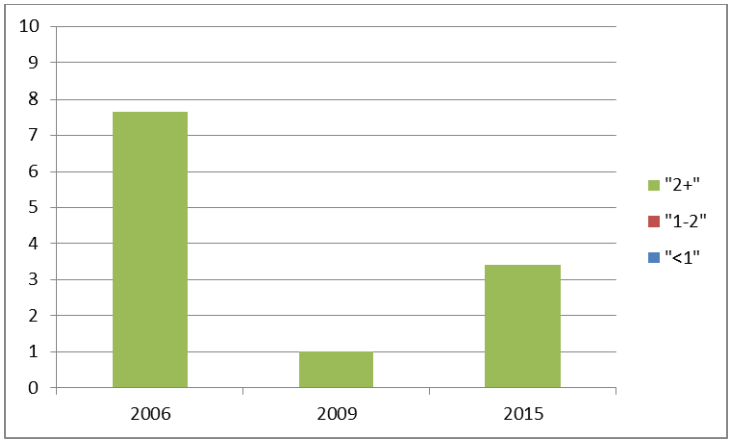


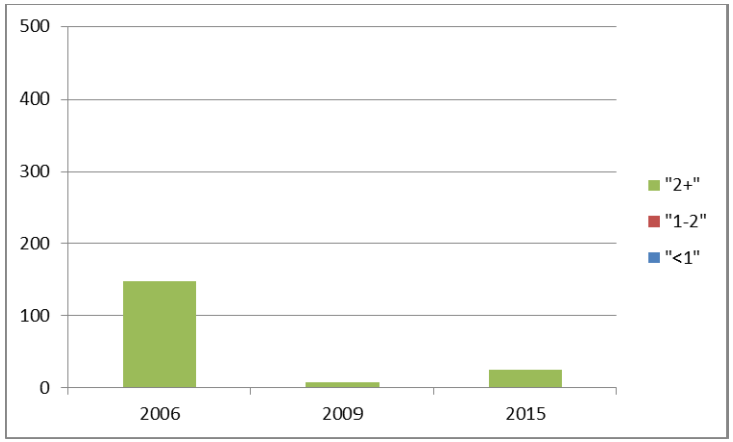
Plants per acre



TLC per acre

Lower Plots





CONCLUSIONS AND QUESTIONS

Number of plants > 2m tall less than half than before treatment began;
"reproductive potential" reduced 80%

Explosion in seedlings due to goat exclusion? Increased rainfall?

Resources expended relatively minor when compared to result;
Worth sustaining the effort

100% coverage of the Reserve allowed for control of incipient weeds;
Rare plants, archaeological sites and important lava tubes discovered

Influx of seeds from outside the Reserve – bird distributed

ACKNOWLEDGEMENTS

Staff and interns from DOFAW and numerous cooperating acronyms who did the field work

ArcMap Helpline – Ganesh Birneybaba and Farooq Aruch