



# Reconnecting to Pacific Island breadfruit agroforestry landscapes

Rising Voices  
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# Masters



# Track record 200 years

- Land and water degradation
- Food insecurity



- Reduced land access
- Public unawareness

Lānaʻi 2013

6.64 km

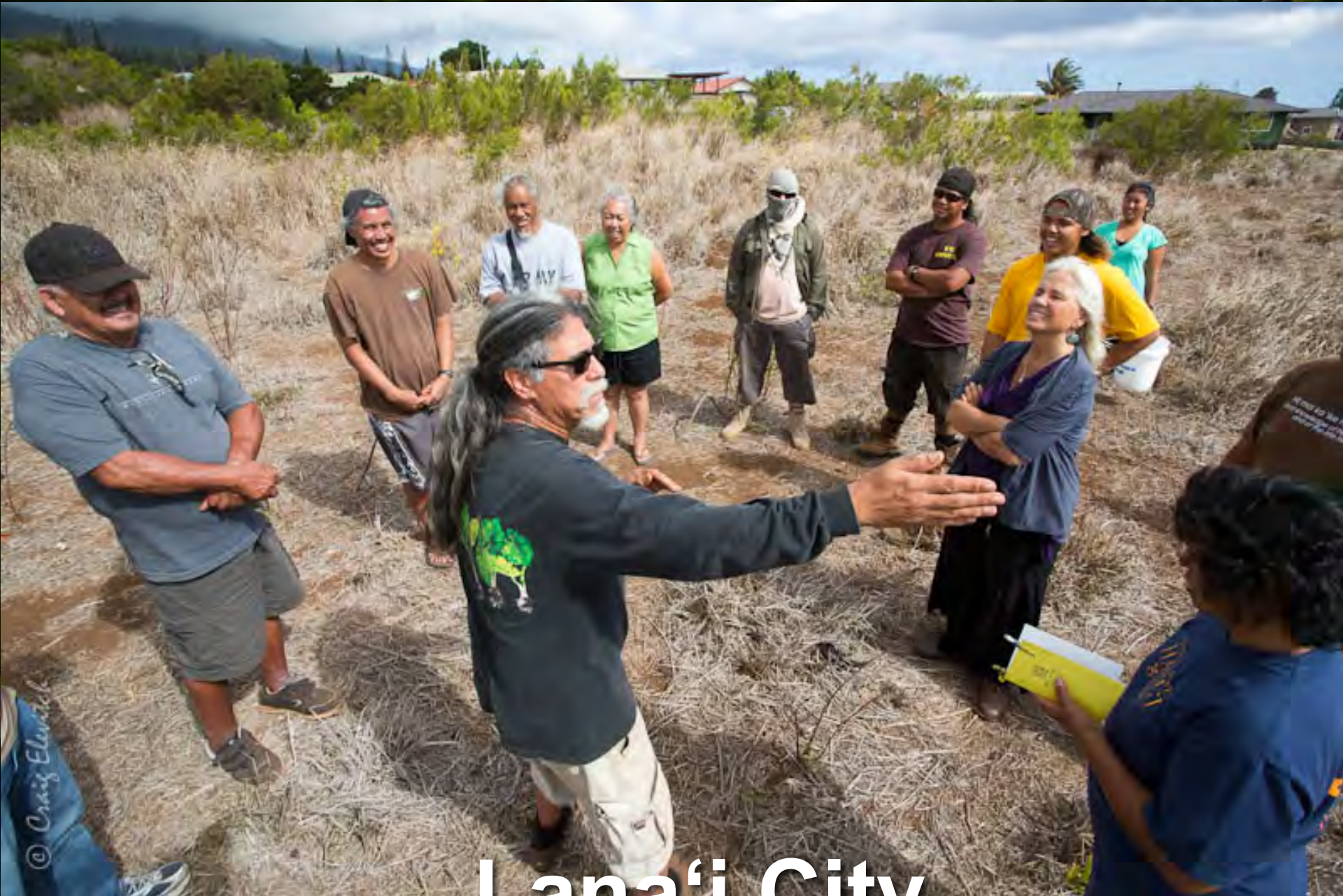
Image © 2013 DigitalGlobe  
Data SOEST/UHM  
Data USGS

Google™

Imagery Date: 1/15/2013 20°49'01.16" N 156°55'12.86" W elev 469 m eye



'Upolu, Samoa



© Craig Elvsted

# Lana'i City





# Lana'i City



© Craig Elevation

# Lana'i City

# Multistory Agroforestry





# Multistory agroforest

Low input  
Captures nutrients  
Pest and disease resistant  
Multiple crops  
Environmental services  
Resilient

Crop	Estimated yield of one plant (personal nutrition-days/yr)
Breadfruit	60–188
Banana	15
Coconut	44 (from kernel)
Understory of taro, cassava, yam, sweetpotato, etc.	Substantial addition
Total	119–247

Yields source: *Specialty Crops of Pacific Islands* (2011)



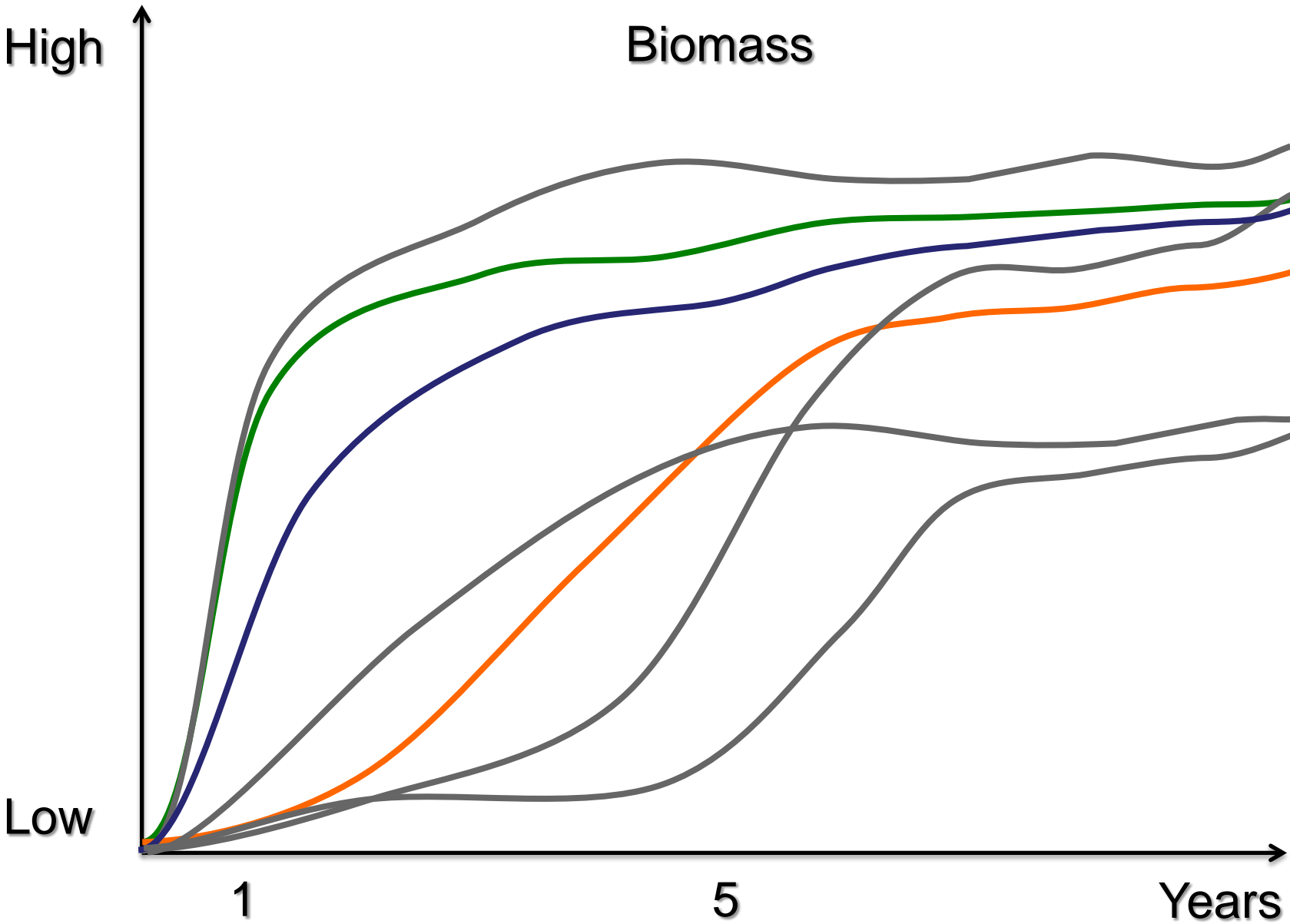
**35 ft diameter  
homegarden agroforest**



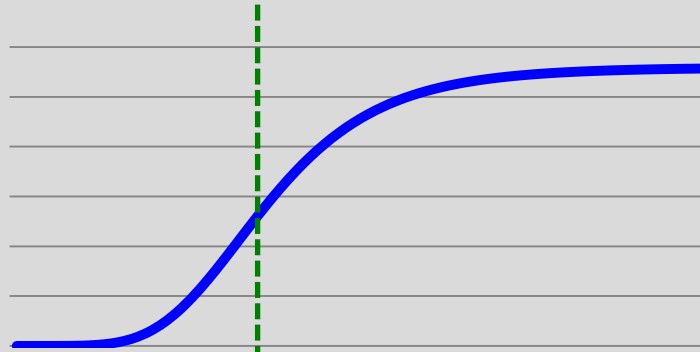
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PA'auilo, Hawai'i

**35 ft diameter  
homegarden agroforest**



# Biological growth



Expansion

Decline

$$y'(t) = ky(t)^p e^{-qt} \quad \text{[sigmoidal form]}$$

$t$  = time,  $k, p, q$  positive parameters

(Zeide 1993)





*I ke alo no ka 'ulu a hala.*  
The breadfruit was just in  
front and it was missed.

© Craig M. Ath

*'Olelo No'eau: Hawaiian  
Proverbs and Poetical Sayings*