Scott Pascale
6/9/19 : 4:41pm
backyard, Haiku HI
Wind - 20mph E / 79°F
Pressure - 30.07inHg - HP 35n 141w
SO_2 - 0.14 / 25% Cloud Cover
Cumulus

Beautiful day - Concert music in distance - birds foraging - low humidity

- staring crescent moon

linear leaves on ground
browns & yellows

- birds were active earlier, now they are noticably absent once I am outside

2 chickens (hens) darted across the lawn

lemons almost ripe - shades of yellow & green

not long now for the soursop to ripen! so delicious - like custard

Scott Zarucki
6/9/18

Surinam cherries are on!
- wind is kicking them off too soon

a soursop dropped as I was drawing the tulip tree!
lucky me - dessert!!

tulip tree in bloom

there is a unique scale pattern to the soursop each scale has one rubbery spike at the apex & the pattern grows lighter as the fruit narrows

Scott Cadosse

6/11/18 6:47am – 7:32am 77°F / 68% humidity

Tavares Beach, Paia

Wind <10 NE (MP 35N 140W) / Tide: Low @ 6:28am

Pressure: 30.03in / Waves: E <1'

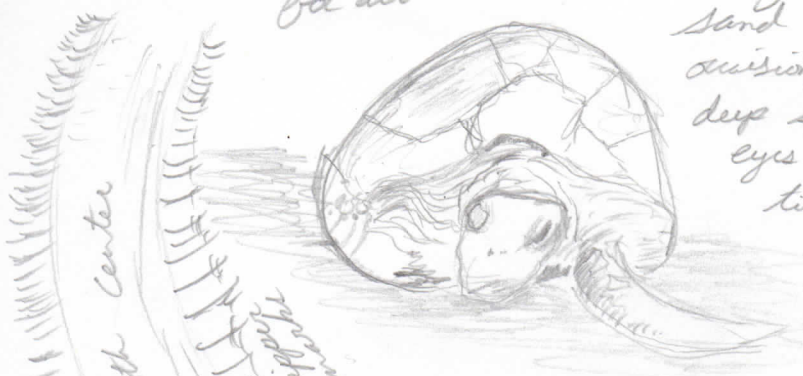
40% cloud cover: High & low Cirrus

SO2 0.3 / Moon: Waning crescent

Sunrise: 5:41 am / set 7:08

4 sea turtles visible with multiple crawl tracks present – 2 are on the rock shelf & 2 on the beach. – wind ripples on water – tide is coming in – 6 people in the distance

heads bobbing in water for air



Scott Facade
6/11/18 9:37am 76°F/72%H
Mami Camps - Makawao, HI
NE 15mph
30.02in HP 35N 138W
20% clouds Low/Some light mist on decaissons
moon: waning crescent
Sunrise: 5:42am/set 7:08pm
0.14 SO_2

Japanese white eye in ohia trees - some filled with bees - wind is 5 gusting to 15mph - hear dove calls

---

Metrosideros polymorpha
(Ohia lehua)

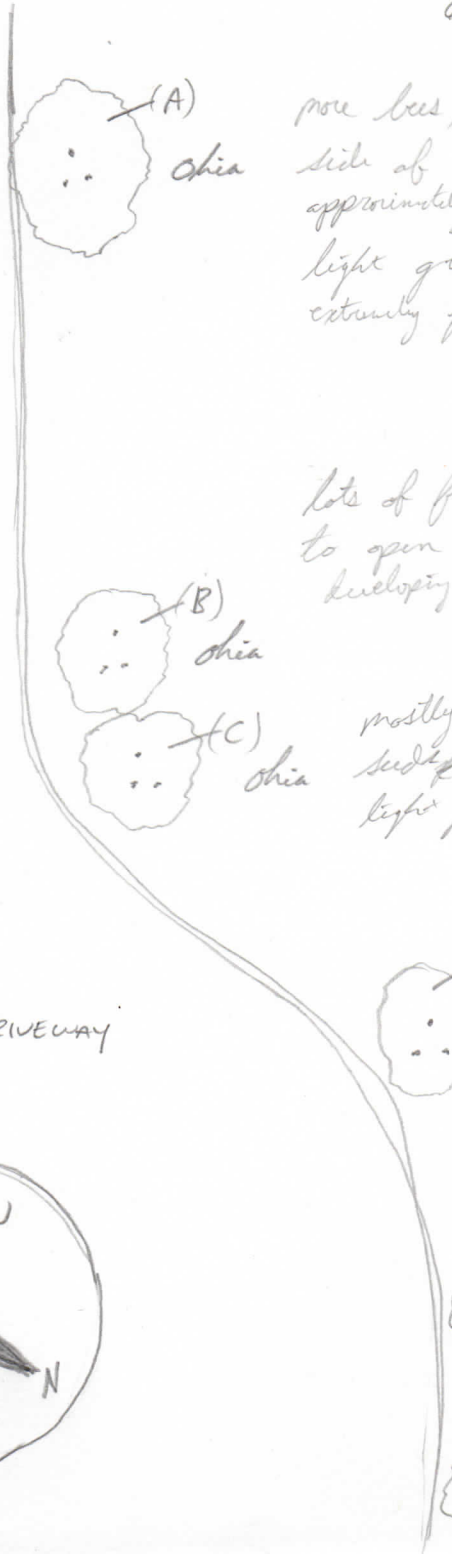
There are six specimens of the same species in this location on campus. They all exhibit different stages of reproduction and growth. The one closest to the road (A) has light green new growth on it. The third one in (C) has new twig buds about to push forth twigs from its apical meristem. (D) is in shade and kind of scraggly, definitely the smallest of the six. (F) has the most flower buds yet (a) has the most bees.

ohia buds about to emerge

ohia flower

ROAD

South Parasse
6-11-18 Home campus

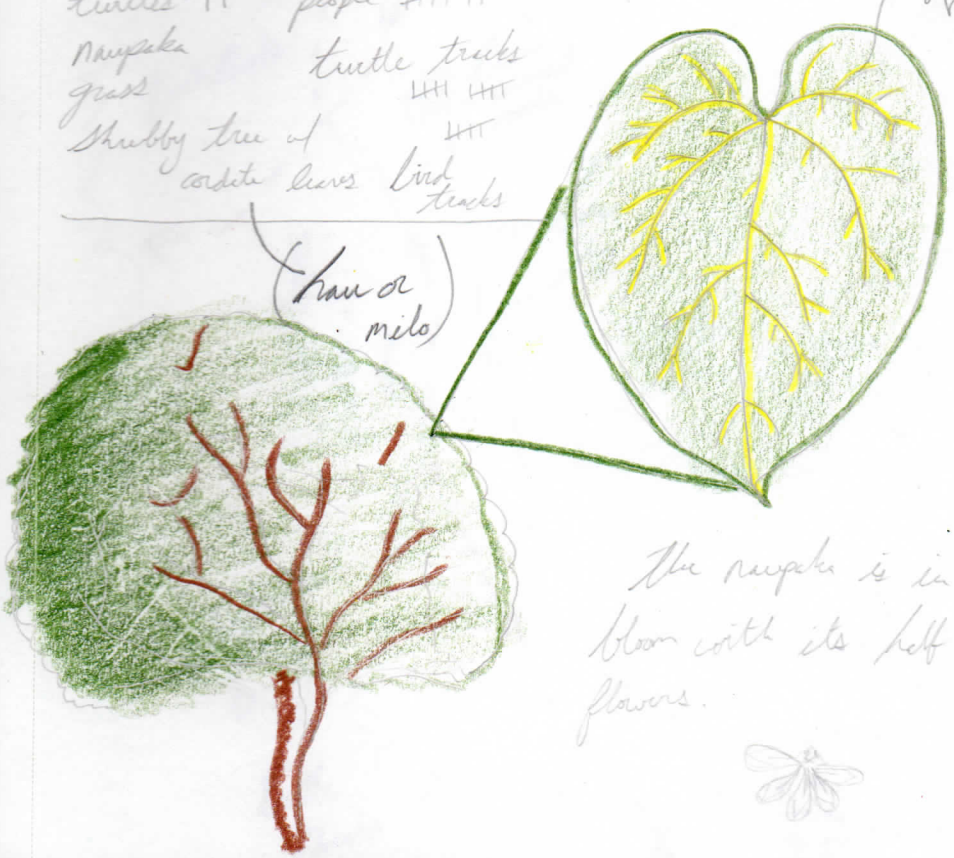


Scott Cacasse - 0540
13 Jun 2011 75°F / 76% H
Tarares Beach, PNA HI
West of parking lot
29.99 in ↓ HP 34°N 146°W
low dark grey cumulus clouds in the East
Wind < 5 ENE
Waves 1-2' Tide: Low
New Moon Sunrise 0542
Sunset 1909

low rain clouds to the East. There is a squall over the water to the NE. One turtle on the beach & one on the shelf. The light is beautiful right now. The reef ledge is covered in green limu on the high side & red limu on the low.

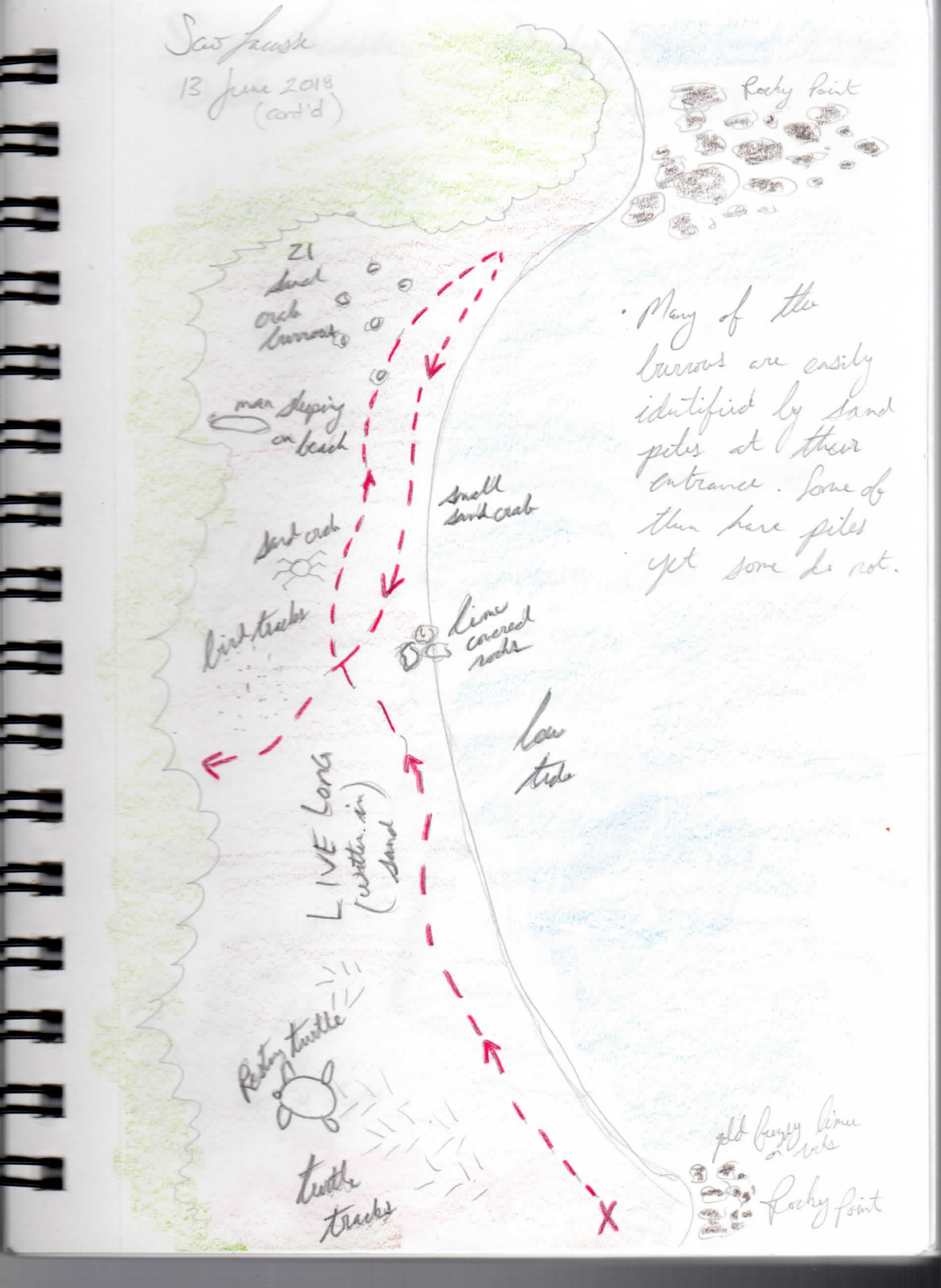
Species list

myna birds - HH IIII
dog - I
turtles - II
naupaka
grass
shrubby tree w/ cordate leaves
coconut palms - HHT
people - HH II
turtle tracks HH HH
HH
bird tracks



The naupaka is in bloom with its half flowers.

San Juan
13 June 2018
(cont'd)



- Many of the burrows are easily identified by sand piles at their entrance. Some of them have piles yet some do not.

Scott Lacasse
Week 2 Field Notes

Date / Time: 13 June, 2018 @ 0640 HST (start) - 0742 HST (stop)
Location: Lamalani, Kūʻau Bay, Maui / aka: Tavares Beach - From the parking lot, the 150m (+/-) long crescent-shaped beach is visible to the north.
Elevation: Sea Level
Temperature: 24°C / 76% Humidity
Weather: Low, dark-grey cumulus clouds to the east with a line of rain squalls in the far distance to the NNE. The wind is less than 8km/h from ENE.
Pressure: 761.31mmHg and falling (HP is located roughly 34°N 146°W)
Tide / Waves: Low tide with 0.3-0.6m waves
Moon Phase: New Moon (0545 rise / 1921 set)
Sunrise / Sunset: 0542 - 1909

Habitat: This site is located in the strand zone, a coastal area that consistently receives ocean spray. The plant species found in this region are characterized by their ability to withstand or counteract water loss through foliar or root contact with salt (Ziegler, 2002). As the waterline retreats with low tide, shelves of coral-algal reef appear. This reef is subject to heavy surf action, typically found during the winter months, and is created by an encrusting species of calcareous algae that build up the reef by secreting calcium carbonate and cementing bits of shell, sand, and broken coral together.

The substrate in this particular area is comprised of loose sand and bits of pulverized shell and coral with some sizeable residual lava stones of dark ʻaʻa basalt revealed by coastal erosion. Massive wave action and sea level rise frequently erode the dune area at Lamalani to reveal iwi kupuna or the bones of the ancestors. Early Hawaiians in this region used this site as a burial ground for their deceased family members, and the skulls are often washed out to sea during significant storm events (Mebel, 2007).

Native plant species found in the strand zone at Lamalani include Naupaka kahakai (Scaevola taccada), Pohuehue (Ipomoea pes-caprae), and Paʻuohiʻiaka (Jacquemontia ovalifolia). Alien species found here include Niu (Cocos nucifera), Hau (Hibiscus tiliaceus), Milo (Thespesia populnea), and Tree heliotrope (Tournefortia argentea). Calcareous algae seen on the reef include species of red, brown, and predominantly green algae or limu. Marine species were not collected on this visit but will be in the future to accurately key out the limu.

Natural History: The green sea turtle (Chelonia mydas) or honu in Hawaiian is the most conspicuous fauna found at Lamalani. Large numbers of honu can be observed resting on the sand or reef ledges, eating limu, and bobbing their heads above the ocean's surface gathering air. They have been protected by state law in Hawaii since 1974 and migrate only between the Hawaiian Island Chain (Bennett & Keuper-Bennett, 2008). This protection over the years has led to a population of honu that completely disreg ards humans as a threat and moves through their

daily routines seemingly taking no notice of people. This affords one the opportunity to observe them in great detail consistently. On this day I noted two honu on the sand and evidence of fifteen distinct sets of honu tracks close to each other on the eastern side of the beach.

Also of note were two species of ‘ohiki or ghost crabs. The nocturnal Horn-Eyed Ghost Crab (Ocypode ceratophthalma) was indicated by conical piles of sand adjacent to burrows found lower on the beach and the diurnal Pallid Ghost Crab (Ocypode pallidula) was visually identified as smaller in stature and by the fan-shaped sand dispersal surrounding their burrows located higher on the beach. Other species included nine common myna birds (Acridotheres tristis), one dog (Canis lupus familiaris), and seven people (Homo sapiens).

References

Bennett, P., & Keuper-Bennett, U. (2008). The book of honu: enjoying and learning about Hawaii’s sea turtles. Honolulu: University of Hawaii Press.

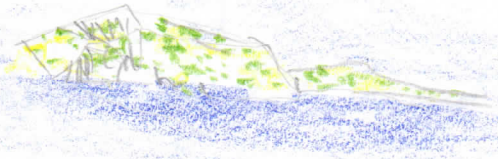
Mebel, G. (2007, Dec 6). Skeletons in the closet. Retrieved from https://mauitime.com/culture/skeletons-in-the-closet/

Ziegler, A. C. (2002). Hawaiian Natural History, Ecology, and Evolution. Honolulu: University of Hawai’i Press.

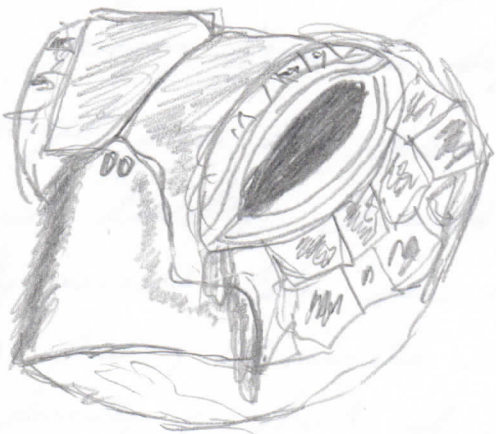
Scott Jacasse
Week 2

Daily Exceptional Image
(from memory)

13 June: The morning light illuminating the green lime (seaweed) on the reef at low tide.



14 June: The goopy tears shed from the turtle's eyes as she rested next to me.



18 June

The flowing fins of the koi fish, like fabric blowing softly in a light breeze.

Scott Frasse

Date/Time: 14 June, 2018
@ 1315 - 1400

Location: Lamalani/Tavares
Eastern side of beach

Elev: Sea level

Temp: 81°F / 73% H

Weather: clear, breezy sunny

Tide: coming in

This journal entry is from memory and a few notes on my phone. I originally intended to go there, not to work but instead to swim and rest.

However, a singular incident caused me to take note of my interactions with one Pacific Green Sea turtle. As I was resting in my beach chair approximately 6m from the rising tide, a young female turtle, judging from the size of her tail emerged from the ocean and began to crawl directly towards me at 1324. Twenty minutes later she had traveled 5 meters, pausing 2-3 minutes 3x, and was now resting directly in front of me at my feet. She was so close to me that I could smell her breath as she periodically exhaled in my direction. At

smelled distinctly of limu (or seaweed).

Her eyes were dep black and there was a goopy substance oozing from the inside corner of her eye, closest to her nostrils. Perhaps the tears were to flush out salt & sand.

There were 4 other turtles on shore to the east of me that day. they were grouped closely together more or less and one was hanging out under some beach goer's umbrella. They were occupied in the water and the turtles literally crawled up to the edge of their beach blanket. It is fascinating to be in the presence of a wild animal that has no fear of humans. Truly a priveledge.

Scott Jacasse

Date/Time: 18 June 2018
1411

Location: Home, Koi Pond, Haiku, HI

Elevation: 147m

Temp: 77°F / 68% H

Weather: 0% cloud cover
NE 10mph

Pressure: 29.98 in Hg

Moon Phase: 1st Q

LP 32°N/152°W
HP 45°N/138°W

Sunrise/Sunset: 0542 Rise / 1910 set

Species list

pygmy date palm
ginger palm
fishtail palm
lily pads
oyster plant
'ohia (in apt)
Koi fish
green frog
minnows
algae
Spanish moss
lauae

The koi pond is biomorphic in shape and is bordered by rocks. although it is manmade it looks naturalized with all of the rocks surrounding it. There is a small recirculating waterfall that is currently turned off. The pond is about 8'x4' maybe 3' deep and is covered 2/3 by lily pads. The pond is in full sun at this time of day.

The large Koi mostly stays under the pads but comes out on occasion to the open area. There is a small koi as well who comes into the open area more frequently.

a small green frog rests in a lilypad

There is one purple flower open with a yellow throat. Three white buds are closed.

Scott Farasse

Date/Time: 19 June 2018
1415 start

Location: West side of Haleakala
Summit tucked out of the wind behind rocks - facing due W

Elevation: 10,023' 3,055 m
80% H

Temp: 51.7 F / 10.95 C (@ sea level 84° F / 62%)

Wind chill: 45.7 F / 7.6 C

Weather: high level cumulous clouds
top of inversion layer is below @ 8,000' - other than clouds it is crystal clear. You can see the cliffs of Big Island from the summit
wind is 20.96 mph NE (9.37 m/s)

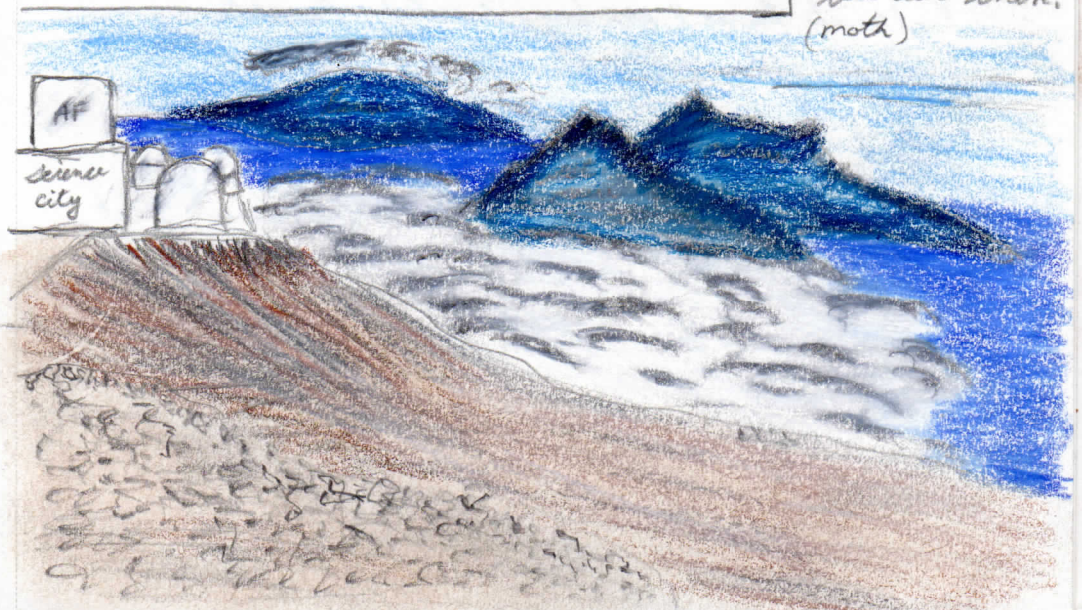
Pressure: 709.95 mb HP 32N 132 W

Visibility: 47,751 m / 47 Km / 30 mi

Moon Phase: waxing

Sunrise/Sunset: 0544 / 1908

I am up in the subalpine zone @ high elevation. Overall, it is extremely dry. Erosion is highly visible both wind & water. The only plants I have seen are tucked away out of the elements in the lower basin parking lot. No birds as of yet, several flies and four distinct plant species. People come & go above & behind me. The sun is strong & the air thin. (moth)



Species list

19 June 2018

- horse fly - Musca domestica or Fannia canicularis
- silversword - Argyroxiphium sandwicense (end) ("ahinahina)
- plant 1 - Dubautia menziesii (end) na'ena'e
  Soft shrub, woody stems, alternate leaves, ovate 2-5cm long 4-23mm wide, entire margin (no flowers at this time)
- plant 2 - Dubautia scabra (end) na'ena'e
  spreading shrub, purple slender pubescent shoots, alternate leaves linear elliptic 1-9cm long 0.8-8mm wide entire margin
- plant 3 - Deschampsia nubigena - alpine hairgrass - native
  lanceolate blades 5-30cm long, 0.5-1mm wide, scabrous margins paniculate inflorescences 5-30cm long
- moth - Fletcherana insularis or Eupithecia monticolens
  typically found at summit - both are endemic
- flower 1 - Oenothera stricta - evening primrose (not)
  alternate leaves 2-10cm long, serrated, lanceolate obovate yellow petals 1.5-2.5cm long, tubular
- plant 4 - Carex wahuensis
  clumping perennial 10-100cm tall, linear flat leaves 5-8mm wide, spiked inflorescences

Scott Faustle
19 June 2018 cont'd

at moments, the silence is deafening. It is said that Haleakala is one of the quietest places on earth. I believe it. When there is absolutely no sound that can be registered by the human ear, it feels like inverse pressure on your ear drums. It is hard to explain. almost like when you are underwater, but not quite. It is even more silent. Those moments are rare @ the summit, not so much in the crater itself. Today I am hearing: wind, a flag flapping flies buzzing, planes in the distance, voices, gravel crunching under foot, wind whistling through power lines, and on rare occasion, complete silence. I smell minerals/sand and the occasional waft of perfume & cologne from the visitors. The volcanic soil ranges from large climbing rocks to pulverized dust particles that stick to everything. The soil is virtually tasteless.

Scott Lacasse
Week 3 Field Notes

Date / Time: 19 June, 2018 @ 1415 HST (start) - 1510 HST (stop)
Location: Summit of Haleakala - From the south end of the parking lot, travel 50m (+/-) to the west just below an eroded a'a ledge. The plants were found around the parking lot and in the center "garden."
Elevation: 3,055m
Temperature: 11°C / Humidity variable with cloud presence - **Wind Chill:** 7.6°C
Weather: High level cumulus clouds, occasionally down to 3,000m. The top of the inversion layer is around 1,800m. The wind is 34 km/h from the NE. The air quality is unusually clear and you can see the cliffs of the Big Island in the far distance.
Pressure: 709.95 mb (HP is located roughly 32°N 132°W)
Tide / Waves: N/A
Moon Phase: Waxing 1158 - 0000
Sunrise / Sunset: 0544 - 1908

Habitat: At 3,055m, this site is located in the Alpine Scrub Zone found above the inversion layer on the summit of Haleakala. The substrate in this region is comprised of barren gravel, debris, and volcanic cinder. The plant species found in this above tree-line region are characterized by their ability to withstand harsh winds, frost, low rainfall (< 40cm annually), and even snow at times (Ziegler, 2002).

The endemic 'ahinahina (Argyroxiphium sandwicense), its endemic companions na'ena'e (Dubautia menziesii & D. scabra), Carex wahuensis, and the native alpine hairgrass (Deschampsia nubigena) form the plant community at this elevation. Less than 100m below, evening primrose (Oenothera stricta) has become naturalized.

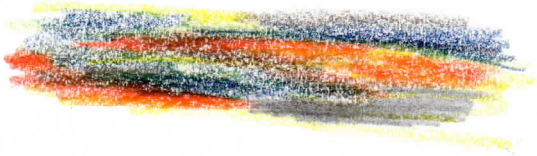
Natural History: There isn't much flora and fauna to be found in this harsh zone. Aside from the species mentioned above, I found one native moth (Fletcherana insularis or Eupithecia monticolans) that fluttered away before I could get a good look at it and a pair of house flies (Musca domestica or Fannia canicularis?) Although I did not see one, the invasive argentine ant (Linepithema humile) is a serious threat to the rare and endemic flightless moth (Thyrocopa apatela) that makes its home in the rocky crevices of the Haleakala summit.

References
Ziegler, A. C. (2002). Hawaiian Natural History, Ecology, and Evolution. Honolulu: University of Hawai'i Press.

Scott Jacobs
Daily Exceptional Image
Week 3

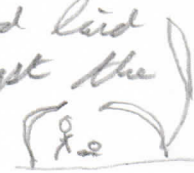
19 June 2018 - The silence at the summit was profound. I imagine it to be much like the vacuum of space, without sense of hearing. What it must be like to be deaf.

24 June 2018 - The sunrise was a visually stunning backdrop for the 30+ hours I saw on the beach. The oranges & pinks contrasted with the steel blues of the heavy cumulus clouds. The magnificent colors reflected off the retreating water as hours returned to the sea.



25 June 2018

As I was sketching the heliconia, a light squall came through so I ducked underneath the large leaves and continued on. Abbey, my dog, came over to join me and laid down at my feet as I sketched amongst the raindrops.



Scott Caussé

Date/Time: 24 June 2018 / 0530

Location: Jamalani (Tarares)
Western edge of beach

Elevation: Sea level

Temp: 72°F / 80% H (Sea temp 79°F)

Pressure: 30.01 in / HP 4/0N 14S W

Tide/waves: low @ 0628 / 1-2'

Moon Phase: Waning 93.9% 0359 / 1720

Sunrise/Set: 0544 / 1911

Weather: cumulous clouds
wind < 5 ENE - light
rain squalls out to NE

I arrived @ Jamalani as the morning light was breaking to find 26 hawk resting on the shore @ almost low tide. As the daylight increased, by 0545 17 were left on the beach. There was evidence of at least 8 more turtles that had left earlier. 10 @ 0624 (+ 1 hour on far west side)

With eyes closed, I smell the salty air mixed with the brine of low tide & sea turtle. The faint smell of rain in the distance being carried on the light cooling breeze. On occasion a warmer, thicker wind fills my nostrils with the heavy scent of my reptilian companions. The sound of the waves crash on the shore like thunder in the distance. They mix the harmoniously with the gentle lapping of the ocean as it laps the shore. The dove in the background & the chirp of the myna bird complete the symphony of the shore.

Species List

honu - 26!
chelonia mydas

lg ghost crab - |
ocypode ceratophthalma

burrows - more on west side
~~||||~~ ~~||||~~ ||||

myna bird - ||||
acridotheres tristis

dove - |
geopelia striata

naupaka - |||
Scaevola sericea

house sparrow ||
passer domesticus

small ghost crab - ||
ocypode pallidula

burrows - more on east side
~~||||~~ ~~||||~~ |||

milo - |
thespesia populnea

Coconut - 7 cocos nucifera
cocos nucifera

plumeria - 2
plumeria sp.

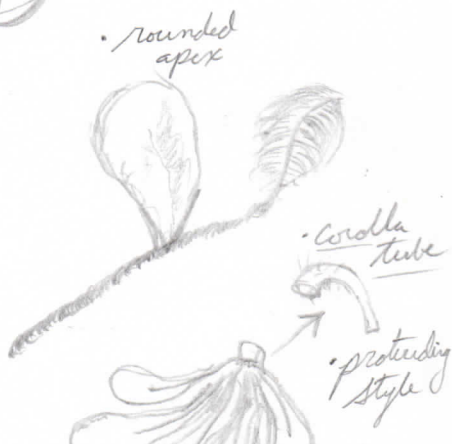
Red algae - haliptilon subulatum
laurencia brachyclados (2)


Lacaste - 24 June Cont'd

Scaevola sericea
(Beach Naupaka)

Scott Jacobs
24 June cont'd

(quick gestures)



- Shrub up to 3m tall
- perfect irregular flowers
- inflorescence cymes
- pale yellow corolla

Saint Jacasse

Date/Time: 25 June 2018 1142

Location: Home, yard, Haiku

Elevation: 147m

Temp: 76°F / 83% H

Pressure: 30.03in Steady HP 39°N 147°W

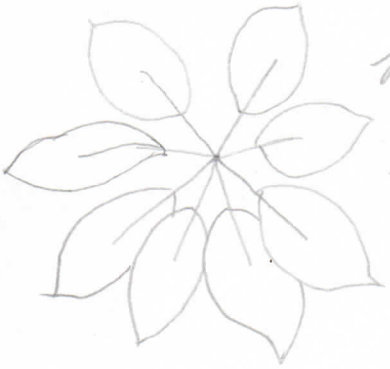
Moon Phase: Waxing 0359/1720

Sunrise/Sunset: 0545/1910

Weather: passing showers
wind > 10 mph E then 0 mph
after squall passes - Stratus

The property I live on is a 2-acre fruit farm with many species present. The land is flat and when you walk to the northern boundary, there are expansive views across abandoned pineapple fields and out to the ocean ≤ 1 mile away as the "crow flies".

Schefflera actinophylla



palmately compound leaves
alternate leaflets shorter
acuminate tips
smooth margin
entire
waxy

Cordia Subcordata

small tree - leaves ovate
alternate, margins
entire, serrate
apex acuminate
base subcordate

Scott Jacasse
25 June Cont'd

Cordia subordata flower

pale green calyx

open cymes, orange corolla

5-7 lobes - dark tube
wrinkled
Stamens as many as lobes

4 lobed stigma terminal style

Heliconia bihai

rhizomatous with large leafy shoots

erect fleshy inflorescence bright red yellow margin

subtended floral bracts

250 cm long x 40 cm wide

entire margins

Scott Facasse

Date/Time: 29 June 2018 1602

Location: Home, Haiku, HI

Elev: 147m

Temp: 76°F/84%

Pressure: 30.01in↑ HP 41N 138W

Moon phase: Full 1636/0706

Sunrise/set: 0547/1910

Weather: 17E gusting to 20mph 57% cloud cover

We have a stalk of apple bananas (Musa sp.) ripening outside on our kitchen lanai. They mostly ripen all at once so we must freeze them or they go to waste. There are about 50-60 of the small bananas on this particular stalk, which is hanging from a patio chair. The area is fairly open, however there are many fruit trees in close proximity that provide edge condition for the birds to safely retreat to after taking a few bites of the most ripe banana specimens. It is difficult to tell if they are the same birds or if they are different individuals. So far I have observed 3 different species coming to the banana buffet. The myna's are the only ones that aren't interested in the bananas.

Species list 29 June 2018

Qty

Northern Cardinal (Cardinalis cardinalis) — m-1 or 2
alien - 9 inches - variable habitat
"cheweee chow chow"
mid sized with red crest & thick red/or. bill. male is red at black around bill
female is brownish/red — f-1 or 2

Japanese White-eye (Zosterops japonicus) — 1 maybe 2
alien - 4.5 inches - variable habitats
small greenish bird w/ yellow throat/chest, white belly, white around the eye, pointed bill

House sparrow (Passer domesticus) — m-1
alien - 6 inches - urban habitat
male is small & brown w/ gray on top of head white cheek, black throat & chest
female dull brown above, gray below light brown eyestripe

Common Myna (acridotheres tristis) — IIII
alien - 10 inches
brown bird w/ black head & white wing patches - black tail w/ white tip yellow bill & yellow behind the eye.

blind contour

♀ cardinal

brown body with reddish tinges orange / red bill

quick gesture

♀ cardinal

detailed sketch (D.E.i.)

♂ cardinal

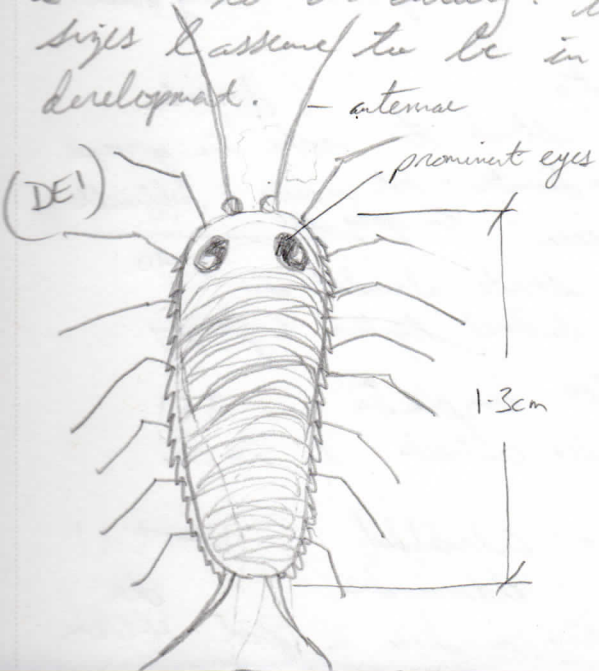
The japanese white-eye dips his pointy beak into the banana like a spoon and flies away. while the cardinals take large beakfuls and then wipe their beaks off on the back of the patio chair.

(9 inches) red body with black around red bill

Scott Seaside

Date/time: 30 June 2018 1040
Location:
Elev: Sea level
Temp: 83°F/63%
Pressure: 30.01 in ↑ 4 in 139 w
moon:
Sunrise/set:
weather: 13 mph NNE 10% cloud cover (cumulus)
Tide/waves: ↑ L 0904 H 1633
0-1' waves

There are far fewer ghost crab burrows & crabs evident today. I have gone over to the west side of Tarawa in search of tide pools to see what is stranded. This side of the bay is exclusively made up of weathered basalt of varying sizes towards the water's edge and smaller basalt & coral chunks higher towards the vegetation line which is filled with naupaka and heliotrope. The rocks are full of tidal pools of varying sizes and the dry areas are home to an interesting critter that looks similar to an earwig. There are multiple sizes & assume/to be in varying degrees of development.



(DE')

isopod - Ligia hawaiensis
metallic surface
serrated carapace
lg eyes on top
no discernable head
7 pairs of legs
curved shell - it appears to be scavenging for food like an opportunist

Species list

Sea turtles - chelonia mydas II

tracks - 10 - medium sized ocean going turtle "sunbathing" on shore (to 1.2m) brown/green yellow highlights

Small ghost crab - ocypode pallidula
diurnal pale crab darting from burrow to waters edge (to 1 inch) II

lge ghost crab burrows - ocypode ceratophthalma HHT III
nocturnal - not seen but evidence of pyramidal sand piles outside of burrow

Periwinkle blenny - Istiblennius zebra IIII
observed specimens were <1cm - 4cm in length in shallow tidal pools. The larger ones frequently chased smaller

black rock crab - Grapsus tenuicrustatus I
dark black flat carapace rock crab to 8cm in width scurrying about rocks & puddles. very quick edible

opihi - cellana exarata dozens
dark ribbed limpet stuck to rocks in groups varying in size 2-5cm diameter - not moving & difficult to pry off

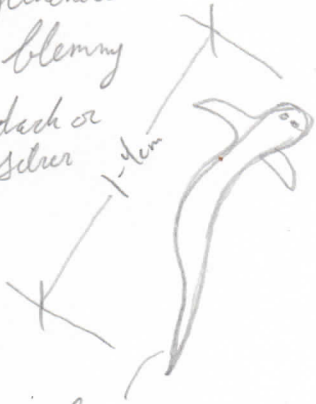
Nerites - nerita picea >40
deep black "pipipi" snails abundant on rocks in splash zone clustered together & grazing

bristleworms - eurythoe complanata III
iridescent orangish "sea centipede" to 20cm bristles like legs

Juvenile Sergeant - abudefduf abdominalis HHT II
bright yellow w/ black bars snacking on algae in pool 4-6cm

Silver unidentified fish in large quantities in pools - juvenile chubs?

Juvenile blenny dark or silver



face looks like a blenny

black bars
yellow/silver body
juvenile sergeant fish
eating algae

* all shellfish except opihi ☺ I found that if I sat still the juveniles would return for a better observation

opihi found on rocks
2-5cm dia
found in splash zone.

Scott Jacobs

Date/Time: 1 July 2019 7:40

Location: Upper native forest at Makauwa forest 20° 48' 10" N 156° 15' 16" W

Elevation: 1,344 m

Temp: 20°C / 86°F

Weather: 96% cloud cover, light intermittent rain E 21 kph wind

Pressure: 762.25 cm Hg HP 44°N 140W

Moon: waning gibbous 2200/0847

Sunrise/Set 0546/1912

This observation entry is part of a longer all day hike to a native forest community to obtain plant samples for field botany. The hike began in the State forest reserve & ended in a preserve area under easement for the Native Conservancy and the East Maui watershed partnership. The preserve is enclosed by a fence to keep feral ungulates out and the results have been remarkable in that the ecosystem is completely intact as it was over 200 years ago. Conversely the areas just outside of the fenceline are overrun w/ invasive species Fraxinus uhdei and Hedychium gardenianum.

Species list - wet forest zone Maui

Native flora

'ohia - metrosideros polymorpha (endemic)
dominit canopy tree ↑ 100'

koa - Acacia koa - (endemic) ↑ 100'
canopy tree found w 'ohia

hapu'u - cibotium spp.
20' tall tree fern endemic

mamane - Alyxia stellata - vine
sweet smelling vine

Lobeliads - lobelia sp - understory 25'
endangered species - honeycreepers feed on tubular inflorescences

Native fauna

i'iwi - vestiara coccinea
endmic honeycreeper to 6in red body long curved bill w black wings feeding on 'ohia

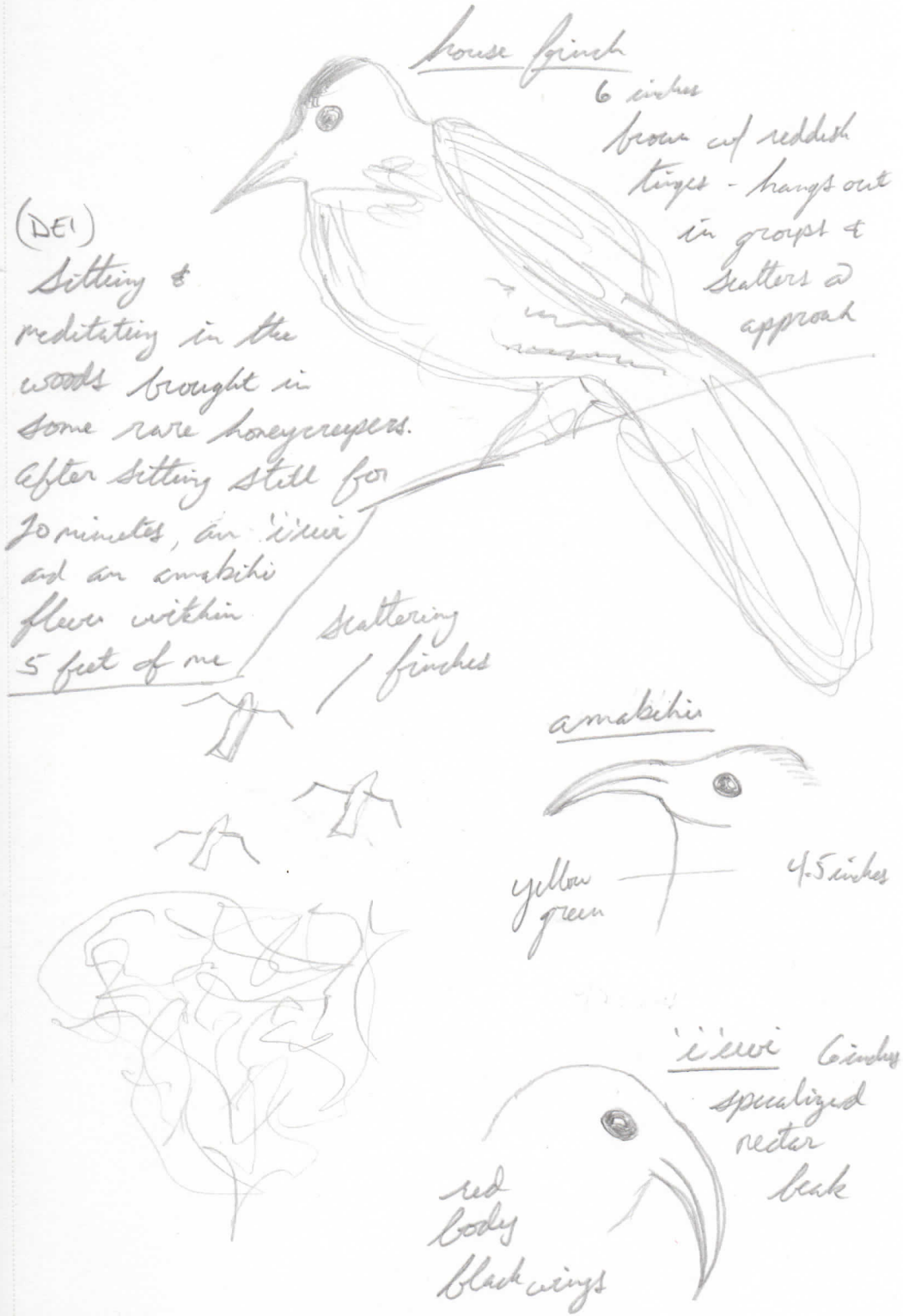
'amakihi - Hemignathus virens wilsoni
honeycreeper 4.5 inches yellow/green feeding on 'ohia

Alien flora

Tropical ash (Fraxinus chdei) 60-80'
grows well w invasive ginger. one being in the other.

Kahili Ginger (Hedychium gardnerianum)
rhizomatous aggressive ginger that is displacing natives

Alien fauna - House finch (carpodacus mexicanus) 6in


house finch
6 inches
brown w/ reddish tinges - hangs out in groups & scatters @ approach
(DEI)
Sitting & meditating in the woods brought in some rare honeycreepers. After sitting still for 30 minutes, an 'i'iwi and an amakihi flew within 5 feet of me
scattering finches
amakihi
yellow green
4.5 inches
'i'iwi
6 inches
specialized nectar beak
red body
black wings

Scott Lacasse
Week 4 Field Notes

Date / Time: 1 July, 2018 @ 0854 HST (start) - 1646 HST (stop)
Location: Begin at lower Makawao Forest Reserve (Kahakapao) parking lot (20°50' 2.68" N, 156°16'37.71" W), head NE for 1.83km and turn E. Follow steep trail in an easterly direction, turning southerly for 3.17km. At "T" intersection of dirt road turn left and proceed in an easterly direction for 0.91km at which point turn right in a southerly direction and travel uphill for 0.43km to arrive at the Nature Conservancy's Preserve Boundary (20° 48'10" N, 156°15'16" W).
Elevation: 800m - 1,344m
Temperature: 20°C / 86% Humidity
Weather: Partly sunny at parking lot, intermittent clouds and light showers along the way. Destination 96% cloud cover with intermittent showers - **Wind**: SW less than 0.5 kmh at parking to E 21kmh at Forest Preserve boundary
Pressure: 762.25 mmHG - 761.23 mmHG (HP is located roughly 44°N 140°W)
Tide / Waves: N/A
Moon Phase: Waning Gibbous 2200/0847
Sunrise / Sunset: 0546/1912

Habitat: Lāa̱au a̱ohi wai, or the forest that gathers water, covers 11,796-hectares between ~1,000–2,000 m in elevation along the windward slopes of Hāleakalā on the Hawaiian island of Maui. The montane wet forest community is located below the orographic cloud zone and receives annual precipitation in excess of 300 cm (Culliney, 2006). This "cloud forest" is considered a zone of great intrinsic value with "islands of biodiversity [that support] a high proportion of endemic species" (Giambelluca et al. 2009, p. 230).

Natural History: The ʻŌhiʻa lehua (Metrosideros polymorpha) dominates the closed-canopy community and its companion understory is comprised of dozens of native plant species such as the ʻōlapa (Cheirodendron spp.), the hāpuʻu (Cibotium spp.), and the ʻōhā kēpau (Clermontia spp.) along with small pockets of non-native weeds like the Kāhili ginger (Hedychium gardnerianum), and strawberry guava (Psidium cattleianum). Birds such as the ʻiʻiwi (Drepanis coccinea), and the kiwikiu (Pseudonestor xanthophrys), and the only native terrestrial mammal, the Hawaiian hoary bat (Lasiurus cinereus semotus), hold court with a multitude of invertebrates and snails that all add to the diverse, interconnected community.

Supplementary: The preserve area itself is owned by the Haleakala Ranch Company and is under a conservation easement. The Nature Conservancy, the East Maui Watershed Partnership, and the Department of Land and Natural resources work together to preserve the native forest within the fenced-in boundary. Although the trails originate in the State Forest Reserve, they are not part of the network of trails that are advertised or the general population even knows exist for that matter. So, not quite the same as what you are thinking. The trails are really overgrown access roads that pass through a variety of

habitats that originated from deforestation by ranching and resource gathering a couple of centuries ago. The state recognized that removal of the native species caused adverse harm to the watershed and began a program to introduce quick growing alien trees that would stabilize the soil and provide timber. Some of the species planted still remain and, in some cases, create sharp ecotones between the species planted. The head of the trail is cook pine (Araucaria columnaris), transitioning to tropical ash (Fraxinus uhdei), then to eucalyptus (Eucalyptus robusta and E. globulus), back to F. uhdei, then an opening of native koa (Koa acacia) and 'ohia (Metrosideros polymorpha) with an understory of invasive guava (Psidium cattleianum), ginger (Hedychium gardnerianum), and cane grass (Arundo donax). E. globulus becomes more predominant with an understory of false staghorn fern (Dicranopteris linearis) and transitions to loblolly pine (Pinus taeda) then back to E. globulus. All within 5km and 469m of elevation gain. The native forest that is protected by a fence from marauding ungulates and weeded quarterly is another 1.5km down the road and displays more native canopy species with F. uhdei and H. gardnerianum rapidly choking them out.

References

Culliney, J. L. (2006). Islands in a far sea: the fate of nature in Hawai'i (Rev. ed). Honolulu: University of Hawai'i Press.

Giambelluca, T., Martin, R., Asner, G., Huang, M., Mudd, R., Nullet, M., DeLay, J., Foote, D. (2009). Evapotranspiration and energy balance of native wet montane cloud forest in Hawai'i. Agricultural and Forest Meteorology, 149(2), 230–243. https://doi.org/10.1016/j.agrformet.2008.08.004

Scott Jaussi

Time/Date: 6/July 2018 0942

Location: Jamalani (Tinares)

Elev: sea level

Temp: 82°F/70°C

Pressure: 30.0↑ HP 41N/162W

Moon: 0029/1300 Last Q

Sun/set: 0549/1910

Tide/waves: HT 10:04/2-3'+

Weather: heavy cumulus clouds 28°C w/ scattered squalls - 5/21 mph ESE

Three horses rest on the shore just out of reach of the rising tide. The waves are strong today and occasionally send one up to gently surround a resting horse. For the most part they remain just out of reach, although the wet sand line is visible just beyond their heads. Fishermen are selling up beach poles on the shore. I wonder if the horse have strategically placed themselves just at the edge of the high water line? Do they intuitively know how far up the beach they should travel to avoid being overrun by waves? The houses perched along the shore have built up seawalls facing the sea. It looks as if they were built some time ago as the sea has undermined them, exposing the footings & the poured concrete. Winter storms have come through pounding the shoreline and scouring the red clay soils out from underneath the protective barriers. They do not appear to have too many seasons left in them. The topography on the western side of the beach is starkly in contrast

Species list

6 July 2010

Honu - Chelonia mydas - 0 tracks III
medium sized marine turtle (to 1.2m)
brown green yellow highlights

Naupaka - Scaevola taccada - 3-10' shrub II
high tolerance for salt spray with
flowers in a "half shape" semi-circular, green w/ scarlet leaves

milo - Thespia populnea - tree up to 40'
3-5" dia heart shaped leaves - there are several tree specimens in this location but one part of the dune is composed of milo in mind blown shrub form

Coconut - cocos nucifera - up to 100' tall HHII
leaves up to 20' long - very useful tree for food and building materials

myna - acridotheres tristis - to 10 inches III
brown bird with black head & white wing patches
black tail with white tip - yellow bill & yellow behind the eye

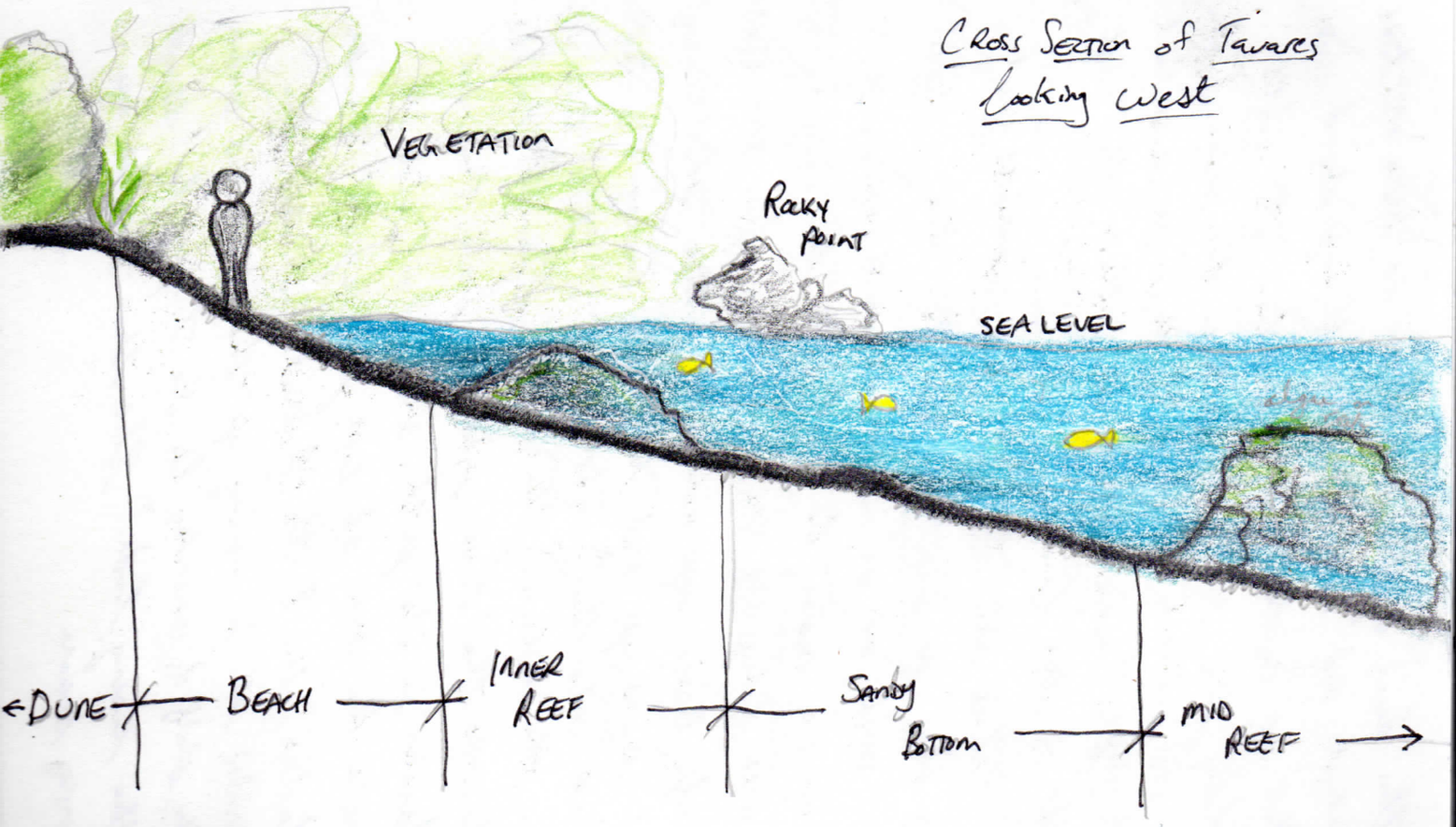
small ghost crab - ocypode pallidula - small <1"
diurnal translucent crab with small burrows at water's edge. "Super fast" crab

The dune system over there is more or less intact and has a gently sloping sand rise that is capped with vegetation, its roots holding the sand in place. The dune system, in its inherent malleability, is more resistant than the ridgid man-made walls on the East side of the beach.

There are three reef barriers just off shore, an inner one ≈ 35' from shore, a middle one, 100yds, and one in the distance ≈ 1/4 mile out. They are easier to spot with the larger waves today. As the wave energy from the North Pacific Basin approaches the outside shallow reef, it rears up and hurls its energy & water mass onto the rocks causing a white line off in the distance. The energy regroups travels towards the shore until it meets the next barrier in its path, and so on until it meets the shore and laps gently against the sea turtles. The turtle furthest East near the eroded wall is moving up the beach and under the shelf of concrete. Is she trying to escape the rising tide? The other turtles are more secure.

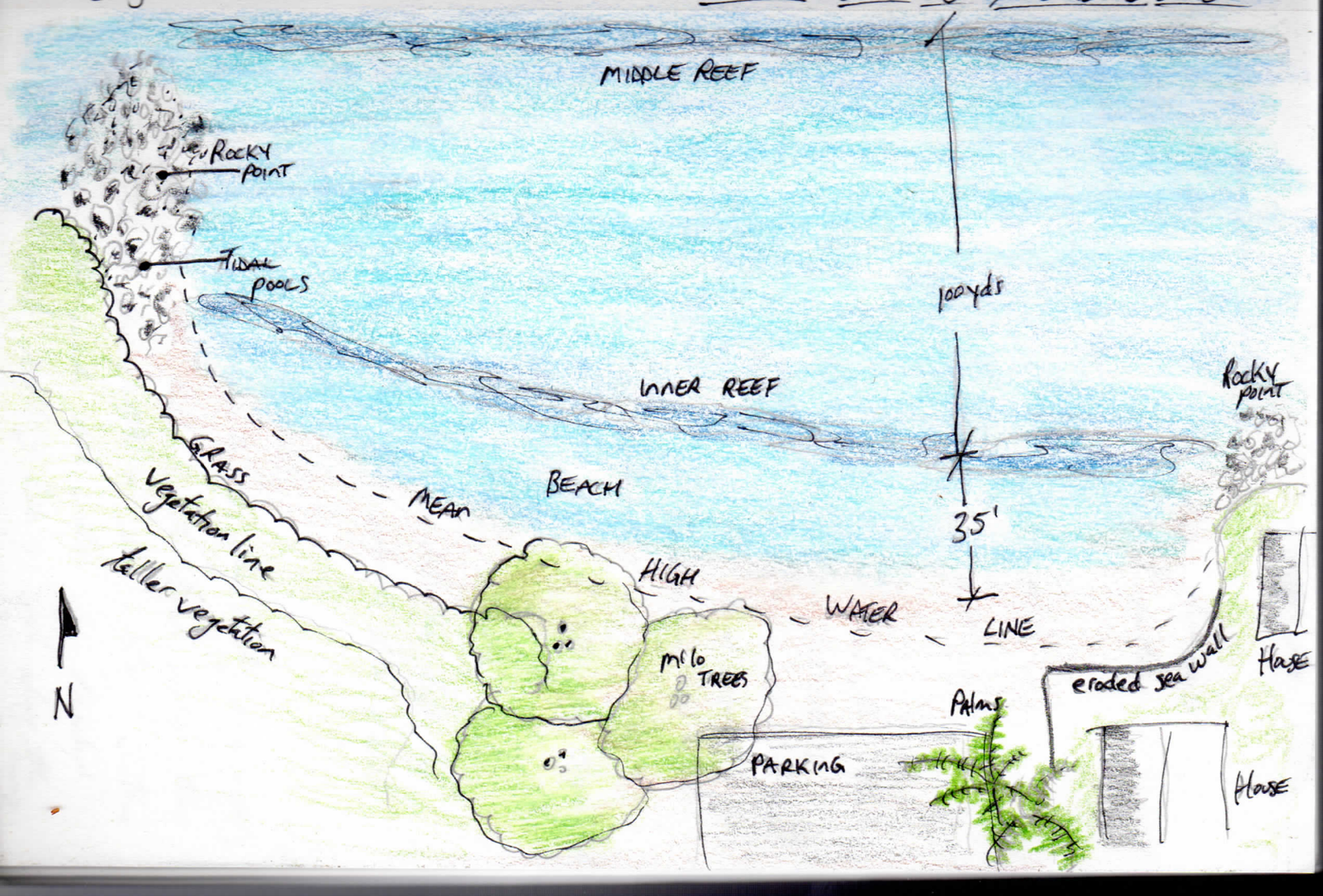
6 July 2018 cont'd

Cross Section of Tavares Looking West



6 July 2018 cont'd

aerial view of Tavares Beach

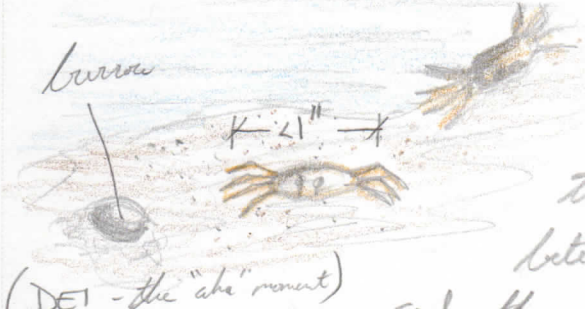


6 July 2018

How many sand crabs do we inadvertently step on as we walk the beach?

large ghost crab
third contour

burrowed in



(DET - the "aha" moment)

as the water line retreats & advances, so too do the sand crabs. They scurry and dart between their burrows and the line of nutrients deposited by the tide. The water comes up, the crabs retreat. As the water retreats, the crabs scuttle to the line of detritus left by the receding water. They then explore the exact line looking for food.

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as more people arrive & as the tide increased, the turtle to the east went back into the water. Was it the people or the water? Either way once she made the water she traveled to the mid reef, bobbing like a cork along the way.

Scott Zwasse - Six dive Stats

Date/Time: 5 July 2018 1118

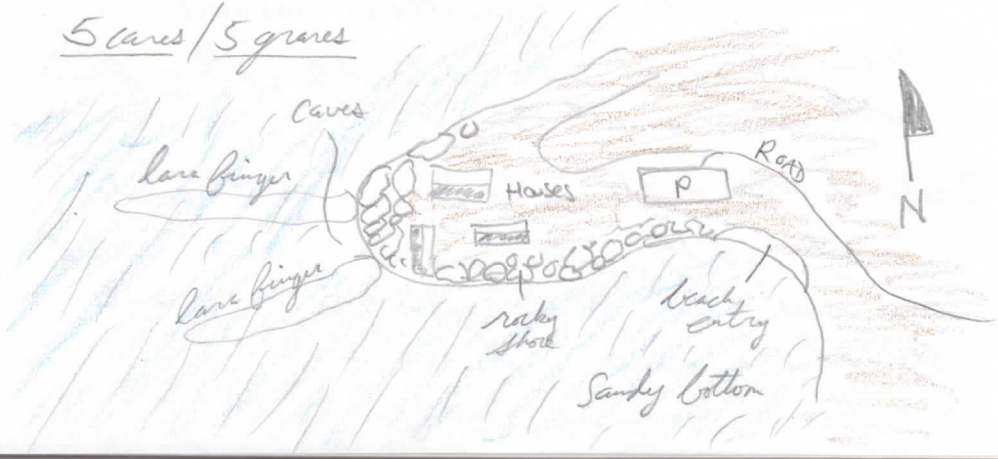
Location: Makena Landing
aka 5 caves/5 graves

Dive Log:

temp (sea/air) - 79°F/80°F
tide - low
waves - <1' swell
max depth - 31'
bottom time - 71 min
visibility - 50'+

Makena Landing is a popular beach cove and dive site on the south side of Maui. It is sheltered from the trades and only receives swell during the summer months as such, it was arguably used by vessels to trade goods and take on passengers. The shallow, sandy bottom allowed traders to moor cattle, people, pineapple and other sundries. The area is also a great dive site. The shoreline after the entry is made up of large lava boulders and has two "lava fingers" which jut out from the point to about 40' in depth. There are ample caves & ledges that create perfect habitat for sea turtles, corals, marine invertebrates, fish, and the occasional white-tipped reef shark.

5 caves/5 graves



Partial Species list

5 July 2018

Honu - chelonia mydas - marine >12 observed
sea turtle (to 1.5m) - all were observed
underwater - many were resting in caves and on
ledges, while some were seen "out and about" gliding
effortlessly through the water like birds in flight

Threadfin butterfly fish - Chaetodon auriga 3 pairs
white body shading to yellow in the back (to 9in)
marked with sets of fine right-angled diagonal lines
one dorsal has long "thread-like" filament

Goatfish - mullodichthys flavolineatus LHH III
whitish body with yellow stripe and fins (to 16in)
has a squarish black spot on its side.

Whitetip Reef Shark - triaenodon obesus 1
grayish body with white tips on dorsal fin
nocturnal & the one I found was sleeping in
the sand on the cave floor (to 6')

White mouth moray eel - Gymnothorax meleagris 1
brown eel covered with white dots with a bright
white inner mouth (to 4')

Oval chromis - Chromis ovalis 2 schools
mostly adults with several juveniles mixed
in. adults are brassy yellow/green & juveniles
are blue & orange. (to 7in)

Threadfin Butterfly fish

(from photo)

[illegible] followed by a pair of threadfin when I used them by snapping my fingers an old divemaster trick that emulates fish feeding

The 5 cars / 5 grunts dive site was once full of various species of brightly colored butterfly fish. Most predominant was the millet seed (Chaetodon miliaris). The rocky habitat provided ample shelter for the beautiful disc shaped fish. The millet seeds would travel in large schools flitting about the rocks and slurping up water borne plankton and vacuuming up algae on the corals. The last time I dove here in 2011, they were all still there. However, this time all of the millet seeds were gone and I could only find three pairs of threadfin. Sadly the rest have been taken out of their native habitat by fish poachers. Just like in "Finding Nemo" goggled friends descend upon the reefs collecting fish for the aquarium trade... illegally. The millets were an easy target. Years of snorkel tours and fish feeding programed the butterfly fish in this spot to approach humans.

vis [illegible]

Dive 1 1300 ~[illegible]

[illegible] fish

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

very sparse in sand flats

partially buried [illegible] with the sand

butterfly fish reacts to finger [illegible] & comes within an inch of my finger tips & following me then [illegible]

Tupperware

[illegible]

[illegible]

goatfish hunting in sand for food which makes it stick its head in?

swims with front flippers back tucked in

trumpet fish searching for prey

juvenile wrasse long wiggler

dark ~~Brown~~ ~~white~~
black
shell graveyard white

Cobwebs of light
dancing across the rippled
surface of the sand.
Cooler unseen water for hyde

Scott Fraser - See Week 5 Field notes

Date/Time: 7 July 2018 0710

Location: nahawea forest reserve
koa grove on the ridge 3.5Km from parking lot

Elev: 800m-1066m

Temp: 19°C / 100% H

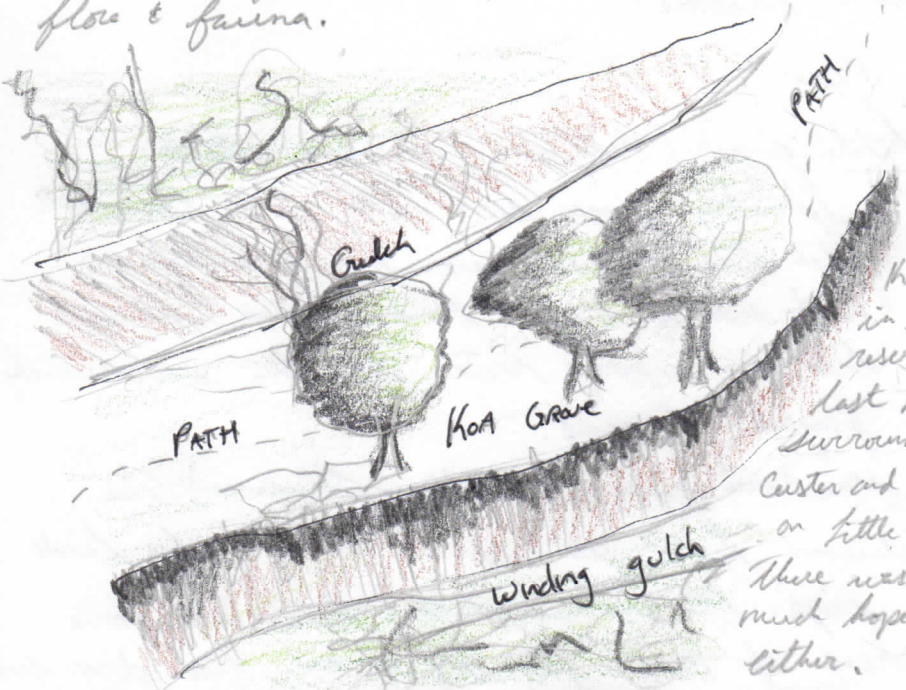
Pressure: 763 mm HG (HP 40°N 165°W
LP 25°N 135°W

Moon: waning crescent 0104/1355

Sun: 0550/1910

Weather: cloudy light showers along the way - 70% cloud cover
Wind 26Km/h

The koa grove is found in a small patch of remnant mesic forest or an "island oasis" surrounded on all sides by an invasive hoard of alien plants. The grove is found on a ridge flanked by two gulches. One to the East and one to the west. Both are steep drop offs that plunge 2-3 hundred meters to the perennial streambed below. Mostly dry now due to the water diversion 2 km to the south. Long ago, water scoured the gulches out providing micro habitat for flora & fauna.



(DEI)
The few remaining koa trees in the forest reserve. The last natives surrounded like Custer and his men at Little Bighorn. There was never much hope for either.

Species list 7 July 2018

Native Flora

Koa - (acacia koa) (endemic) ↑ 100' - more koa than 'ohia

'Ohia - (metrosideros polymorpha) (endemic) ↑ 100'

Raspberry - (rubus hawiensis) - native sprawling raspberry alien house finch snacking on berries in this open canopy habitat

'ie 'ie (Freycinetia arborea) found in west gulch

Ulohe (Diranopteris linearis) mat forming native fern fighting back some of the alien invaders

Native Fauna

'i'iwi - (vestiare coccinea) endemic honeycreeper to 6.5 inches seen around 'ohia in the west gulch. red body curved long bill coevolved with 'ohia blossoms

Alien Flora

Kahili ginger (Hedychium gardnerianum) rhizome spreading ginger seen moving down the west gulch like a tidal wave. More prevalent on east side of trail. Some specimen on west bees seen sipping nectar from the intoxicatingly fragrant blossoms.

Strawberry guava - (psidium cattleyanum) The delicious fruit is spread virally by birds & pigs. It has completely taken over some areas of Maui. - Pigs dig up soil, birds drop seeds

8.2mi
2220-4501 elev 800m

Start 0710 am

68°/86% <1 sw

30.01 ↑

tropical ash

cooke pine

Eac

N 20° 50' 2.68"

W 156° 16' 37.71"

head NE

0.5 Km pines / eac

3 needles

female cardinal

blue gum & fern
1.93 Km
wind freshening
1.27 Km 61° NE
pines / tropical ash
1.59 Km 822m
(E) left @ 1.83 Km 990m
111° (30 metres) 0935
pig sign 1.98 Km
left side of track
1st Hapia 2.67 Km 983m
entirely tropical ash
@ 2.9 Km 1008m

house finch / sparrows
3.13 K in ash
1028m
1st sign of geyser ginger
3.3 Km 1055 el
& guava bird feet
& flower
in open stand
of cane grass
Koa stand on right
3.48 Km 1066m
Several 'ohia as well
edge of steep gulch
nice Koa specimen in
gulch - platy ginger

'ie 'ie in gulch of
Koa
heard a diff bird
—
bees in geyser

bird, brown body
black belly blk head
yellow beak

(1100m)
3.72Km opposite leaf wavy
margin red vein
green waxy leaf some
deep red

Scott Lacasse
Week 5 Field Notes

Date / Time: 7 July, 2018 @ 0710 HST (start) - 1146 HST (stop)

Location: Begin at lower Makawao Forest Reserve (Kahakapao) parking lot (20°50' 2.68" N, 156°16'37.71" W), head NE for 1.83km and turn E. Follow steep trail in an easterly direction, turning southerly and proceed 1.65km to arrive at Koa grove (20° 48' 51.47" N, 156° 15' 56.88" W).

Elevation: 800m - 1,066m

Temperature: 19°C / 100% Humidity

Weather: Cloudy, light showers along the way. Destination 70% cloud cover with intermittent showers - Wind: E 26 kmh at Koa grove

Pressure: 763 mmHG (HP 40°N 165°W / LP 25°N 135°W)

Tide / Waves: N/A

Moon Phase: Waning Crescent 0109/1355

Sunrise / Sunset: 0550/1910

Habitat: The mesic forest zone on the windward side of Maui is a band of vegetation found on weathered andisol-ultisol soils between 750 - 1,250 m, just below the montane wet forest community. It is characterized by few droughts and receives an annual rainfall of about 100 - 250 cm (Ziegler, 2002). Historically, this zone held the predominant vegetation on the larger islands, but by the late 18th century, it was primarily a cultivated zone and no longer supported natural forest vegetation (Cuddihy & Stone, 1990). As ranching in the area increased, the remaining vegetation was all but eradicated along this elevational gradient, which directly contributed to the declining health of the watershed. In order to remedy the situation, a state forest reserve was established to begin growing commercially beneficial timber species in these forest plantations. For some reason, this one particular grove was spared from reforestation efforts.

Natural History: The koa (Acacia koa) and a few ʻŌhiʻa lehua (Metrosideros polymorpha) dominate this open-canopy community for 0.8 km along a ridge <300 m wide. The understory is comprised of non-native weeds like the Kāhili ginger (Hedychium gardnerianum), guinea grass (Panicum maximum), strawberry guava (Psidium cattleyanum), and eucalyptus (Eucalyptus robusta) saplings. Other alien species in the grove were the australian tree fern (Sphaeropteris cooperi), downy wood fern (Christella parasitica), palm grass (Setaria palmifolia), and one black wattle (Acacia mearnsii). The three native understory species I could positively identify were the uluhe (Dicranopteris linearis), a dense mat-forming sprawling fern that was able to hold back the alien species in one large area, the ʻakala or Hawaiian raspberry (Rubus hawaiensis), and maile (Alyxia oliviformis).

The ridge itself was flanked to the east and west by steep gulches, several hundred meters deep, and filled with native Acacia koa, Metrosideros polymorpha, the endemic liana ʻieʻie (Freycinetia arborea). Also visible in the gulch were the Polynesian introduced kukui (Aleurites moluccana) and the invasive Hedychium gardnerianum was observed creeping down into the gulch like a

slow-moving tsunami. I sat on the edge of the ridge looking down into the gulch and occasionally caught a flicker of red and heard the unmistakable call of the 'i'wi bird

'i'wi bird (Vestiaria coccinea) as it searched for 'ohia blossoms, which it has coevolved with over the millennia. The ridge itself was home to a large population of alien house finch (Carpodacus mexicanus) that seemed partial to this more open habitat. Also of interest was that the east side of the trail consistently contained more H. gardnerianum than the west and there was increased A. koa and M. polymorpha basal area on the west side.

References

Cuddihy, L. W., & Stone, C. P. (1990). Alteration of native Hawaiian vegetation: effects of humans, their activities and introductions. Honolulu, Hawaii: University of Hawaii, Cooperative National Park Resources Studies Unit.

Ziegler, A. C. (2002). Hawaiian Natural History, Ecology, and Evolution. Honolulu: University of Hawai'i Press.

Scott Lacasse

DATE/TIME: 10 July 2018 1808

Location: Kamalani (Tavares)

Elevation: sea level

Temp: 79°F / 70%

Pressure: 30.03 steady HP 42N 143W

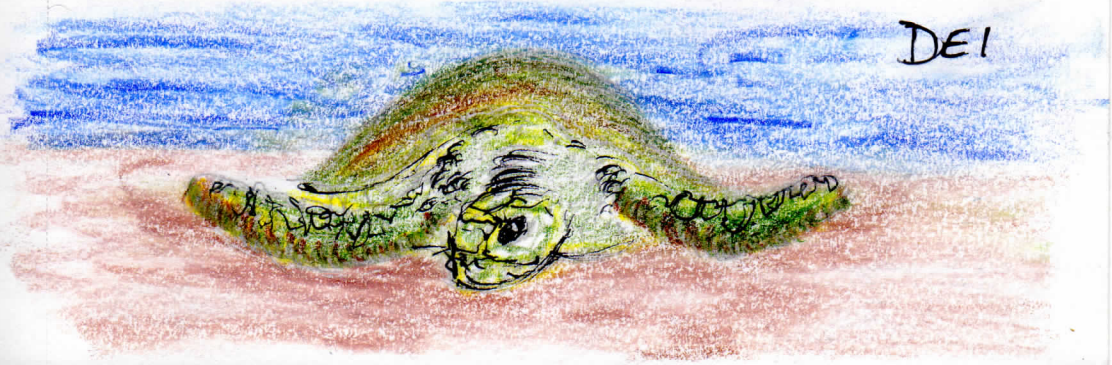
Moon: waning crescent 0328/1659

Sunrise/set: 0551/1910

Tide/waves: Low @ 1959/1-2'

Weather: 14mph ESE 32% cloud cover dark grey cumulus, high cirrus

Five honu are resting on the beach close to sunset. Four are dry with no obvious tracks. The high water mark is evident by the change in color of the sand and the location of the majority of the turtles. As I write, one more has emerged from the water and another is close behind. Exiting the ocean takes tremendous energy. They dig the thick parts of their fins into the sand and do a pushup lifting their mass up off the sand and dragging their shell & body behind. The front fins do most of the work but the rear ones move synchronously with the front. The rear pushes while the front pulls. They pause frequently, take a gulp of air and continue onwards. When do they know when to stop? Are they aware that the tide is going out?



Species Behaviors

10 July 2018

5 ♂ arrival 1808

|||| |||| |||| |||| ||||

||

mostly males

Hawksbill - prior to sunset there were 5 on the beach ♂ 1808 (mostly males) at 1916 just after sunset 10 came out at the same time. When I left after 1930 there were 20 on the beach.

10 coming out ♂ same time 1916

3 more visible on approach

* turtle crawls, 1 aborted entry due to human interference

hawksbill at sunset

10 July 2018

The breeze this evening is more from the South It has a gentleness to it, far different than the roaring tradewinds from the NE earlier today. The light onshore breeze has blown the flower heads from the coconut palms above and behind me onto the beach. There is also a seed of some sort that is prevalent.

thicker green cap
papery translucent thin brown
hard brown seed
(actual size)

* later identified as cook pine seed. (Araucaria columnaris)

The translucent ghost crabs have gotten used to my presence and are venturing further & further from their burrows. Perhaps looking for one last snack before the sun sets and their larger nocturnal cousins take over. Although, I have never noticed the large conical sand piles, which the nocturnal crabs leave behind, in this area. The East side is dominated by the turtles at night, leaving the west side completely open. And that is where the nocturnal crabs leave their piles. Sunset is spectacular by the way.

Species list

10 July 2018 cont'd

(26)

- honu - chelonia mydas
  medium sized marine turtle to 1.5 m
- pallid ghost crab - Ocypode pallidula HH II
  diurnal crabs to 1 in
- Cook pine - araucaria columnaris
  tall pine, self pruning to 80' 1 in the distance seeds present on bark
- naupaka - Scaevola taccada - 3-10' shrubs II
  withstands salt spray - flowers in half moon
- milo - Thespia populnea - tree up to 40' (last tree #)
  cordate leaves 3-5" trees & shrubs for in dense
- Coconut - cocos nucifera - up to 100' HH II
  leaves 20' long - used for building materials
- plumeria sp. - small tree to 25' III
  fragrant 5 petaled flowers used for lei (off site)
- tree heliotrope - tournefortia argutea ∞
  small cubella shaped tree to 20'
  (on west side only) - leaves edible
- red algae - on rocks visible @ low tide
  haliptilon subulatum & laurencia brachyclados
- myna bird - acridotheres tristis - 10 inches II
  brown w/ black head, yellow bill, white patches on black wings

Scott Jacobs @

Date/Time: 11 July 2018 0515

Location: Fanalami (Funafuti)

Elevation: Sea level

Temp: 75°F / 76%

Pressure: 30.05↓ HP 43N 144W

Moon: 0426/1803 waning crescent

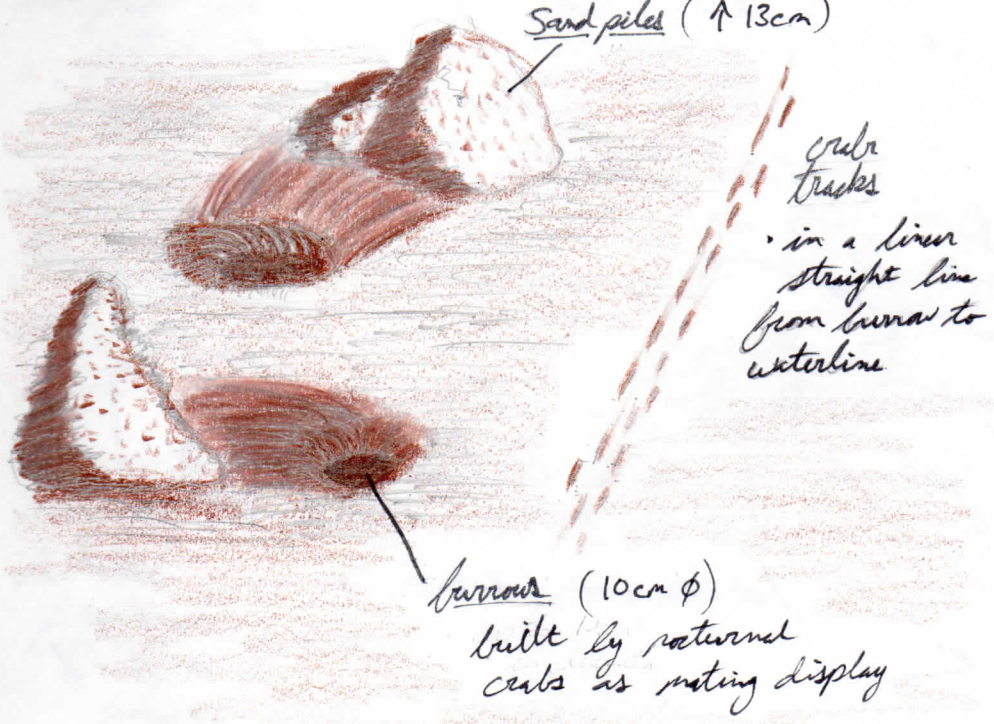
Sunrise/sunset: 0551/1910

tide/waves: LT 0644/1-2'

Weather: 9% cloud cover
ENE 9 mph - cumulus clouds to East

I stayed until well after dark at Tanaris last night and arrived predawn today. When I left last night there were 26 turtles settling in for the night. This morning I arrived just as the first two were headed to the water. There were 24 holes in all. Forty-five minutes later, there are 8 as the sun backs the trees in the East.

Ocypode ceratophthalma Burrows

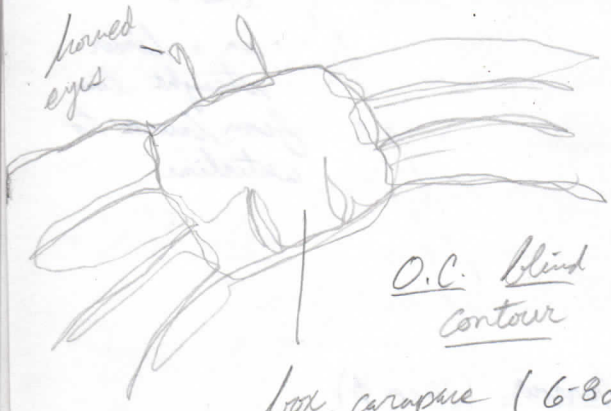


Species Behaviors

11 July cont'd (a)

- Ocypode ceratophthalma - Horn eyed Ghost Crab
  nocturnal

- Ocypode pallidula - Pallid Ghost Crab - diurnal (to 1 inch)
  - foraging along water line (both)
  - oc • active in great numbers up until sunrise
  - excavating burrows (both)
  - ∝ • stealing burrows
  - oc • fighting for burrows
  - feeding (both)
  - the "quick burrow" (both)
  - amazing eye sight (both)
  - ∝ • many are from rocky point to return to their burrows - feeding in tide pools?
  - the "walk and sit" (both)



11 July 2018 (a)

There was a high tide during the evening of 0008. It wasn't that high and you can clearly see the edge of it where the sand was swept smooth by the wave action. As suspected, the night crabs were very industrious and left evidence in random piles of sand all along the high tide water line. There are a few scattered near the parking area to the East, but the bulk of them are all on the west side of the beach. Since the horses have claimed the East side, this makes sense. The nocturnal crabs excavate themselves after sunset, as it would do no good to pull yourself to the surface only to find a 4016 turtle blocking your door. The sun had not risen when I arrived today so I went to the west side of the beach and watched the night crabs finish up their activities before settling in for the day. These crabs are considerably larger than their diurnal cousins and have very different markings, probably to avoid a different set of predators. The sun has risen and the nocturnal crabs are all tucked in as the day crabs awaken and excavate their burrows to begin the cycle again.

DEI 11 July cont'd @

Horn-eyed Ghost crab emerging from its burrow

Species list

Pallid Ghost Crab - ocypode pallidula - HH II
translucent crab - diurnal - to 1 inch

Turtle - chelonia mydas - 1.5m (24)
med sized sea turtle green/brown shell

Naupaka - scaevola taccada - 3-10' shrub II
salt tolerant, ½ moon shaped flowers

Cook pine - araucaria columnaris - tall 80' - 1 (off site)

milo - thespia populnea - tree ↑40' - 3 trees ∞ in dunes
3-5" cordate leaves

plumeria sp - fragrant 5 petaled flower II (off site)
small tree ↑ 25'

coconut - cocos nucifera - up to 100' HH II
leaves 20' long - many uses

Species list cont'd 11 July cont'd ②

tree heliotrope - tournefortia argentia ∞ in dunes
east side only - edible leaves tree to 20'

red algae - on rocks @ low tide
haliptilon subulatum
laurencia brachyclados > turtle food

myna bird - acridotheres tristis IIII
to 10 inches - brown w black head
and blk wings - yellow bill - white patches
on wings.

dove - geopelia striata - zebra dove II
to 8" - sexes similar - brownish gray
rosy belly

spotted dove - Streptopelia chinensis III
to 12" grayish brown - white spotted back
neck

Scott Jacobs - (see field notes)

Date/Time: 11 July 2014 / 1115 (B)

Location: Mami Campus, MAKAWAO
N. Boundary

Elev: 1480

Temp: 82°F / 64%

Pressure: 30.1 HP 43N 144W

Moon: 0426 / 1803 waning crescent

Sunrise/set: 0551 / 1910

tide/waves: N/A

Weather: NE 17 43% clouds
Low & mid level - rain to E

The Mami campus is a highly disturbed site. It's prior use was as a pineapple field & cattle grazing. Both part of the land that belonged to the Hui next door, (an old mansion now turned into an art gallery.) along the northwestern boundary to the hui, the school planted a native plant buffer filled with the species listed in species list. The 'ohia was in blosson and getting pollinated by bees. The 'ohia coevolved with the Hawaiian honeycreepers but they do not come down to this elevation due to habitat destruction and mosquito born avian malaria. The mosquitoes do not go to the higher elevations, so the creepers are safe... for now. - Climate change -

DEI - bee pollinating 'ōhi'a lehua

Species List

11 July 2018 (B)

Koai'a - Acacia koaia - small tree to 20' (5)
small gnarled tree - dryland - cousin to Koa

'aali'i - Dodonea viscosa - dry plant scrub tree (4)
a large shrub - first to inhabit lava flow

'ohi'a - metrosideros polymorpha (and. 'polymorpha') (7)
large tree/shrub - varied in form & leaf

loulu - Pritchardia spp. - only genus of native (3)
palms. 19 different species - dry forest 160'

Koki'o - Hibiscus waineae or kokio - native (3)
hibiscus shrub - large white flowers (Ke'oke'o)
(Koki'o) large red flowers

Pili Grass - Heteropogon contortus - (105)
tall clumping grass found in dry
areas - used for thatching & stuffing mattresses

Kului - Nototrichium sandwicense (4)
shrub - extremely drought tolerant
silvery pubescent leaves - flower spikes used
as ancient fireworks

Olahiki - Psydrax odorata - shiny dark (1)
leaves on this large dry land shrub

alaia - Pouteria sandwicense 140' tree (2)
milky sap - leaves spiral oblong
2-6 inches

Species List cont'd 11 July (13)

Hala - Pandanus tectorius - large tree (3)
large base of aerial roots - long
green leaves w sharp spines

Ti - Cordyline fruticosa - (18)
tuberous root is edible & steamed
used for medicine as well, cordage,
raincoat

Ko - Saccharum officinarum - (8)
Sugarcane - extracted juice to
sweeten medicines & food

Canegrass - Alien - arundo donax - tall 6' ∞
very invasive grass - spreads by
seed & root

Silky Oak - Grevillea robusta - large (2)
tree planted for timber

Glycine - Neonotonia wightii - ∞
terribly invasive vine

Fauna

Myna - acridotheres tristis - 9" (8)
sexes similar - black head

Red Crested Cardinal - Paroaria Coronata - 8" (3)
sexes similar - gray above, white below
red head w white collar

Cardinal - Cardinal cardinalis 9" (3)
1 ♂ 2 ♀ "chip" call

Scott Lacasse
Week 6 Field Notes

Date / Time: 11 July, 2018 @ 1115 HST

Location: The native planting buffer along the NW boundary of the Montessori School of Maui in Makawao, HI.

Elevation: 450m

Temperature: 28°C / 64% Humidity

Weather: 43% low and mid-level cloud cover with rain squalls visible to the NE along the edge of the NW rift zone. Winds NE @ 27 kph

Pressure: 765 mmHG (HP 43°N 144°W)

Tide / Waves: N/A

Moon Phase: Waning Crescent 0426/1803

Sunrise / Sunset: 0551/1910

Habitat: Prior to human contact around 1,500 years ago, the native vegetation in this area was classified as the dry forest zone, which existed in the rain shadow of Haleakala at an elevational range of 200 m - 1,000 m. This particular site is directly leeward of the NW rift zone, a geological feature that has a strong influence on the weather in this bioregion. Annual rainfall east of the rift zone at this elevation averages approximately 2,000 - >10,000 mm, while rainfall west of the rift zone averages <2,000 mm annually (Juvik et al., 1998). This unique location places the campus in a transitional zone where squalls can be seen approaching from the NE, hit the ridge, and turn northerly to release the bulk of their precipitation merely a kilometer or two away and send misting rains, blown by the prevailing trade winds, over the campus. Meanwhile, across the street to the west, the skies are clear with no precipitation.

The study area on campus is a vegetated buffer zone 140 m long and 5 m wide along the NW property boundary, which is marked by a stone wall with a drainage swale between it and the native plantings. A reinforced gravel driveway abuts the native buffer to the southeast and the site is highly disturbed with a long history of pineapple crop production, cattle grazing, and is characterized by compacted mollisols.

Natural History: The native buffer was planted in 2008 and has suffered some mortality. However, the plants that remain are in good health and represent a variety of species that would partially represent the original specimens in this vegetation zone. Koai'a (Acacia koai'a), a'ali'i (Dodonaea viscosa), 'ohi'a (Metrosideros polymorpha), loulu (Pritchardia spp.), koki'o ke'oke'o (Hibiscus waimeae), koki'o 'ula (Hibiscus kokio), pili grass (Heteropogon contortus), kului (Nototrichium sandwicense), alahe'e (Psydrax odorata), and ala'a (Pouteria sandwicensis) represent the indigenous species. Polynesian-introduced species were also planted, such as hala (Pandanus tectorius), ti (Cordyline fruticosa), and ko (Saccharum officinarum). Two alien silk oak (Grevillea robusta) trees remain in the buffer due to their mature size of 91 cm dbh, and the maintenance crew

is constantly battling against the highly invasive canegrass (Arundo donax), and glycine (Neonotonia wightii).

Alien bird populations, Cardinalis cardinalis, Carpodacus mexicanus, Passer domesticus, and Bubulcus ibis, were observed flitting between the large canopy trees and bees were seen retrieving nectar from the 'ohia blossoms.

References

Juvik, S. P., Juvik, J. O., & Paradise, T. R. (1998). Atlas of Hawaii. University of Hawaii at Hilo, Department of Geography. Honolulu: University of Hawaii Press.