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Scientific Words Defined

NATIVE = arrived via Wind, Water, Wings before man

E = ENDEMIC [en-**dem**-ik] = not man-introduced, changed over time --> unique,
found **ONLY in one place,**
like ONLY in HAWAIʻI; 90% Hawaiian Natives are Endemic, most are Endangered too

I = INDIGENOUS [in-**dij**-e-nus] = not man-introduced, occurring naturally,
ound in several places

RARE = low numbers

ENDANGERED = serious risk of extinction (low numbers, environment changing),
on national/international (IUCN) list

THREATENED - (Critically Endangered ... Vulnerable)

EXTINCT = GONE FOREVER

NOT NATIVE

INTRODUCED by man intentionally or not

P = POLYNESIAN INTRODUCTION - CANOE PLANTS
not officially native, but culturally significant ... “P” in spreadsheet column

R = RECENT INTRODUCTION - many dreaded “invasive species”;
many economically important “R” in spreadsheet column

ALIEN = naturalized pest, troublesome ...

NATURALIZED = thoroughly established but from somewhere else.

INVASIVE SPECIES = harmful to native species &/or the environment

WEED = aggressive, not wanted, disturbing to ecosystem

CULTIVATED for lei, gardens, or agriculture - very common & therefore often thought to be Hawaiian

MONOCOT: Anthurium, Heliconia, Bird of Paradise,
Popular LEI: Ginger

DICOT: Mango, Guava & Strawberry Guava, Kiawe (Mesquite), Pineapple, Proteas
Popular LEI: Crown Flower, Maunaloa, Pakalana, Pikake (Jasmine), Plumeria,
Puakenikeni

ANNUAL = life cycle (germination, flowers, fruit/seed) - all in 1 year or growing season

BIENNIAL = life cycle in 2 years (flower & fruit in 2nd year)

PERENNIAL = lives more than 2 years

XERIC = needs little water, xeriscape gardens are good for Hawaiʻi

FERN - large leaves called “fronds” which start coiled up as “fiddleheads”,
no flowers, about 110 species, most live on land,
reproduce by very tiny spores released from sori found directly on the leaves

MONOCOT = MONOCOTYLEDON = “one seed leaf”, 1 part (like corn),
flowering plants with parallel veins,
50-60,000 species,
water & food transport cells in dispersed bundles, flower parts: 3 or 6 or 9 or multiples of 3

DICOT = DICOTYLEDON = “2 seed leaves”, 2 parts (like peanut),
flowering plants with non-parallel veins (palmate or pinnate),
200,000 species,
water & food transport cells in concentric rings, flower parts: 4 or 5 or multiples of 4 or 5

PLANT WORDS

PLANT PARTS

anther = male part produces pollen, often yellow
bracts = modified leaves - like colorful bougainvillea parts & red poinsettia showy parts
epiphytic = living on another plant, not parasitic
hairs reflect light, keeping plant cooler & conserving water
leaves = food production factories with chlorophyll - some are modified for other purposes
leaflets = parts of leaf separated & fully functional
petals = inside flower parts (modified leaves) often "pretty" or showy, often fragrant
petiole = stem holding leaf or multiple leaves or leaflets as in monkeypod
phyllode = rib of leaf of leaf stalk, takes over leaf function as in koa
pistil = female sex organ parts: ovary with eggs (female gamete), style holding sticky stigma which catches pollen
pollen = varies from fine dry powder to heavy & sticky, contains male gamete (as sperm does) carried to female eggs by air, insects or other animals
sepals = outside flower parts (outside of petals) (modified leaves)
sori = fern spore capsules, sporangia clusters, usually found on underside fern frond, pattern often species specific
stamen = male sex organ parts: filament holding anther with pollen

LEAF WORDS & ADAPTATIONS

palmate (like hand with fingers divided)
pinnate (like feather)
simple = with one lobe or blade
lobe shapes: round, oval, palmate (like hand but undivided)
compound = with leaflets
palmate (like hand with fingers divided)
pinnate (like feather)
double compound = leaflets with leaflets
frond = "leaf" of ferns, palms
hairy = little projecting reflective "hairs" (helps prevent water loss)
rosette = leaves growing from central point, helps cool
shiny = reflective surface (helps prevent water loss)
small = avoid wind damage
succulent = juicy
venation can be parallel (//) or not (palmate, pinnate)
waxy helps prevent water loss

HAWAIIAN WORDS

ahu - shrine, stone pile or platform - marker or memorial

‘ele ‘ele = black

iki = small

kahakō = line over vowel = macron = make long sounding vowel like ā, ē, ī, ō, ū
[pronunciations: ah, a, ee, o, ooo]

ka/ke = the

kapa = tapa

kea = white

keiki = child

kī = ti

kipuka = lava island cut off by lava flow; often endemics survive in a kipuka

kuhuna = priest

kui style LEI = simple string of flowers ma‘o = green

kupuna = elders

la‘au lapa‘au = herbal healing

loa = long

melemele = yellow

nā = pluralize following noun

nui = large

‘okina = ‘ = reversed & up-side-down apostrophe or little 6 before vowel = glottal stop
= cut off sound, make short sound

papa = flat

‘ula = red

many more to be added at later time...

Directions

LOCAL Directions

Diamond Head = towards Diamond Head = DH
‘Ewa = towards ‘Ewa
Makai = towards sea/kai
Mauka = towards mountains/uka
Waianae = past ‘Ewa

East - where SUN rises
West - where SUN sets
North - from FSP, look towards mountains; at night find North Star or Hōkū-paʻa
South - from FSP, look at the ocean to the right

ISOLATED BY WATER

2990 miles from Japan to the NW
2560 miles from California to the NE
5065 miles from Australia to the SW
6880 miles from South America to the SE

Abbreviations, Symbols, Diacritics/Diacritical Marks

Abbreviations

E = ENDEMIC - see previous page
I = INDIGENOUS - see previous page
P = POLYNESIAN INTRODUCTION - see previous page
R = RECENT INTRODUCTION - see previous page
UW = Under Water
L = Left
R = Right
DH = Diamond Head

Symbols

= equal
= "means" in a translation
> = more than
< = less than
' = foot
" = inch
/ = or

Hawaiian Diacritics/Diacritical Marks

kahakō = line over vowel = macron = make long sounding vowel like ā, ē, ī, ō, ū
[pronunciations: ah, a, ee, o, ooo]
ʻokina = ʻ = reversed & up-side-down apostrophe or little 6 before vowel = glottal stop
= cut off sound, make short sound

other info ...

Scientific name (*italicized - can also be underlined*) for group of plants:
Genus is 1st & capitalized
species is 2nd without capital
Scientific family names ending with "aceae" [pronounced like 3 individual letters A.C.E.]
plurals in Hawaiian do not end with an "s", often are preceded by nā
Hawaiian --> English - many words have crossed-over
English --> Hawaiian - many words have crossed-over

SOURCES

[People & Entities]

PEOPLE & ENTITIES - alphabetically by first name

Alice P S Roberts (APSR), text & photos, see “WHO Am I?” for more information

Danial VanRavenswaay, formerly with the Education Department, Waikīkī Aquarium

Donald Drake, University of Hawai‘i-Mānoa Botany Professor, Hawaii Audubon Society director

Hawaii Audubon Society's Freeman Seabird Preserve (at Black Point)

Mary Roney (MR), Education Department, Waikīkī Aquarium, Hawaii Audubon Society director

Michelle du Prel Chapois (MdP), Volunteer Waikīkī Aquarium, from Tahiti, contributed much information, especially Hawaiian connections

Rick Barbosa & Matt Schirman, owners of HKMO, started planting AUDUBON‘s NATIVE PLANTS in Spring 2007; I heard Rick‘s talk at a Hawaii Audubon Society lecture 8/16/10. I had heard him talk earlier, in 2003 or 2004.

Hui Kū Maoli Ola [HKMO], Kāne‘ohe. [plantnativehawaii.com]

Sacha Eli, Hawaiian family stories

Sean Hino, horticultural information

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ctahr@hawaii.edu.

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Richard L. Duble, Extension Turfgrass Specialist, Texas Cooperative Extension,
The Texas A&M University System

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WHO am I?

I came to Honolulu in 1968 from Gladwyne, a suburb of Philadelphia, PA, with a BA in Biology from Gettysburg College, to work on a Masters in Science - Botany (plants) at UH-Mānoa. I got my MS degree in 1971. I got a Professional Diploma in Secondary Science Education in 1974.

I then went into teaching ballet, costuming, & teaching & performing synchronized swimming. In 1971, I founded MERMAIDS HAWAI'I which swims about 25 FREE water shows a year [Summertime (January-October) & Christmas). I teach synchro for the C & C of Honolulu & the Leeward YMCA.

In 1985, I began 18 years of teaching MARINE SCIENCE at Maryknoll High School; I also drove their school bus & took my students on about 50 field trips a year; I used Hawaiian words as often as possible for names of places, critters, & whateva...

I started using my Botany education & some of my old books to identify the Native Plants at the Waikīkī Aquarium in 2010; many of the terms started looking familiar...

My old Hawaiian Dictionary was amazingly full of information...
I started learning to use Apple's iWorks-Numbers (a spreadsheet that easily accepts photos) & a MacBook Pro (& now a MacBook Air).
Photos have been shot with two simple digital cameras:
a Canon Power Shot SD1100 IS and a Nikon Coolpix L24.

I chose to present the information I've found in every-day words along with my observations of the living plants.

2011: I showed the resulting 60 plants to Hawaii Audubon Society's Wendy Johnson. She thought much of the information could be applied to the Native Plants being planted at Audubon's Freeman Seabird Preserve @ Black Point.
2012: in January, February, & March, we made up our first 5" X 8" FLASH CARDS of our natives - hoping to educate any visitors to the preserve & to help our weed-pulling volunteers.
2013: in January, February, & March, we followed our volunteers' preference & gave them 5" X 8" papers with the pictures of the weeds to be PULLed OUT.

ALOHA, *Alice P S Roberts [www.MermaidsHawaii.com, cell 864-8122 (24/7)*