

Native Plants At Leeward Community College Campus

Selected Plants for Landscaping Based on Our Experience ©

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Environmental and Floristic Conditions at LCC

- Intense sun and heat during the summer
- Well draining soil in the back of campus
- Region once supported dry land shrub and woodland flora, now most absent and altered on the islands
- Dryland shrub and woodland had great variety of plants, many which became dormant during hot season.
- Had many fragrant flowering plants, many with interesting leaf and texture elements.
- Difficult to imagine today the experience of this rich flora because now covered with a few invasives such as koa haole and California grass.

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State of Natives Today



- Most endangered flora in the world: 50% or more.
- Many non-natives thought to be natives by many such as the Polynesian Introductions, kalo, ti, noni, 'awa or recent introductions like plumeria, gingers and non-native hibiscus.

Mehamehame, *Elaeagnus leucostachya*, at LCC, one the most endangered Hawaiian trees.

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Horticultural Practices LCC

- Drip or spray irrigation needed to keep plants attractive and seed producing throughout the year.
- Frequency of irrigation: once or two times a week, deep watering.
- Well draining soil in the back of campus.
- Ground cover or mulch greatly enhances native plant growth.

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Horticultural Practices LCC

- Little or no fertilizers as they tend to produce lush growth attractive to insects and diseases.
- Little or no chemical treatments for disease and insects. Use horticultural soaps, and oils.
- Challenge: many natives fall prey to new disease and insects pests, however if good plant conditions are maintained, plants eventually come back with some resistance.

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Other Horticultural Considerations

- Notable pest is the Chinese Rose Beetle. One effective control: plant under night lights.
- Natives tend to transplant with some difficulty. Younger plants do better than older ones. Sometimes they "sit" for a year before developing new growth.
- Propagation is well determined for many native plants, but they are slow growing compared to most popular non-native plants.
- Landscapers and growers must know and recognize the different environmental conditions that different natives require; plants from the mountains usually do not do well in dry areas.

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Native Plant Landscape Uses

- Natives tend to grow slowly, but if situated in an attractive way, allowing for growth, may result in lower maintenance.
- Natives can be effectively combined with non-natives, as long as cultural conditions are similar.



Red Ti, native 'Ohai and water plants
At Waimanalo Health Center gardens

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Native Plant Landscape Uses

- Not all natives are conducive to cultivation or use in landscaping. Many constricted by environmental needs.
- Long term identification of desirable cultivars needed to increase the selection of good landscape material.



Greenswords as seen here, or silverswords are poor candidates for most gardens because of their specific growth requirements that not matched in most gardens.

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Native Plant Nurseries

- Only four nurseries 'Oahu, and all are on the windward side. (Hui Ku Maoli Ola, Dennis Kim's, Pisces and Kay Lynch's fern nursery.)
- Most are not expanding except for one: Hui Ku Maoli Ola, (Rick and Matt's nursery). They sell at Home Depot, one of few venues for natives, but much of their business is contracted.
- One project for this grant is to develop a leeward, non-profit, native plant nursery.
- Additionally a large website for listing native plant inventories from nurseries is being developed.

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NATIVE FERNS

Palapalai, *Microlepia strigosa*

- Used in Hula.
- Attractive, easy to grow.
- Fairly available, though some forms are not from Hawaii.



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'Okupukupu, sword fern, *Nephrolepis exaltata*

- Good as ground cover.
- Sturdy, easy to grow.
- Rapidly spreading by runners.
- Fairly available.
- May be short-live, needing replacement from runners every 2 - 4 years.



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NATIVE GROUND COVERS

Pa'u o hi'iaka, Skirt of Hi'iaka, *Jacquemontia ovalifolia* subsp. *sandwicensis*

- Beach plant but seems to do well in any dry site.
- Constant small white blue flowers.
- Need regular irrigation to remain attractive.
- Can walk on it without damage.



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Akulikuli, Sesuvium portulacastrum

- Extremely tough plant, also from coastal sites.
- Resistant to salt spray.
- Takes hot dry conditions.
- With irrigation, spreads rapidly.
- Used in phyto-remediation.
- Small pink flower, attractive.
- Succulent leaves.
- Withstands walking on.



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Hunakai, Ipomoea imperati

- Coastal plant, buries stems into the sand.
- Needs very well drained soil.
- Attractive white flowers.
- Succulent dark green leaves



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Stream Side and Pond Plants

- ‘Thi ihi laukea, Marsilea villosa
Remains green year around when planted by water.
Native, endangered fern.
- ‘Ahu’awa, sedge, Mariscus javanicus
May seed out vigorously. Leaf edges sharp. Interesting structure year around.



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Stream Side and Pond Plants

Ae’ae, Water hyssop, Bacopa, Bacopa monnieri

- Excellent for stream-side, purifies water.
- Also good as ground cover in moist, slow-draining areas.
- Very easy to grow and propagate.



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Grasses, Grass-like plants and Sedges

- Pili Grass, Heteropogon contortus.
- Extremely important cultural plant, used by Hawaiians for thatching.
- May have drawback of seeding readily
- Very hardy, attractive.



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Grasses, Grass-like plants and Sedges

Uki Uki, Dianella sandwicensis

- Usually available.
- Can take hot, dry conditions, best with irrigation.
- Can grow in partial shade
- Mealy bugs sometimes a problem.
- Deep violet lily-like flowers, violet berries, important cultural plant.



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Carex, Carex wahuensis

- **Description:** Graceful sedges that form thick clumps and reach about 3 feet. Tiny flowers emerge on the upper portion of long stalks called spikes. Once pollinated, the flowers become small, seedlike fruit called achenes and can range from light brown to bright orange.
- **Distribution:** It can be found in dry forest and mesic areas.
- **Cultural and other uses:** The long, slender blades can be used to accentuate leis, as well as their flowers and seed stalks, in flower arrangements.
- **Landscape use and care:** Plants can be used either as accents. Their fine, fibrous roots are great for controlling erosion, and they can be planted as a mass ground cover even on steep slopes. These plants are highly versatile and can handle moderate to little watering, as well as full sun to partial shade. They also stand up well in areas of high wind.
- From article, Hui Ku Maoli Ola Nursery



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Hina hina, Artemisia mauiensis

- May be tricky to grow.
- Needs raised bed, very well drained soil with cinders.
- Extremely silvery and attractive.



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Pua kala, Argemone glauca

- About the only native "annual" plant, lasting 12 to 18 months.
- Tricky to start, but once in the ground, will self seed.
- Attractive white flowers in spring.
- Prickly but interesting blue-green foliage.
- Nice for naturalistic planting, dried plant stalks can be cut down after seeding.
- Very heat and drought resistant.



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Shrubs

'Ilima, Sida fallax

- Many naturally occurring forms: large flowering Black coral 'Ilima, widely available to small ground hugging 'Ilima from the sand dunes of Molokai.
- Extremely hardy, easy to grow and propagate.
- Blooms 100's of flowers a day, lasts for 5-7 years then replace.
- Some tall growing, most widely spreading.
- Island flower of 'Oahu, source of real lei.



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Nanu, Nau, Native gardenia, Gardenia brighamia

- Should be planted instead of the commonly-used Tiare
- Exceptionally attractive and pest-free plant.
- Fragrant white flowers
- A real winner.
- Often available.



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Hala pepe, Pleomele sp.

- Relative of Dracaena.
- Not readily available.
- Blooms of hanging clusters of pale yellow bell-shaped flowers with abundance of nectar.
- Mesic forest plant, hardy.



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Kaula, Colubrina oppositifolia

- Attractive large shrub to multi-stemmed tree.
- Prized for hard wood by Hawaiians.
- Glossy foliage, small greenish-yellow flowers, small fruit production.
- Dryland native.
- Not readily available at this time.



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Naupaka kuahiwi, Scaevola gaudichaudii

- Not widely known in nursery trade.
- Exceptional dryland shade with constant small yellow star-shaped flowers.
- Easy to grow, very tolerant of dry, hot conditions.
- Attractive dark purple berries.
- Takes pruning readily.
- Small, curved leaves.



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Koki'o ke'o ke'o, White Hibiscus, Hibiscus arnottianus, ssp. immaculatus, and H. waimae.

- Widely available and popular.
- Hardy, seems to resist blister mite to greater extent than non-native hibiscus.
- Lightly fragrant flowers.
- Will grow to large shrub size but easily pruned.



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Koki'o ula, Clay's hibiscus, Hibiscus clayi

- Can take dry, hot conditions if irrigated
- Constant flower production
- Quite disease and pest resistant
- Needs light pruning to maintain attractive shape.
- An orange-flowered species, Hibiscus saintjohnianus is another attractive native.
- Recently hybrids of these and other species have been made for exceptionally attractive plants.



Hibiscus saintjohnianus

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Naio, False Sandalwood, Myoporum sandwicense

- A large, tall shrub, the more common form.
- Extremely adapted to dry, hot conditions without losing leaves.
- Small pink white flowers that are persistent.
- Easily pruned.



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Naio, False Sandalwood, Myoporum sandwicense variety papa or Winona's Naio

- A low growing form.
- Makes an evergreen, spreading ground cover.
- Named for Winona Char, well known Hawaiian native plant botanist.
- Discovered on the island of Hawaii, South Point.



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‘Ohai,
Sesbania tomentosa

- Generally available.
- Needs very well drained soil with ciders.
- Silvery leaves, apricot-colored flowers hang below.
- Low, spreading shrub.
- Sets off any other foliage.
- Needs to be replaced every 3-5 years but well worth it.



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Maua, Xylosoma hawaiiense

- Attractive, weeping shape with shiny pointed green leaves.
- New leaves a striking red color.
- Deep red berries very abundant in season.
- Large shrub, multi-stemmed tree.
- In order to get berry production, plant in groups of three or more since there are male and female plants.



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A’li’i, Dodonaea viscosa

- Adapted to extremely dry and hot conditions.
- Grown for attractive seed pods, used in lei.
- Wood very hard, prized for qualities.
- Tall to medium in size.
- Possible dwarf types to be available.



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Ho’awa,
Pittosporum species

PICTURED:
Pittosporum confertifolium

- Mid to large sized shrub.
- Understory shrubs in mesic to dry forests.
- Interesting fruits that open with bright orange inside with shiny black seeds.
- Attractive various grey and green-grey leaf coloration.
- Plant at least 3 or more together for fruit production since there are male and female plants.



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Ala he’e,
Psydrax odorata

- Tall understory small tree, large shrub, also very drought tolerant.
- Fragrant clusters of small white flowers.
- Easily pruned.
- Shiny dark leaves.



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‘Akia, Fish Poison plant, Wikstroemia uva-ursi

- Widely used at resorts, and other beach areas.
- Has male and female plants, need both for attractive fruit.
- Low growing shrub from the coastal areas.
- Attractive rounded small leaves on ranks down the stems.
- Very fragrant in early mornings.



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Aulula, Cabbage-on-a-Stick
Brighamia insignis

Interesting accent plant
Needs excellent drainage
Often best in shallow pot
Does get spider mite readily
Fragrant long tubular flowers
Baseball-like thick stem



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Akoko
Chamaesyce celestriodes

- Very drought tolerant.
- May go dormant and drop leaves if not irrigated
- Interesting oblong leaf shape.



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Pohinahina, Beach Vitex,
Vitex rotundifolia

- Tall growing ground cover plant from the coast.
- Silvery grey leaves.
- Small cluster of purple flowers.
- In winter can become somewhat dormant, loses some leaves.
- Very hardy for difficult slopes and situations.



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Ulei,
Osteomeles anthyllidifolia

- From dry forests, especially effective on slopes.
- Weeping growth, some tall, some ground hugging.
- Lacy leaves, clusters of small white fruits.
- Long, flexible stems.



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Kului, Nototrichium sandwicense

- Attractive grey leaved form from Maui with purplish tinge.
- Medium sized shrub grown for attractive leaves.
- Tolerant of dry conditions.



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‘Aweo’weo, ‘Aheahea
Chenopodium oahuense

- Drought tolerant
- Silvery leaf color
- This variety, small, interesting triangular leaves.
- Probably medium sized shrub.
- Short-lived



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**Moa, Psilotum nudum
Chicken Feet**

- Propagation by spores like ferns
- Used by Hawaiians as anti-chafing powder and as herbal tea.
- Prized by flower arrangers for keeping flowers fresh.
- Easy to grow, different texture.



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**Industrial Strength
Plants for Tough Places**

- Anapanapa, Colubrina asiatica. Fast growing, must prune back strongly. Excellent screening plant, very disease resistant and vigorous. Excellent for screening.
- 'Ilie'e, Plumbago zeylanica. Good for difficult situations, mounding in growth habit, so don't put under trees or shrubs.



**Native Trees:
Palms**

Loulu, Palms,
Pritchardia species.

- Should use more of our 29 native species, many excellent for certain environmental conditions.
- Easy to grow from seed.



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Lama, Diospyros sandwicensis

- Should be a prime landscape tree.
- Small to medium in size, fine leaves.
- Related to persimmons.
- Extremely important cultural tree for hula.
- Display of multi-colored fruit, red, orange, yellow and green.
- New leaves bright red
- Still abundant in the wild, dry adapted.



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Aulu, Sapindus oahuensis

- Should be a major large shade tree for the dry areas.
- Extremely heat and drought resistant
- Interesting fruits like small olives.
- Little leaf litter.
- Large tree.



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Koai'e, Acacia koaia

- Dryland form of Koa, different species.
- Smaller in growth, ideal for smaller areas.
- All koa have soothing leaf movement in the wind, distinctive.
- Should be a great landscape plant, currently not very available.



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Koa, Acacia koa

- Most forms of koa are too large for most landscape sites.
- Most koa grow best at higher elevations and moister conditions.
- If seed is from drier sites, the plants may be genetically smaller and more adapted to drier conditions.
- Koa can die back if not good drainage or from twig borer damage.
- Still schools and garden sites would like to try the tree.



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Hala, Pandanus Pandanus tectorius

- Once considered Polynesian Introduction, now native.
- Important fiber for Hawaiians.
- Large tree-like plant, this one is thornless.



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Munroidendron racemosum

- Found native only in Kaua'i.
- Large compound leaves with felty tan undersides.
- Unusual fruit, bead-like hanging down in clusters
- Easy to grow, hardy.
- Endangered



Interesting Fruit of the Plant above

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Koki'o, Tree Hibiscus, Kokia species

- Most spectacular native tree, should be a must in dry areas. Large and spreading.
- All are endangered, but seed source for Kokia drynariodes from the Island of Hawaii, is readily available and will grow easily and quickly from seed.
- Beautiful glossy, star-shaped leaves of medium green, stems bleed a red liquid when cut.
- Eye-catching flowers, large as a fist, twisted and red.
- Attracts many birds and insects before and during blooming due to large nectar output.



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How to get native plants into the landscape

- Landscape architects and designers need to learn about cultivation requirements and to identify native plants for use in the landscape. Correct choice of seed source and growing conditions can mean the difference in success or failure in use of native plants.
- Free three-hour workshops based on this document available on request to Professor Millen for qualifying landscape architecture and landscape maintenance firms, and plant nurseries. In return, participants will be asked to report on their increased use of native plants as a workshop outcome.
- Identify nurseries that are willing to start growing the necessary source plants for production. Many will need to grow their own propagative sources for native plants.

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How to get native plants into the landscape, continued

- Leeward Community College is willing to share any seed or propagative plant material that we have sufficient quantities with qualifying plant nursery businesses.
- Landscape maintenance firms should train workers in effective care of natives. Workshops may be arranged through Outreach Colleges of University of Hawaii.
- Network with other landscapers and share information about effective use of natives in the landscape.
- Use the new database online that will be available perhaps by next fall, called **Native Plants Hawaii**. It will contain horticultural information on native plants, provide space for any nursery growing native plants along with photos and information of examples of effective use of native plants in the landscape.

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