Non-invasive Landscape Plants with Fragrant Flowers

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Weeds are not friends to my garden. They cause more work and displace the flowers or vegetables that I am trying to grow. But I do understand that in our multicultural world, a weed to one person may be a medicine, food, or ornamental to another. Plants have many uses to humans; that is why we transport them with us as we traverse the planet.

In Hawai‘i, many of the native plants are endemic—they are not found anywhere else in the world. This rarity has made them vulnerable to impacts from non-native species. Some of the plants introduced here from other regions become weeds and displace the native plants. While invasive weeds may cause trouble in my garden, they create havoc in Hawai‘i’s delicate native ecosystems.

Hawai‘i’s natural ecosystems have one of the worst weed problems in the world. To help understand and cope with this problem, scientists developed a system, the Hawaii-Pacific Weed Risk Assessment (HPWRA), which can predict a plant’s ability to become a weed here. This system is based on the plant’s biological and ecological characteristics (its natural history, performance in its native environment, and behavior in other parts of the world). By considering the information the system has assembled, we can predict how the decision to plant a particular plant may affect the native Hawaiian environment.

Preventing invasive species from becoming established in Hawai‘i is the most economically and environmentally efficient method of dealing with unwanted weeds. The plants in this publication have been screened by the HPWRA. They are considered to be of low risk for invasiveness to Hawai‘i’s agricultural systems and native environments. For more information on the HPWRA, visit www.hear.org/wra.

To have a plant screened by one of the Hawaii Invasive Species Council’s weed risk assessment specialists, e-mail hpwra@yahoo.com.

Characteristics of invasive plants

Many of the attributes that we appreciate in our garden and landscape plants contribute to their ability to invade natural and agricultural ecosystems. These include

• rapid growth
• early maturity
• heavy seed production
• vegetative reproduction (i.e., pieces of roots, stems, or leaves can break off and grow into new plants; this can happen when green waste or plant trimmings are discarded)
• tolerance of dense shade (conferring ability to spread into the understory of native forests)
• having non-specific pollinators
• having a “seed bank” (i.e., seeds last for a long time in the soil and may germinate many years later, or they can accidentally be moved around with the soil).

How to use this resource

This document gives a brief outline of the characteristics of seven plant species with fragrant flowers. Because of their low risk of invasiveness, they are suitable for planting in Hawai‘i landscapes. Resources for in-depth information on plant care are included in the references section. The HPWRA is a predictive tool based on current knowledge about a plant species. The system correctly classifies 80–85% of non-pest (low-risk) species. If one of the species described in this publication starts to exhibit invasive characteristics, please contact hpwra@hear.org.
Champaca (miulana melemele)

Scientific name: *Michelia champaca*

Native distribution: China, Bangladesh, India, Myanmar, Thailand, Vietnam, Indonesia, Malaysia

Family: Magnoliaceae (magnolia family)

HPWRA score: low risk

Plant description

Evergreen tree
Height: 20–70 ft
Spread: 10 ft
Growth rate: slow
Dispersal mechanism: birds

Flowers

Fragrance: musky
Color: deep yellowish-cream to orange
Size and shape: 1.5–2 inches long; cup
Flowering period: throughout the year
Pollinator: beetles, other insects

Preferred conditions

Soil: fertile, well-drained, pH neutral to slightly acidic
Light: full sun
Water: moist to moderate
USDA Hardiness Zones: 9–11
Elevation: 30–4900 ft

Management

Propagation methods: from seed
Fertilizer: general purpose fertilizer before growth begins in the spring
Care: space 15–20 ft apart; pruning is rarely needed

Pests and diseases

Aphids cause leaf curling, a fungus causes a leaf-spot disease

Low-risk characteristics

not a weed elsewhere
no vegetative reproduction
limited seed production
no seedbank
Chinese confederate-jasmine (maile haole)

Scientific name: *Trachelospermum jasminoides*

Native distribution: China, Japan, Korea, Vietnam

Family: Apocynaceae (dogbane family)

HPWRA rating: low risk

**Plant description**
Evergreen woody climber

Height: 10–30 ft

Spread: depends on supporting structure

Growth rate: fast

Dispersal mechanism: vegetative fragments moved as garden waste

**Flowers**

Fragrance: nutmeg-scented

Color: white

Size and shape: tube 0.2–0.4 inches; star

Flowering period: warm months

Pollinator: hawkmoth

**Preferred conditions**

Soil: well-drained, acidic pH

Light: full sun to partial shade

Water: moderate

USDA Hardiness Zones: 7–11

Elevation: sea level to above 3000 ft

**Management**

Propagation methods: cuttings

Fertilizer: complete fertilizer, twice a year

Care: space 6–8 ft apart; prune after flowering to control spread

**Pests and diseases**

oleander scale, sooty mold

**Low-risk characteristics**

no evidence of seed production in cultivation requires specialist pollinator limited dispersal mechanisms no seedbank when cultivated
Gardenia jasminoides (kiele)

Scientific name: *Gardenia jasminoides*
Native distribution: China, Japan, Taiwan, Vietnam
Family: Rubiaceae (madder or coffee family)
HPWRA score: low risk

Plant description
Evergreen shrub
Height: 2–6 ft
Spread: 4–5 ft
Growth rate: moderate
Dispersal mechanism: birds (fruits rarely seen)

Flowers
Fragrance: rich, sweet, mimics jasmine
Color: white
Size and shape: 2–5 inches; round
Flowering period: late spring to early summer
Pollinator: possibly moths

Preferred conditions
Soil: high in organic matter, well-drained; acidic pH (5.0–5.5)
Light: full sun in cooler areas, light shade in hotter areas
Water: moist
Temperature: 60–75°F
Elevation: 10–2500 ft

Management
Propagation methods: cuttings 4–6 inches long; grafted cuttings on nematode-resistant rootstock
Fertilizer: ratio of 3:1:2 or 3:1:3
Care: space 5 feet apart; prune after flowering

Pests and diseases
aphids, mealybugs, spidermites, scales, whitefly, thrips; powdery mildew, root-knot nematode, sooty mold

Low-risk characteristics
not tolerant of a wide range of soil conditions
limited seed production
doesn’t reproduce vegetatively
Plumeria (melia, pua melia)

Scientific name: *Plumeria obtusa*
Native distribution: Mesoamerica; Caribbean
Family: Apocynaceae (dogbane family)
HPWRA score: low risk

Plant description
Small tree
Height: 3–30 ft
Spread: 30 ft
Growth rate: fast
Dispersal mechanism: wind (rarely produces seed)

Flowers
Fragrance: sweet
Color: white with yellow center
Size and shape: 2–3 inches diameter; tubular
Flowering period: March to October
Pollinator: possibly hawkmoth

Preferred conditions
Soil: well-drained, slightly acidic
Light: full sun
Water: moist
Temperature: 60–90°F
Elevation: 10–2000 ft

Management
Propagation methods: tip cuttings, seed (not commercially available)
Fertilizer: use 10–30–10 every three to four months
Care: space 10–15 ft apart, prune in the winter

Pests and diseases
long-horned beetle, thrips, whiteflies, mites, blossom midge; plumeria rust, leafspot, shoot blight, powdery mildew

Low-risk characteristics
not shade tolerant
limited dispersal mechanisms
limited seed production
no seed bank
Southern magnolia (mikinolia)

Scientific name: *Magnolia grandiflora*

Native distribution: southeastern and south-central United States

Family: Magnoliaceae (magnolia family)

HPWRA score: low risk

**Plant description**

Evergreen tree

Height: 45–80 ft (25 ft in Hawai‘i)

Spread: 30–40 ft

Growth rate: medium

Dispersal mechanism: birds

**Flowers**

Fragrance: lemon–scented

Color: creamy white to tan

Size and shape: 6–8 inches wide; saucer–shaped

Flowering period: spring–summer

Pollinator: bees

**Preferred conditions**

Soil: deep, sand, humus-rich, acidic pH

Light: full sun to partial shade

Water: wet to moderate

USDA Hardiness Zones: 7–10A

Elevation: 0–500 ft

**Management**

Propagation methods: grafting or by seed

Fertilizer: general fertilizer every three months in the growing season

Care: space 20–30 ft apart; a little pruning is needed to develop a strong structure

**Pests and diseases**

scales, tulip-poplar weevil, magnolia borer, leaf spots, blights, scabs, black mildew

**Low-risk characteristics**

not a weed elsewhere

limited climate suitability

no vegetative reproduction
Tahitian gardenia (kiele)

Scientific name: *Gardenia taitensis*

Native distribution: Southwestern Pacific

Family: Rubiaceae (madder or coffee family)

HPWRA rating: low risk

**Plant description**

Shrub or tree

Height: 6–20 ft

Spread: 15 ft

Growth rate: moderately fast

Dispersal mechanism: birds (fruit rarely formed in cultivation)

**Flowers**

Fragrance: sweet

Color: white

Size and shape: 2-inch long tubes; rotate

Flowering period: intermittently all year

Pollinator: moth

**Preferred conditions**

Soil: well-drained, neutral to acid pH

Light: full sun to partial shade

Water: moist

USDA Hardiness Zones: 10–11

Elevation: uncertain

**Management**

Propagation methods: partially mature terminal cuttings, or air-layers

Fertilizer: general garden fertilizer three to four times a year

Care: space 6–8 ft apart; prune to maintain shape and size

**Pests and diseases**

aphids, scale, spider mites, thrips

**Low-risk characteristics**

not a weed elsewhere

no vegetative reproduction
Ylang-ylang (lanalana)

Scientific name: *Cananga odorata*

Native distribution: Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Phillipines, Australia

Family: Annonaceae (custard-apple family)

HPWRA score: low risk

Plant description
Evergreen tree
Height: 33–50 ft
Spread: uncertain
Growth rate: fast
Dispersal mechanism: birds, bats, monkeys, squirrels

Flowers
Fragrance: sweet
Color: yellow/yellow brown
Size and shape: 6 inches long
Flowering period: blooms sporadically throughout the year
Pollinator: beetles

Preferred conditions
Soil: sandy, humus-rich, well-drained, pH 4.5–8.0
Light: full sun to partial shade
Water: moderate
Temperature: 64–82°F
Elevation: to 2600 ft

Management:
Propagation methods: seed, sometimes by cuttings
Fertilizer: a balanced fertilizer every 2 weeks
Care: space 20 ft apart; prune regularly to promote flowers

Pests and diseases
stem borers, flower-eating beetles, insects that cause leaves to wilt

Low-risk characteristics
requires specialized pollinator
no vegetative reproduction
limited seed production
References and further reading

Websites
Hawaii Ecosystems at Risk; invasive species information for Hawai‘i and the Pacific; www.hear.org.
Native Plants Hawaii; a searchable database with information on growing native plant species and local nurseries that have native plants for sale; http://native-plants.hawaii.edu.
Plant Right; focuses on horticulture and invasive plants in California and has some useful information for Hawai‘i; www.plantright.org.
Weed Risk Assessment for Hawaii and Pacific Islands; a complete list of species screened and assigned a risk status by HPWRA; www.botany.hawaii.edu/faculty/daehler/WRA/default2.htm.