



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)



Forest and Kim Starr

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



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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)



Forest and Kim Starr



Forest and Kim Starr

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)



Forest and Kim Starr



Forest and Kim Starr

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)



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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)



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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



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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)



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Forest and Kim Starr

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 (*Ilanalana*)



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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

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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.