 <b>KISC</b> KAUI INVASIVE SPECIES COMMITTEE	Kauai Status	KISC Status	HPWRA	Invasive Impacts Score	Feasibility Score	Combined Score
<b><i>Jasminum polyanthum</i></b> (pink jasmine)	ADVENTIVE	EARLY DETECTION	HIGH RISK (10)	7.5	7	14.5

Initial prioritization report completed: January 2018

Report updated as of: N/A

Current Recommendation for KISC: pending scoring rank and committee review

**Knowledge Gaps and Contingencies:**

- 1) Delimiting surveys surrounding known locations are required to gain knowledge of the extent of populations.
- 2) One plant of questionable identification needs to be assessed when flowers are present
- 3) An understanding of partnership roles may increase the likelihood of success.
- 4) Landowners must be contacted to assess cooperation.
- 5) An assessment of outreach capacity is necessary
- 6) Plants should be monitored for production of seed.

## Background

*Jasminum polyanthum* (Oleaceae), or “pink jasmine”, is a woody vine that is cultivated as an ornamental (eFloras 2017). *J. polyanthum* has not been considered for control by KISC in the past and thus, the purpose of this prioritization assessment report is to consider the potential invasive impacts of *J. polyanthum* and evaluate whether KISC should attempt eradication (i.e. accept “Target” status) or joint control with partnering agencies (i.e. accept as “Partnership” species status). This will be informed by scoring and comparing *J. polyanthum* to other “Early Detection” species known to Kauai (See Table 5 in KISC Plant Early Detection Report for status terminology).

## Detection and Distribution

*J. polyanthum* was first vouchered on Kauai during 2015-2017 Surveys from an adventive population in Kokee (K. Brock 937 & 1021, PTBG). Statewide, it is considered naturalized on Hawaii island only (Imada 2012). Three distinct occurrences were noted on Kauai during 2015-2017 surveys: two in Kokee that appear to be remnants of cultivation or adventive populations adjacent to cultivation sites, and one cultivated plant in Kalaheo that is spreading vegetatively (Figure C27- 1). Another potential location of this plant exists in Hanamaulu along the Highway 56 (UTM 4Q 462349 E x 2431988 N) but it was not included in Figure C27- 1 because it could not be positively identified without flowers (eFloras 2017). Additional monitoring of this small patch is needed to distinguish it from other *Jasminum* species. The largest patch of this plant exists at a cabin site on State Park land in Kokee, where it was cultivated by the previous owner but has since become a weed in the yard (Figure C27- 2). Although the size of this patch was not accurately assessed during 2015-2017 surveys, it appears to cover approximately 0.25 hectares (0.6 acres). The other two locations are less than 10 x 10m in area, with one growing along Camp 10 road in Kokee, which may indicate that an undetected cultivated patch is present at a nearby cabin site. Although *J. polyanthum* can produce viable seed, seed set may be uncommon in this species (HPWRA 2012). However, the growth rate of this vine appears to be quite rapid, and thus, the primary mode of invasion by this species may be by vegetative spread of established populations – although occasional long-distance seed dispersal events may occur. Combined, these data indicate that *J. polyanthum* is currently located in 2 judiciary districts (Koloa, Waimea) and 3 watersheds (Lawai, Waimea, Kauhao).

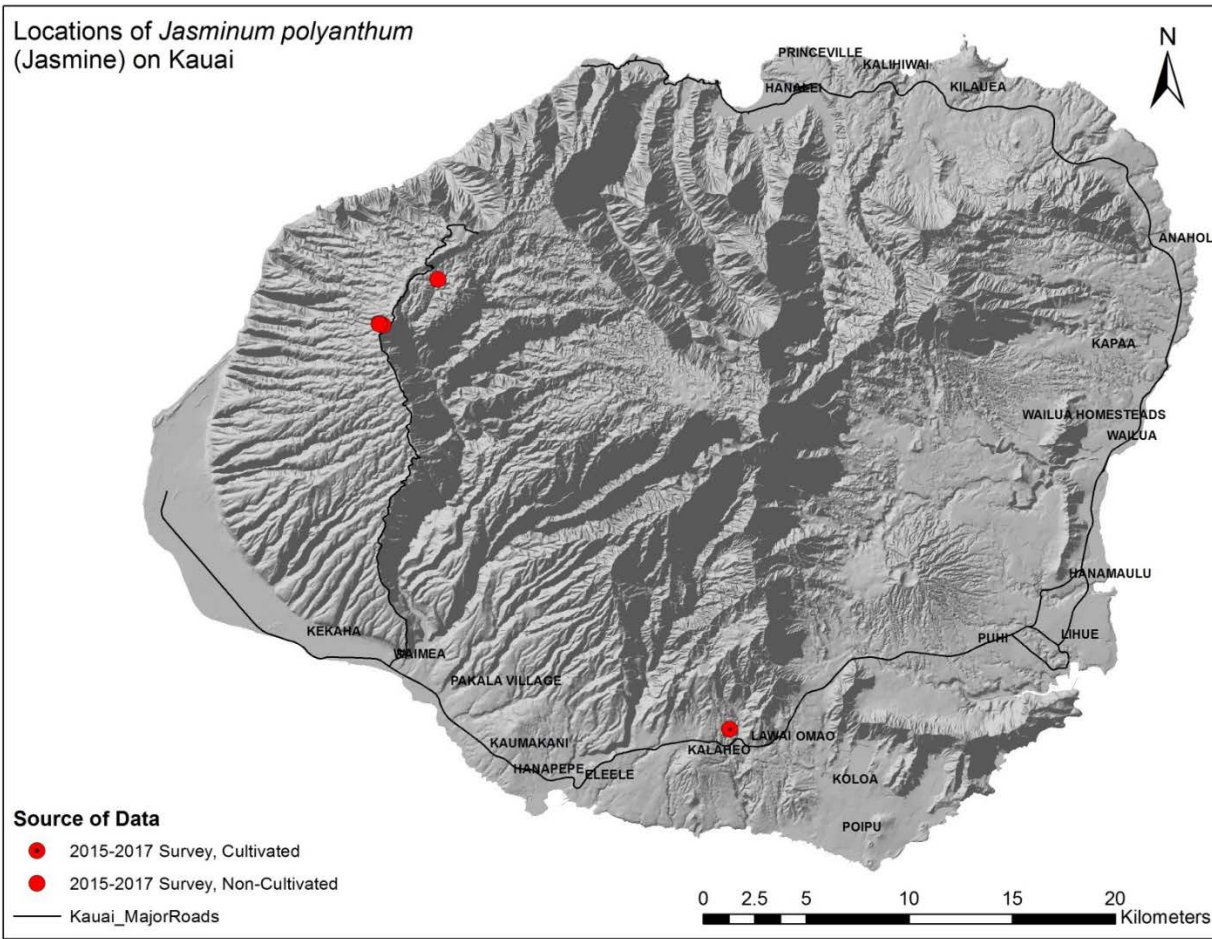


Figure C27- 1. Locations of *J. polyanthum* on Kauai.

### Hawaii Pacific Weed Risk Assessment (HPWRA) Score

*J. polyanthum* is designated as “High Risk”, receiving a score of 10 (Daehler et al. 2004, HPWRA 2012). Traits contributing to this status are listed below according to whether they pertain to the likelihood a plant will invade vs. the consequences of the invasion, according to Daehler and Virtue (2010). Categorization of traits in this manner more accurately informs invasive impact potential scoring and prioritization of species that are already established on Kauai.

<i>Likelihood of Invasion</i>	<i>Consequences of Invasion</i>
<ul style="list-style-type: none"> <li>• Suited to climates in Hawaii (intermediate suitability)</li> <li>• Naturalized beyond its native range</li> <li>• Tolerate a wide range of soil conditions</li> <li>• Produces viable seed</li> <li>• Reproduction by vegetative fragmentation</li> <li>• Propagules dispersed intentionally and unintentionally by people</li> <li>• Propagules survive passage through the gut</li> </ul>	<ul style="list-style-type: none"> <li>• An environmental weed</li> <li>• A congeneric weed, sharing a genus with other known invasive vines (i.e. implies inheritance of tendencies to inflict invasive impacts)</li> <li>• Causes allergies in humans</li> <li>• Climbing and smothering growth habit</li> </ul>

Refer to the full Weed Risk Assessment for *J. polyanthum*, including how these traits and characteristics traits affect HPWRA scoring, at <https://sites.google.com/site/weedriskassessment/assessments/Download-Assessments>.



Figure C27- 2. *J. polyanthum* (compound leaves, not flowering) invading a flower bed at a cabin site in Kokee.

## Invasive Impacts Score

### 1. Impact on natural community structure and/or composition

**Score: 2.5** = Moderate-Major impacts

*J. polyanthum* was assigned a score of 2.5 because observations from New Zealand, Australia, and Hawaii indicate that it may have major impacts on Kauai. It has been noted forming dense cover that climbs into tree canopies and restricts light availability in invaded stands on Australia (Figure C27- 3) and New Zealand where it has escaped from urban areas (Sullivan et al. 2005, HPWRA 2012). These observations are reflected in Kauai where an escaping population at a cabin site in Kokee forms the dominant cover in disturbed yard areas and has climbed into adjacent forest canopy outside of the property boundary due to its rapid growth rate. Comparisons of Kauai to *J. polyanthum*'s native range of tropical-subtropical China, at 1400-3000 m elevation, indicate that it may successfully invade Kauai's higher elevations more readily than lowland environments. However, the plant detected in Kalaheo (240 m above sea level) (Figure C27- 4) was observed spreading away from its cultivated site over other ornamental plants and into the mid-story canopy of adjacent alien forest, which may imply broad climatic suitability. A score of 2.5 was assigned rather than a 3 because seed set is thought to be uncommon (HPWRA 2012), which may indicate that spread of this plant to other areas may be slow during the initial phase of its invasion. Regardless of seed production, people are likely to prune this rapidly growing vine and deposit viable fragments in green waste piles; this action, when done often, appears to have sufficiently facilitated the invasions of other predominately vegetative plants on Kauai (e.g. *Epipremnum aureum*, *Thunbergia* sp.). This plant should be monitored in the future to determine the frequency of seed set on Kauai and other methods of dispersal, which may affect this scoring. It is unclear whether disturbed soil is required for this plant to establish. Additionally, the largest population of *J. polyanthum* lies within a POPREF polygon (Kauhao - Kau) also containing PEP plants.



Figure C27- 3. *J. polyanthum* invading a native forest in New South Wales, Australia (subtropical latitude).



Figure C27- 4. *J. polyanthum* in Kalaheo growing over other cultivated plants.



Figure C27- 5. Photo of *J. polyanthum* showing climbing habit of escaping vines in Kokee, Kauai.

## 2. Impacts to Agriculture, Culture and other Human Systems

**Score: 3** = Major impacts

*J. polyanthum* received a score of 3 because it grows rapidly and observations from Kauai indicate that it is able to quickly colonize disturbed areas and climb into tree canopies. On Kauai, landowners have described it as a weed that is difficult to control and it has been observed overtopping adjacent cultivated plants. This indicates that impacts to private residences and the horticulture industry are likely. Owing to the fact that *J. polyanthum* is a woody vine, vining masses can become very heavy and may weigh down tree limbs, causing a safety hazard, or may climb over man-made infrastructure (e.g. utility lines) (HPWRA 2012). Additionally, it has been noted in pastures on Maui at approximately 700 m above sea level (Figure C27- 6). This plant has been recorded triggering allergic reactions in some people during flowering time (HPWRA 2012).



Figure C27- 6. *J. polyanthum* invading pastureland on Maui (Photo credit F&K Starr).

### 3. Impacts to biotic and abiotic processes

**Score: 2** = Major Impacts

*J. polyanthum* was assigned a score of 2 in this category because no research has been conducted on its ability to alter biotic or abiotic processes. However, its ability to grow rapidly and form dense, smothering blankets over tree and shrub canopies indicate that at least moderate impacts to soil moisture and nutrient cycling are likely.

**TOTAL INVASIVE IMPACTS SCORE: 7.5**

### Feasibility of Control Score

Feasibility of Control Scoring and rationale for *J. polyanthum* is presented below. Refer to Appendix A for details regarding the Invasive Impact Score.

#### Delimiting Survey:

**Score: 2** = Moderate Effort

Feasibility of a delimiting survey for *J. polyanthum* was given a score of 2, because although most of the known sites are relatively small, sites in Kokee are far away from the KISC baseyard. Partnering with Kokee Resource Conservation Program (KRCP) may increase the likelihood of success in delimiting sites found in Kokee. Additionally, the unknown *Jasminum* species located in Hanamaulu (See Distribution Section above) needs to be identified to determine the need for removal, which likely requires the plant to be flowering. *J. polyanthum* is difficult to distinguish from other *Jasminum*

species that may be present in Hawaii (although may not be common). As *Jasminum* is a genus commonly traded as an ornamental, significant outreach efforts are necessary to detect plants on private property that were not visible during early detection surveys. Finally, control crews and outreach staff should be trained in its identification before removing plants from private properties.

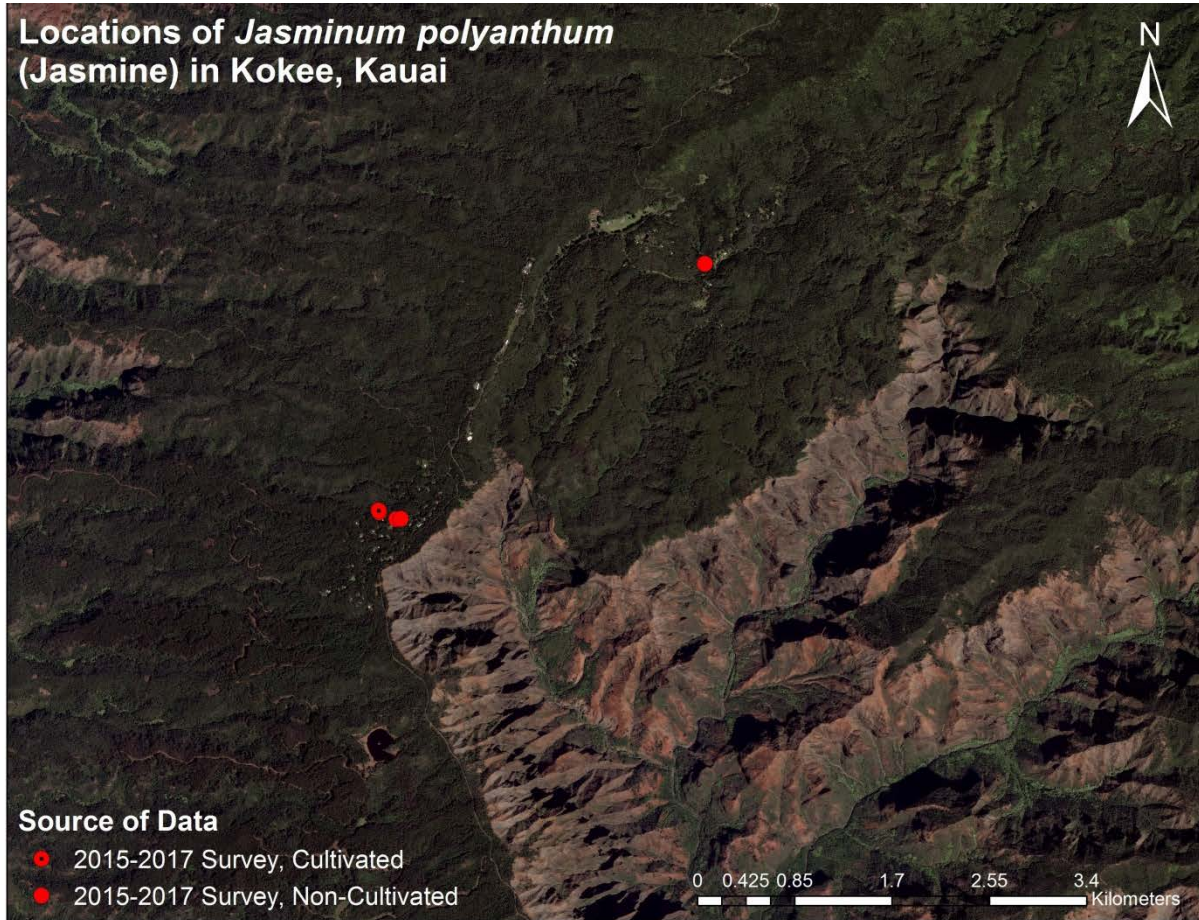


Figure C27- 7. Map of the Kokee *J. polyanthum* population, with red circles denoting locations found during 2015-2017 surveys.

#### Initial control:

**Score: 2 = Moderate Effort**

Feasibility of initial control for *J. polyanthum* was given a score of 2 because although there are only a few small sites, control of this plant in Australia is noted as being difficult. This is due to *J. polyanthum*'s ability to form dense mats that set roots as it spreads along the ground (BMCC 2017). Multiple applications of foliar herbicide are often necessary to kill dense infestations. Partnering with Kokee Resource Conservation Program (KRCP) may increase the likelihood of success in controlling sites found in Kokee.

#### Monitoring:

**Score: 3 = Minor Effort**

Feasibility of monitoring for *J. polyanthum* was given a score of 3, assuming that seed set is rare in this species on Kauai. Thus, monitoring visits may be infrequent if no regeneration is noted in the year after removal. This score will decrease if this plant is found to produce substantial amounts of seed on Kauai.

**FEASIBILITY OF CONTROL SCORE: 7**

**COMBINED SCORE= 7.5 + 7 = 14.5**

### Literature Cited

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