KISC KAUAI INVASIVE SPECIES COMMITTEE	*Kauai Status*	*KISC Status*	*HPWRA*	*Invasive Impacts Score*	*Feasibility Score*	*Combined Score*
Mimosa caesalpiniifolia (sabiá)	**Present**	**EARLY DETECTION**	**HIGH RISK (7)**	**5**	**5**	**10**

Initial Prioritization Assessment completed: December 2017
Prioritization Assessment Report updated as of: N/A
Current Recommendation for KISC: Pending Ranking and Committee approval
Knowledge Gaps and Contingencies:

1) Delimiting surveys surrounding known locations are required to confirm that new plants haven't established.
2) Further communication is needed to gain permission from a landowner who has previously indicated a lack of cooperation.

Background

Mimosa caesalpiniifolia (Fabaceae), or "sabiá", is a spiny shrub or tree that is cultivated as a nitrogen fixing crop, timber source, medicinal plant and "living fence" (Dourado et al. 2013, Monteiro et al. 2016, HPWRA 2017). *M. caesalpiniifolia* has not been considered for control by KISC in the past. Thus, the purpose of this prioritization assessment report is to evaluate whether KISC should attempt eradication (i.e. accept "Target" status). This will be informed by scoring and comparing *M. caesalpiniifolia* to other "Early Detection" species known to Kauai (See Table 5 in KISC Plant Early Detection Report for status terminology).

Detection and Distribution

M. caesalpiniifolia was first detected on Kauai when a specimen was submitted for identification by Hawaii Department of Agriculture's noxious weed specialist, Craig Kaneshige (K. Brock 938, PTBG). *M. caesalpiniifolia* is not known to be naturalized anywhere in the state, and this plant has been recorded in only one other location on Maui. A single cultivated site of *M. caesalpiniifolia* is present on Kauai where more than 30 plants are cultivated as a hedgerow at a private residence in Wainiha valley (Figure C33- 1). Discussions with the land owner at the Wainiha site revealed that propagules were transported from Costa Rica. Thus, *M. caesalpiniifolia* is currently cultivated in one judiciary district (Hanalei) and within one watershed (Wainiha) on Kauai.

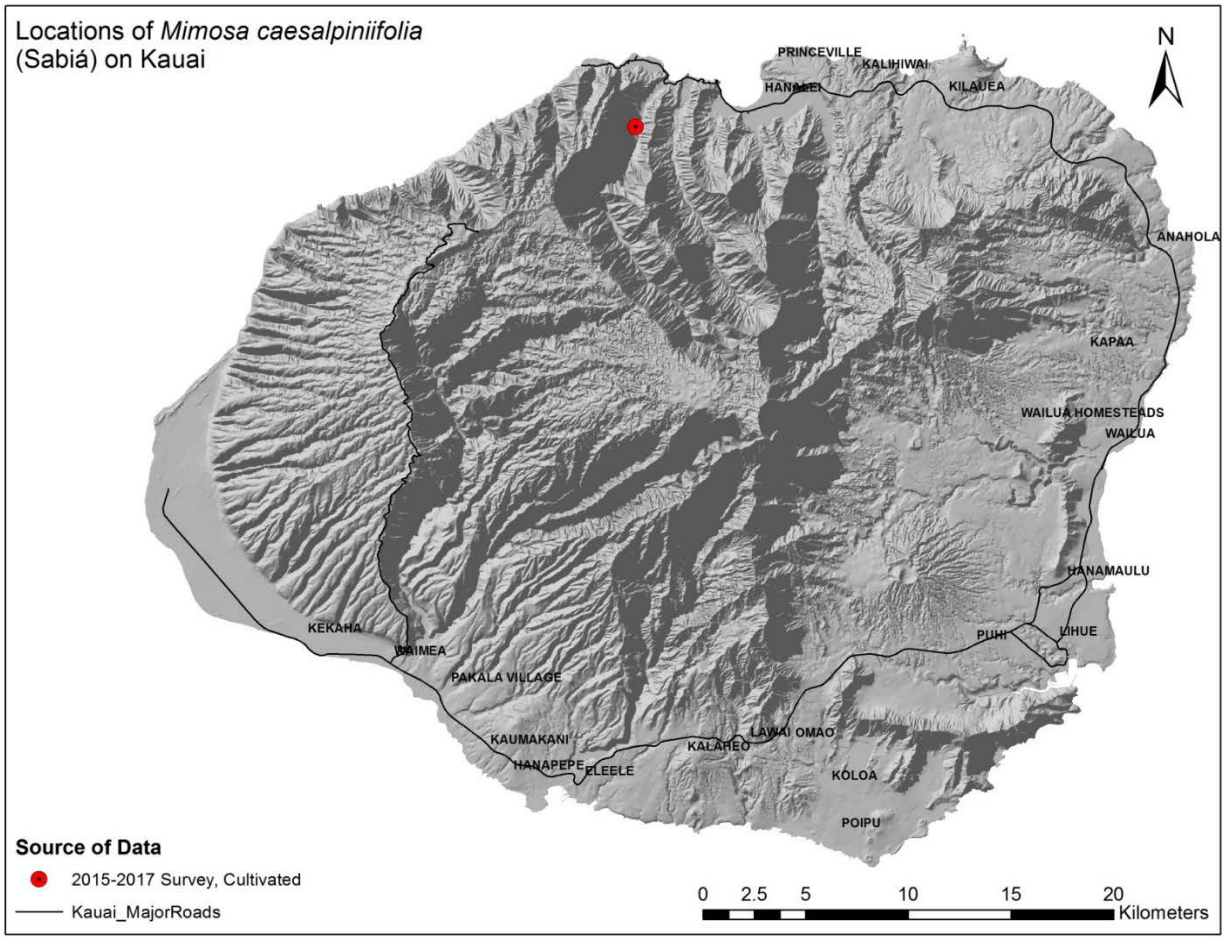

Figure C33- 1. Location of *M. caesalpiniifolia* on Kauai.

Hawaii Pacific Weed Risk Assessment (HPWRA) Score

M. caesalpiniifolia is designated as "High Risk", receiving a score of 7 (Daehler et al. 2004, HPWRA 2017). 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.

Likelihood of Invasion	*Consequences of Invasion*
• Well suited to climates in Hawaii • Naturalized outside of its native range • Is shade tolerant during some phase of its life cycle • Tolerates a wide range of soil conditions • Produces viable seed • Reproduces by vegetative fragmentation • Matures within two years • Propagules dispersed intentionally by people • Forms a persistant propagule bank • Benefits from disturbance	• A congeneric weed, sharing a genus with other known weeds (i.e. implies inheritance of tendencies to inflict invasive impacts) • Produces spines or thorns • A nitrogen fixing woody plant

Refer to the full Weed Risk Assessment for *M. caesalpiniifolia* at https://sites.google.com/site/weedriskassessment/assessments/Download-Assessments.

Invasive Impacts Score

1. Impact on natural community structure and/or composition

Score: 1 = Minor impacts

M. caesalpiniifolia was assigned a score of 1 because no information exists regarding invasive impacts of this plant on native ecosystems. However, it is known to have naturalized outside of its native range in Brazil and Africa and produces viable seed (HPWRA 2017). Thus, it is possible that it could naturalize on Kauai, although it may prefer areas that more closely match its native habitat: open shrubland with dry, well-drained soils and an average annual rainfall amounts between 500-1300 mm in north eastern Brazil (Dourado et al. 2013, De Lima et al. 2015, Podadera et al. 2015, HPWRA 2017). On Kauai, these habitats may include coastal areas, Waimea Canyon and leeward slopes that may contain native species. At least minor impacts to native ecosystems would occur even if this plant becomes only sparingly naturalized in these areas. However, the climate where it is cultivated in Wainiha valley is wet and humid with average annual rainfall of approximately 2800 mm (Price et al. 2012, Giambelluca et al. 2013), making predictions of its ability to naturalize from this site difficult. Saplings were noted on a herbarium voucher collected from Hamakuapoko, Maui where rainfall is less than 1300 mm (H.L. Oppenheimer H50213, BISH) but no saplings were noted at the site in Wainiha, Kauai. However, the landowner indicated that he does some landscaping for profit, and thus, propagules may be distributed into more ideal habitats through his business. Monitoring of this plant is necessary to determine its ability to naturalize and become invasive on Kauai. Occurrences of *M. caesalpiniifolia* occur in one POPREF polygon (Wainiha – WNH) containing PEP plants.

2. Impacts to Agriculture, Culture and other Human Systems

Score: 2 = Moderate impacts

M. caesalpiniifolia received a score of 2 in this category because *The Global Compendium of Weeds* lists this species as a weed, although no specific impacts are mentioned (Randall 2017). It is most likely to colonize disturbed areas, as one study identified *M. caesalpiniifolia* as an ideal species to colonize bare soil on abandoned pit mines (De Lima et al. 2015). Additionally, this plant has naturalized where it is planted in ideal habitats and young plants have large thorns that may injure humans, livestock or pets (HPWRA 2017). In its native range, farmers complain about difficulties herding cattle in areas where *M. caesalpiniifolia* is regenerating due to injury from the large thorns (Kirmse et al. 1983).

3. Impacts to biotic and abiotic processes

Score: 2 = Moderate Impacts

M. caesalpiniifolia was given a score of 2 in this category because this plant is a well-known nitrogen fixer (De Lima et al. 2015, Monteiro et al. 2016, Nunes et al. 2016), and thus has the potential to alter soil nutrient cycling on Kauai if it naturalizes. Furthermore, studies have shown that the presence of *M. caesalpiniifolia* has positive effects of the growth of adjacent plants (Balbinot et al. 2010a, Balbinot et al. 2010b, Podadera et al. 2015, Nunes et al. 2016). This ability may facilitate the growth and establishment of other alien species on Kauai (Simberloff et al. 2013). However, this scoring is subject to change if monitoring of *M. caesalpiniifolia* on Kauai indicates an inability of this species to naturalize or, contrastingly, the ability to form dense, invasive stands.

TOTAL INVASIVE IMPACTS SCORE: 5

Feasibility of Control Score

Feasibility of Control Scoring and rationale for *M. caesalpiniifolia* 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 *M. caesalpiniifolia* was given a score of 2 because, although one site exists on a single TMK, the land owner appeared unwilling to allow surveys of his property when he was interviewed in 2016. However, since the trees in Wainiha appear to have been planted within the last 10 years and seed production increases with maturity, it is possible that seeds have not yet dispersed far from the base of mature trees.

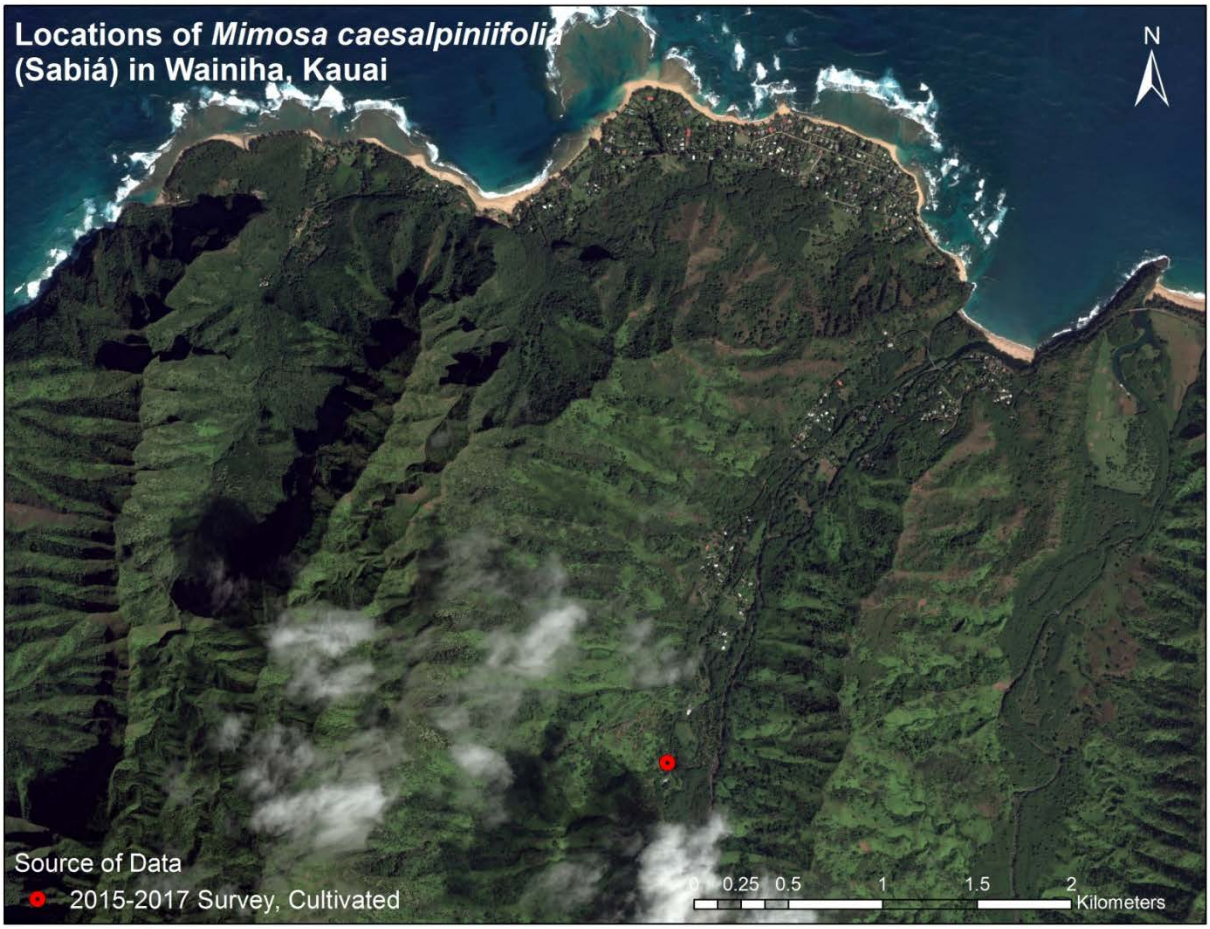

Figure C33- 2. Location of *M. caesalpiniifolia* near Wainiha, Kauai.

Initial control:

Score: 1 = Major Effort

Feasibility of initial control for *M. caesalpiniifolia* was given a score of 1 because despite there being only one location of this plant on Kauai, discussions with the landowner at Wainiha indicate that he will likely not allow removal of his hedgerows without compensation.

Monitoring:

Score: 2 = Moderate Effort

Feasibility of monitoring for *M. caesalpiniifolia* was given a score of 2 because seeds are known to persist in the seed bank for multiple years (Nogueira et al. 2013, Pereira et al. 2013). Thus, multiple follow up visits may be required to ensure the plant doesn't regenerate.

FEASIBILTY OF CONTROL SCORE: 5

COMBINED SCORE: 5 + 5 = 10

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