



Invasive vines and shrubs of Micronesia

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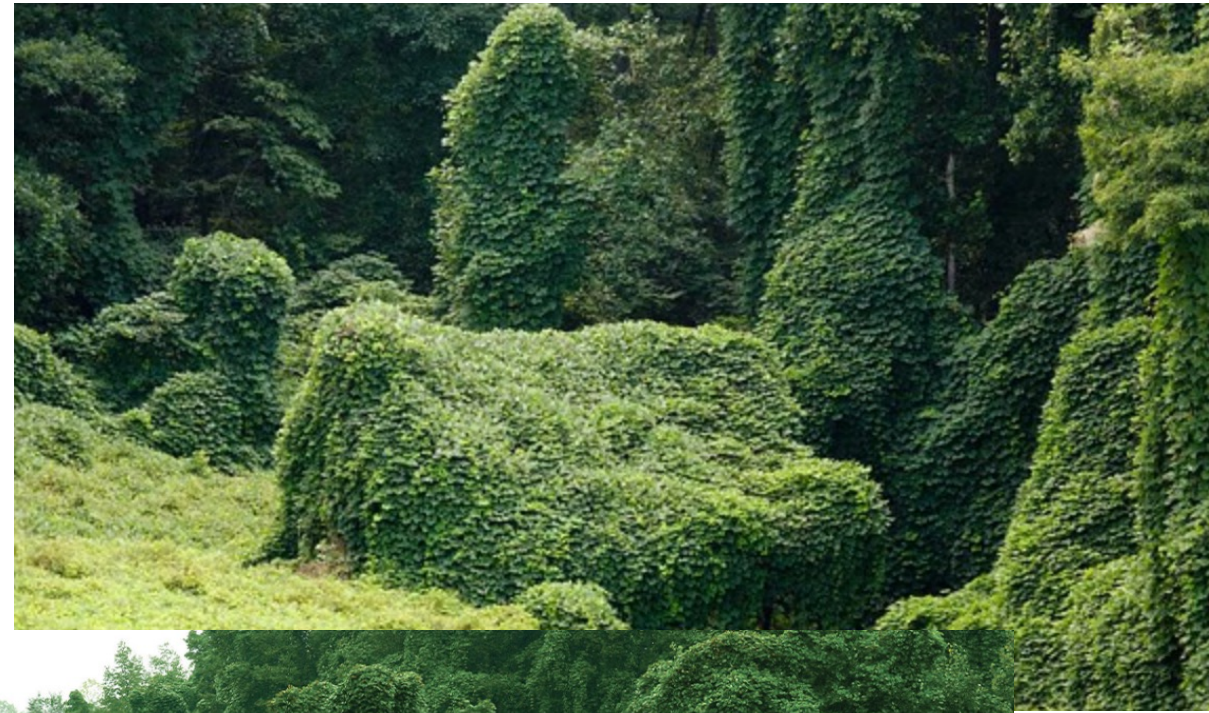
Western Pacific Tropical Research Center



Vines

- Smothers native vegetation
- Spreads easily by cuttings and tubers
- Grows quickly, using other vegetation as support (no need to invest in supportive tissues)
- Difficult to control (must dig out tuber or spray cut stems)
- Year-round flowering in the tropics

Kudzu in southeast U.S.



Mikania micrantha

- “mile-a-minute”, climbing hemweed, te el yas (Palauan), fue saina (Pohnpeian)
- Risk assessment score: 25
- Smothering vine
- High nitrogen use (found in abandoned agriculture fields and along roads)
- Somewhat tolerant of shade
- Very rapid growth
- Opposite leaves
- White flowers
- Leaves triangular with sagittate base, toothed



Mikania micrantha

- very invasive species throughout the Pacific. On U.S. Federal and State of Hawai'i noxious weed lists.
- Apparently a relatively new introduction to Kosrae but already quite widespread (Space *et al.*, 2000).
- New introduction to Yap (Duane Nelson, pers. com.).
- New introductions to Pohnpei and Palau subject of eradication programs (Duane Nelson, pers. com.)
- A very aggressive weed in American Samoa, Samoa and Niue.
- Widespread on Rarotonga and 'Atiu, less so on Aitutaki, Cook Islands. There are only a few patches at present on Miti'aro and a single small area on Ma'uke, which could probably be eradicated (Space & Flynn, 2002).
- Widespread on Rota (Space *et al.*, 2000).



Mikania micrantha control

- Mechanical: uprooting and digging (very labor intensive and expensive), continual cutting may work?
- Chemical: pre-emergent and post-emergent herbicides; glyphosate is used post-emergent; oxyfluorfen + Paraquat for pre-emergence (prior to flowering)
- Biological: microcyclic rust: *Puccinia spegazzinii* is being tested in India



Antigonon leptopus

- Chain of love, Mexican creeper, corallite, cadena de amor (Spanish), dilngau (Palauan), rohsenpoak suwed (Pohnpeian)
- High risk assessment (19)
- Robust vine 10m+, cordate leaf, prominent reticulately veined, acute tip, flowers pink to white
- Grows well in disturbed areas, tolerates drought, smothers native plants in the wet season, loses leaves in dry season, outcompetes most native species
- Broken stems can root, buried stems root at nodes, prolific seed producer, tubers can be spread by movement of soil



Antigonon leptopus
Polygonaceae
Gerald D. Carr



10 days' growth, *Antigonon leptopus*



Antigonon leptopus control

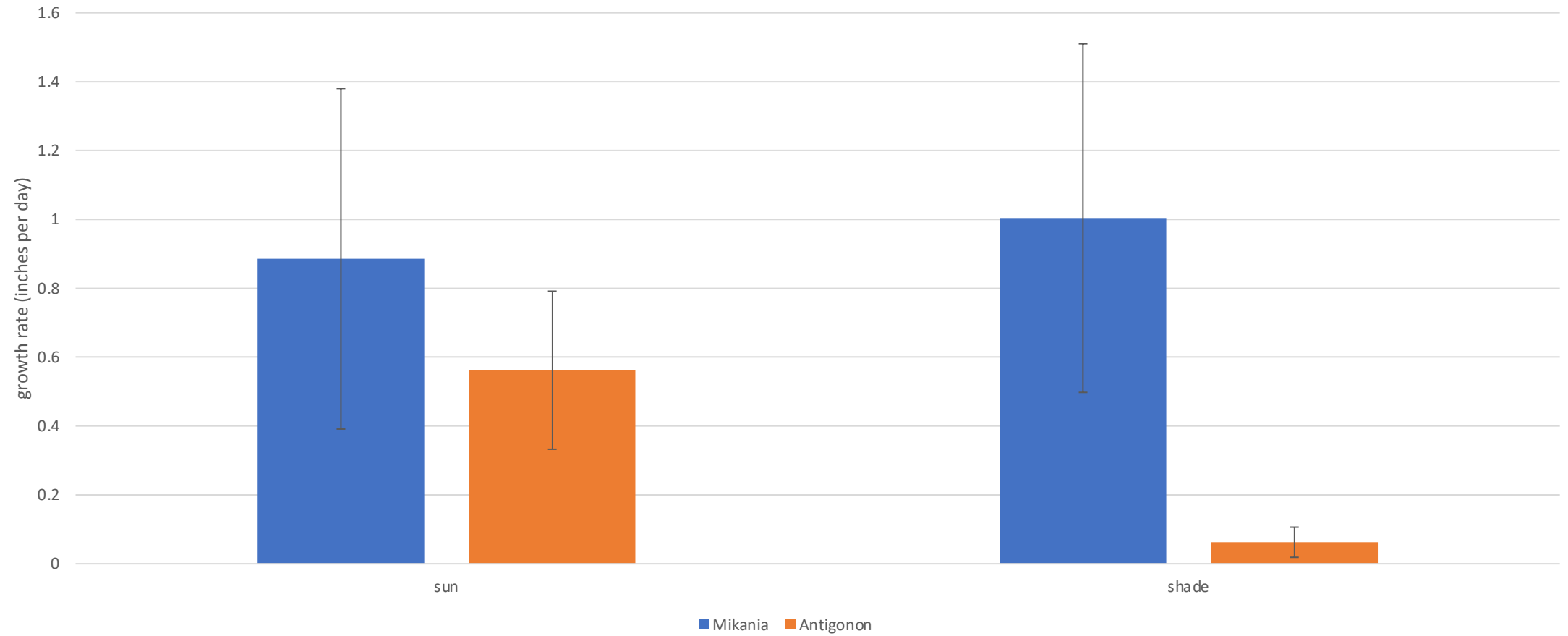
- Mechanical control: cutting does not control due to food reserves in underground tuber, but continuous cutting will eventually deplete these food reserves. Best is tubers are dug out and native vines are planted in place (*Columbrina asiatica*, *Jasminum marianum*)
- Chemical: foliar sprays (glyphosate or triclopyr) to kill above ground vegetation (then remove tubers after die back); or undiluted triclopyr to cut stems
- Biological: none



A. leptopus vs. *M. micrantha*

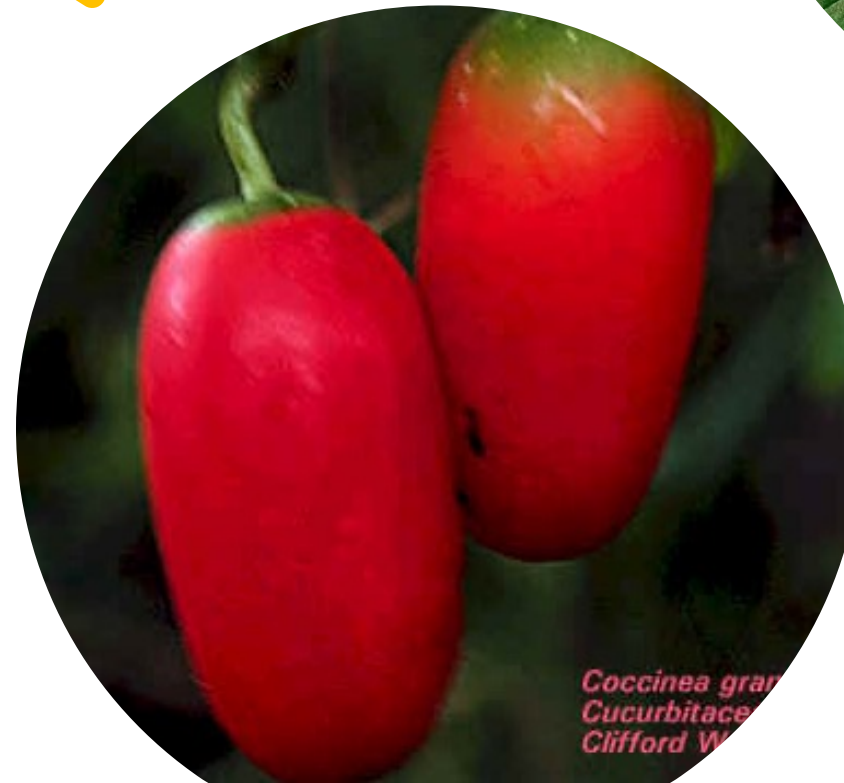


Growth rates



Coccinia grandis

- Ivy gourd, scarlet gourd, aipikohrd (Pohnpeian)
- Perennial vine from tuberous rootstock, bright red fruit, native to Papua New Guinea and the Philippines
- Smothering vine, aggressive, common in disturbed areas
- Spread by roots, cuttings, seeds
- High risk assessment: 21
- Cultivated in Pohnpei and Samoa (supposed to be a horticultural, non-spreading variety)
- Spraying is often insufficient; but can be used to knock back foliage and then treat basal bark with triclopyr or 2,4-D
- Biological control: *Melittia iedipus*, *Acythopeus coccinae*, and *A. burkhartorum*



Ipomea alba

- Alaihai-tasi (Chamorro), morning glory, moonflower
- Climbing perennial vine with cordate leaves, white flower (blooming at night)
- Considered naturalized in many islands (widely cultivated throughout the world)
- Forms a dense canopy, overgrowing native species
- Spreads by seeds and vegetatively
- Controlled with 2,4-D



Passiflora foetida

- Stinking passionflower, kinahulo' atdao (Chamorro), bombom (Chuukese), kudamona (Palauan), pwompwomw (Pohnpeian), tumatis (Yapese)
- Perennial vine with coiling tendrils, flowers and fruits subtended by shaggy involucre bracts, leaves cordate to 3-lobed, hairy stem, fruit yellow to orange
- An invader of disturbed sites, forms a dense ground cover which prevents the establishment of other species
- Dispersed by seeds (birds)
- high risk assessment (26)



Passiflora foetida
Passifloraceae
George K. Linney





Passiflora suberosa

- Wild passionfruit
- Purplish stems with tendrils, leaves entire to 3-lobed, small yellow-green flowers fringed with purple, purple fruit
- Aggressive weed in subcanopy layers, shade tolerant
- Seeds spread by birds
- Risk assessment: moderately high (12)

Passiflora suberosa
Passifloraceae
Gordon Daida

Thunbergia grandiflora

- Bengal trumpet vine, bung el etui (Palauan), iolen pengkal (Pohnpeian)
- Risk assessment: moderately high (11)
- Climbing vine with broad, cordate palmately lobed leaves (nearly 20 cm broad/long) flowers in pendent racemes, large and showy, flowers violet to white,
- Can smother groups of trees and forms impenetrable thickets
- Invades disturbed areas (agriculture areas)
- Spreads by seeds, cuttings, and fragments of stems and tubers



Decalobanthus peltatus (*Merremia peltata*)

- Merremia, kebeas or teb el yas (Palauan), iohl (Pohnpeian), fitaw (Chuukese) puhlah (Kosrae), fure lautetele, agon (Chamorro)
- Native to Madagascar, Malaysia, and Philippines
- Considered invasive in Samoa, Fiji, Solomon Islands, and Palau (though may be native or naturalized?)
- Invasive score of 18
- Invades dry lowlands and mesic inland communities (but not wetlands)





Decalobanthus peltatus (*Merremia peltata*)



- Underground tubers, smooth stem, simple/alternate leaves, white funnel flowers, leaves cordate and peltate
- Can completely cover and smother trees (except *Pometia pinnata*?) In Samoa, it may be part of the successional process? But planting species such as *Macaranga harveyana* and *Cananga odorata/Pometia pinnata* may speed up the succession process)
- Seeds need sun to germinate (how much shade will prevent germination?)

Shrubs and herbs

- Form impenetrable monocultures
- Often with thorns, difficult to navigate and unpalatable to wildlife and livestock
- Seeds often dormant (can remain in soil for years)



Clidemia hirta

- Koster curse, kui (Palauan), riahpen rot (Pohnpeian)
- Shrub native to tropical America
- Fast growing, shade tolerant, establishes in disturbed sites and forms dense thickets
- Shades out native vegetation with large leaves
- High risk assessment (27)
- Cut stems should be painted with triclopyr;
- Large areas can be sprayed



Mimosa diplotricha

- Giant sensitive plant; mechiuaiu (Palauan), kehsapahl (Pohnpeian)
- Perennial shrub forming dense thickets up to 2m tall
- recurve spines and thorns, bipinnate leaves, pale pink staminous flower, seeds enclosed in spiny pods
- Major weed in disturbed soils/agriculture lands
- Serious fire hazard (seeds germinate after fire)
- Control: seeds can remain for years in soil, but will germinate after fire; a control burn will reduce vegetation and allow entry to area; spray seedlings with triclopyr as they germinate after fire and any regrowth from established shrubs





Piper auritum

- False sakau, sakau likamw (Pohnpeian)
- Risk assessment: high (15)
- Small, soft-wood aromatic tree/shrub (3-6m tall), ovate leaves with uneven cordate base (one side 1-2cm longer than other side); flowers on white spike
- Grows in open areas along gaps and forest edges
- Spreads vegetatively and by seed



Lantana camara

- Common lantana, landana (Pohnpeian), ros fonacni (Kosraean)
- Risk assessment: high (32)
- Prickly shrub with ovate leaves, serrated blades, flowers in spike, fruit a purple-black drupe
- Weed of cultivated land, fencelines, waste places, flowers year-round in the tropics
- Cultivated as an ornamental, but escapes as a weed to form dense thickets, not palatable to wildlife or livestock
- Forms dense understory that inhibits establishment of native species
- Very problematic in Saipan and Tinian (especially goat island, where it is not eaten by the goats)

Lantana camara control



- Mechanical: can be pulled by hand or dug out; burning is ineffective and may even increase population; mowing is not effective; glyphosate and 2,4-D are effective as foliar sprays (triclopyr not effective as foliar spray, but may be effective as a basal bark application).
- Biological control: "First plant subjected to biocontrol by any government agency. Over two dozen biocontrol agents have been released to control it in Hawai'i with results varying from ineffective to spectacular. The most effective are the defoliating caterpillar *Hypena strigata*; the seed-destroying fly *Ophiomyia lantanae*, and the lace bug *Teleonemia scrupulosa* (Motooka *et al.*, 2003).
- *Epinotia lantana* introduced to Pohnpei and Yap and exerting some control. Spread to Palau. *Lantanophaga pusillidactyla* causes 70-80% decline in berry production. *Diastema tigris* introduced to Pohnpei but establishment unknown. *Hypena strigata* released on Pohnpei and Yap. Established on Yap. Establishment unknown on Pohnpei. Released on Guam, not effective. Present on Aguijan, Saipan and Tinian. Effects unknown. *Lantanophaga pusillidactyla* released on Pohnpei and on Palau in 1960. Established on both islands and exerting some control on Pohnpei.

Competitive native plants for replanting

- *Columbrina asiatica*
- *Morinda citrifolia*
- *Scaevola taccada*
- *Hibiscus tileaceus*

