O'ahu Invasive Species Committee
Reprioritization of Species Workshop
August 7, 2002, 9-4pm - Minutes
Lyon Arboretum, Manoa

Attendees: Becky Azama, Ray Baker, Coleen Cory, Rob Hauff, Jordan Jokiel, Kapua Kawelo, Mike Leech, Nilton Matayoshi, Ed Mersino, Lydi Morgan, Kahale Pali, Dan Sailer, Ryan Smith, George Staples, Talbert Takahama, Amy Tsuneyoshi, Ron Walker, Mindy Wilkinson, Charlotte Yamane

1. WELCOME (Mike Leech)

2. INTRODUCE MAPS AND TARGET SPECIES (Mike Leech)
An 8.5"x17" map of O'ahu was printed for each species on the candidate list (53 total) and attendees were asked to mark down any distribution or other information they had for any/all species.

3. REVIEW OF OISC MISSION STATEMENT
OISC Mission Statement:
"The Oahu Invasive Species Committee (OISC) is a voluntary partnership of private, governmental and non-profit organizations and individuals united to prevent new invasive species infestations on the island of Oahu, to eradicate incipient invasive species, and to stop established invasive species from spreading. The group is concerned with all non-native invasive species threatening agriculture, watersheds, native
ecosystems, tourism, industry, human health, or the quality of life on Oahu."

Kapua pointed out that it is important for OISC staff to focus on stopping established invasive spec from spreading, in addition to eradicating incipients (i.e. keep the mission statement as-is). For example, although it can be argued that manuka (*Leptospermum spp.*) is too widely established for eradication to be possible, OISC should continue to assist Army Environmental staff with the removal of manuka from more pristine army lands and other sensitive areas. George Staples brought up the need to recategorize the list of target species because some may have shifted from incipient to established, and this means reevaluating what we should be trying to control. With a full time crew in the field, it will now be easier to determined what species are becoming established. It was pointed out that it is good for the crew to have a lot of flexibility in what they control, but that the amount of time spent on each species should be determined by the significance of the threat (ex-miconia).

4. REVIEW OF SEPT 25, 2000 MEETING-SPECIES LIST AND VOTING METHODS (Coleen Cory)
The first priority setting meeting for OISC was held in September 2000. Members voted for 5 species of their choice on a blank ballot. 250 votes were tallied (50x5, some overlap of species) and the selection was narrowed down to Miconia, fountain grass, snakes, frogs, fire ants, palm grass, talapia, and Himalayan blackberry (more??)
Information on each species was presented, and one ballot for each species was then pasted to the wall. Attendees were given 5 stickers to mark their votes on the wall ballots. The top five species tallied were Miconia, fountain grass, frogs, thorny kiawe, and Himalayan blackberry.

At that time there were no paid staff members, all control work was carried out by volunteers. Members picked the top six species from the final list for volunteers to tackle. Plant species were more feasible for control than animal species. Other species were considered but deemed too widespread. L. scoparium and Australian tree fern were determined too widespread at that point

An informative report on a new species of concern is now given at each OISC general meeting. There

continues to be disagreement over what species are widely established, and if so, whether or not they still worth controlling. In considering a species for control, one factor would be to consider whether the species is widespread in one mountain range and not the other (Ko'olau's and Wai'anae's).

5. REVIEW OF PRESENT TARGETS AND ACCOMPLISHMENTS TO DATE (Mike Leech)
OISC presently has only 3 full time staff that started together in January. Volunteers help out once or twice a month. There will hopefully soon be five or six paid staff. $15,000 needs to spend this year on frog control. OISC will use this money to either hire one person to split their time between frogs and other species, or it will be shared between staff and frog control time will be increased.
Our present target species and % staff time are as follows:

1. Miconia (60% of control time): dispersed by birds, millions of seed per tree are produced every year. Tahiti, Big Island, and Maui are good examples of how much damage it can do. Miconia is present on O'ahu at Manoa, Nu'uanu, Makiki, Kalihi, Maunawili, Waimanalo, Wahiawa, and Kahalu'u. It is not known to be present in the Wai'anaes, which provide a less suitable habitat. OISC relies on the eyes of TNC and Army staff that work there. Miconia is the only species for which we do aerial surveys. Since January, 2 aerial surveys have been conducted in Manoa, one in Kalihi, and one in Nu'uanu. Makiki and Maunawili have also been aerially surveyed within the last fiscal year.
2. Fountain grass (15%): wind dispersed. Present at Diamond Head and Lanikai (200 acres total), and several satellite populations in other areas-most have been controlled at least once. OISC has a good handle on the Wai'anae populations. Fountain grass is a big problem on the Big Island, because it promotes fire and invades native forests and residential areas.
3. Frogs (5%) (Nilton Matayoshi, DOA): dispersed by the horticultural industry. Wahiawa is biggest concern. 60+ frogs caught in Wahiawa in the last month. Frogs are heading makai. Tried applying hydrated lime but didn't use enough so they came back in June. Waimanalo and North Shore nurseries are trying to take care of their frog problems. Citric acid is not a registered pesticide, but paperwork is clearing up to be able to use it, if it works. There are no quarantine procedures for inter-island shipping of horticultural plants. DOA staff must be able to see the frog in order to reject a shipment. The Big Island has only 3 inspectors in Hilo who are responsible for inspecting plants being shipped out from 200 nurseries. Pesticide department is looking into use of lime and lime sulfur. Goal is to find a chemical control method. The DOA does not consider the frogs to be agricultural pests because no nematodes have been found attached to the frogs when tested. (Apparently California doesn't care if the frogs get there because they are not proven carriers of nematodes, and because naturally occurring frog predators do exist there.) The DOA is therefore less willing to do control work for this species. A list of infested nurseries is only available through Nilton Matayoshi (DOA). This information is not made public.
4. Thorny kiawe (Nilton Matayoshi, DOA): Salt-tolerant beans wash up and sprout on beaches. Roots are very durable and spreading. This species is mainly a human concern (large thorns). Control work is only being done on Kauai. Not much has been done on O'ahu since the term for EEWF workers expired in March. No plants are reported to be on the windward side where the City and County Parks Division did a good job controlling. Airport area is the biggest concern, where thorny kiawe grows all along the ocean perimeter, with more plants on the inside. The reef runway has less than 500 plants. The Sand Island population is being taken care of a little bit at a time. Plants at Kapalama canal (HCC) are almost all gone. Plant material is taken to H-Power or Earth Products for compost. Best control method is to girdle and apply 15% garlon-4 in crop oil.
5. Himalayan blackberry (5%): One very small isolated population (5-10 acres) exists along the Lanipo trail, and has potential for eradication. A smaller population in Palolo was treated previously and has not been reported since.
6. Parrots: unknown distribution. Funding is available for the first time, this year. $30K is

available for statewide ISCs to study distribution. Need to come up with time line and management plan. Will be addressed this year. Goal: come up with statewide management plan. DOA, USFWS, DLNR (Mindy) are the interested/involved parties. MISC is doing some control work. They have not been able to catch any birds but have had public hearings, and the backing from the community.

7. Other species controlled include beardgrass (*Schizachyrium condensatum*) and manuka (*Leptospermum spp.*).

Summary of 2001-2002 control work for OISC target species

Species	**# Plants / Animals Controlled (est.)**	**# Acres Surveyed (est.)**	
	Aerial Surveys (est.)	**People Hours**	
Miconia *Miconia calvescens*	3070 plants/33mature		447 acres
	1,192 acres	1490	
Fountain Grass *Pennisetum setacum*	9142 plants treated		155 acres
	-	318	
Blackberry *Rubus discolor*	500 plants	20 acres	-
	90		
Manuka *Leptospermum spp.*	500 plants	45 acres	-
	228		
Caribbean Frog *Eleutherodactylus spp.*	283 frogs	N/A	-
	N/A		
Throny Kiawe *Prosopis juliflora*	649 plants	1.61 acres	-
	N/A		

6. RAPID RESPONSE CAPABILITIES (Mindy Wilkinson)

Rapid Response Capabilities:

1. Brown tree snake plan has been in place for 10 years in Hawaii. If one is sighted, a set of individuals is notified, and a response team is sent out; OISC staff could be part of that response team if help was needed.
2. Red imported fire ant plan- Ellen VanCoelder hired to put together a plan which is being developed now. Approval process for bait (chemicals) is in place. OISC agrees to be part of the rapid response if needed.
3. Species without plans: banana poka, *Ulex europaeus* (gorse), fireweed (*Senecio sp.*), new vertebrates-these are known invasives on other islands. OISC should be able to keep our eyes out for these/help out if needed. DOA is allowed to control invertebrates, plant disease, and noxious weeds, however vertebrates are not necessarily allowed. Currently there is no lead agency for the control of vertebrates. It is legal to possess vertebrates if they are on the conditional list, but it is illegal to release them. Currently, no agencies are deliberately introducing new species of game birds. It is a law that all new introductions have to be passed before the Board of Land and Natural Resources, and no one has done so. There are Axis deer being privately held in a pen in Waimanalo. Wild bird law- if an escaped populations of birds starts breeding and becomes established, it is then protected by law. This does not apply to amphibians and reptiles, and non-game mammals. Unknown with respect to fish.
4. Other spec for rapid response: *Tibouchina herbacea* (was reported on oahu several years ago but never found), *Schizachyrium condensatum*, nettle caterpillar (big island)- could be spread thru nursery trade, Russian thistle (*Salesola spp.*; E. Molokai, Kahoolawe, Big Island), *Rubus elipticus* (Big Island, volcanoes, could come over on hapu'u), karaca nut (could be in forestry plantings, bad on Kauai). OISC needs to look at noxious weed list, and Koke'e weeds. Carrot wood (*Cupaniopsis anacardiodes*, Sapindaceae) is a bad weed in southern Florida. It is planted

here for landscaping but doesn't seem to be bad here yet. We should use factors such as these for species presentations at upcoming meetings.

5. **Please send other suggestions for rapid response species to leech@hawaii.edu.**

7. REVIEW OF CANDIDATE LIST AND VOTING METHOD (Mindy Wilkinson)
A poster from New Zealand provided a good example for the questions we are asking with regards to target species selection. Consider for each species:

- Known ecology: is it a known threat?
- Distribution
- Practicality of control (ex- no control method, veg reprod, fragmenting algae)

Today's voting method: Short presentations were given on each of 53 candidate species. Attendees briefly discussed each candidate and the list was narrowed by placing each species in one of four categories (species in categories 2, 3, and 4 were taken off the voting list):

1. keep as a target for OISC (will be voted on)
2. don't consider because: too widespread or not invasive
3. needs more research (therefore not voted on today, but potentially at a later date)
4. not on O'ahu, put on rapid response list

The revised list of candidate species was then distributed and attendees had 10 votes to distribute as they wished (could place more than one vote on any species). Target species were ranked for % staff time based on the number of votes they received.

8. TARGET EVALUATION AND VOTING
The list of candidate species was mainly compiled by Fred Krause based on a herbarium search at Bishop Museum for species with few recorded vouchers (therefore potentially incipient). Other experts also supplied suggestions for the list of candidates. See the complete excel spreadsheet of candidate target species, including category determined and attendee comments at the end of this document.

9. THE VOTING RESULTS!
Target species (in order of majority of votes):

1. Miconia (*Miconia calvescens*)
2. Frogs (*Eleutherodactylus spp.*)
3. Blackberry (*Rubus discolor*)
4. Fountain Grass (*Pennisetum setaceum*)
5. *Myrica faya*
6. Tie: *Schizachyrium condensatum* and *Hiptage benghalensis*
7. *Leptospermum polygalifolium*
8. Parrots
9. Tie *Melastoma candidum* and *Rhodomyrtus tomentosa*
10. Tie Thorny Kiawe (*Prosopis juliflora*), *Dillenia suffruticosa*, and *Cinchona pubescens*
11. *Melochia umbellata*

Tibouchina urvilleana - yes (help army)
Leptospermum scoparium - yes (help army)

Notes:

- Last time species were voted on, staff time for each species was decided based on funding (ex watershed vs. vertebrates)
- Parrots- will not spend much staff time in the next six months

- *L. polygalifolium* - whatever time it takes to eradicate (not much time)
- *Dillenia suffruticosa* - if allocated a #10 time slot, may not make a big dent.
- Satellite pops of some species take precedent over core pops of others.
- Frogs- work with Nilton to use chemical treatment. Hand capture until chemical treatment is found (but make sure it is because hand capture will never get ahead of the problem)

10. OTHER ANNOUNCEMENTS

- Please email any comments on staff time distribution, or on the meeting and voting methods (leech@hawaii.edu). Also email ideas for the HTMC presentation (ex emphasizing things that exist in one mountain range and not in the other).
- We need to reprioritize what gets on to the field ID cards.
- Species needing more research: OISC staff and UH students in Dr. Duffy's conservation class, or Sheila Conant's students will do the research. Also go back to the people that proposed those species for more info.

Candidate Target Species

Categories:

1. keep as a target for OISC (will be voted on) (**in bold**)
2. don't consider because: too widespread or not invasive
3. needs more research (therefore not voted on today, but potentially at a later date) (**priority species in bold**)
4. not on O'ahu, put on rapid response list (**in bold**)

Species	Category	Notes
Acacia parramattensis	2	hard to tell from *Acacia mearnsii* therefore hard to tell distribution. May form dense stands at Kamakou (Sailer)
Agave sisalana	2	
Angiopteris evecta	2	widespread in Manoa, and middle Ko'olaus, and northern Ko'olaus, one from TNC Honouliuli, controlled in Pahole, widespread in northern part of Waianaes.
Artabotrys hexapetalus	3	Joel doesn't know this one. Lyon Arb. has several plantings but not spreading, but there are seedlings under the planting, but doesn't seem to be traveling. Naturalizing on Big Island. May be rat or mongoose dispersed (big fleshy fruits), used to be at Waimea in the mid 80s.
Arundo donax	3	on MISC hit list, occupies riparian corridors in California. Rhizomes dispersed by water (float downstream). Has been present in Hawaii for a long time, and unlike CA doesn't seem to be causing a prob (Staples). Habitat probably limited on Oahu, variegated leaf form used by lei makers (Mindy) is the most widely planted one. In Kawainui marsh?? (Kapua), Joel hasn't seen it on this island. Kahana bay (past Kaaawa) (Nilton). Get herbarium info from Bishop Museum. Downtown warehouse areas (Staples). Level of invasiveness and distribution unknown.
Buddleia madagascariensis	**4**	**pest in Kokee and Hamakou. Change from slide: not known to be on Oahu (not on windward hiking trails)**
Cardiospermum grandiflorum	3	well established on windward Oahu near Keolu Dr. A "threat" in Australia, what kind of threat? Joel doesn't know about it. Still a pop across from longs on Manoa Rd.; on UH campus.
Chrysophyllum oliviforme	2	small fruits, bird disp (not just game birds). Not listed as being planted from old forestry records. Widespread in Kawailoa TA, Kahuku TA, Haleauau (schofield), (Kapua); Pupukea, Paumalu (Talbert). Can get really dense.
Cinchona pubescens	**1**	**none have seen this plant out in the wild. Planted by forestry in "Honolulu forest reserve", only 33 plants. Unknown whether they have survived. 1000s planted on big island and Maui. Maui is finding more populations and considering it invasive; any Cinchona's are good candidates; wind disp, lots of seeds (Staples).**
Cissus rotundifolia	3	succulent, spreads vegetatively and has little fleshy berries eaten by birds. Plants in Moanalua, Mokapu peninsula, other dry sunny habitats (Staples), Joel says it's widespread: Mokapu, Makiki, Round Top, Tantalus (Joel). Can form dense vine blankets. Cultivated in salt lake. Mostly from lower elevations (Staples).
Citharexylum spinosum	2	On hillside behind HPU, drier hillsides in Kaneohe (Kapua). Undulating margins. *C. caudatum* is used for shrub or small tree, but *C. spinosum* for street trees. Kawainui marsh (Ron), Pacific Palisades (Dan S.), Waianae area somewhere (Kapua), planted everywhere. Mayor Harris liked this tree, so planted lots. All over china town. Wouldn't be any more of a threat when it gets to dry forest areas than ones that are already there (Kapua) note: need more info on distrib in Waianaes (may be able to control it there-Kapua will look)
Conocarpus erectus	2	usually in silvery form, very pubescent. Both silver and green planted by Hawaii Kai, Diamond Head, Heeia fish pond (has taken over the wall there), Kurt Daehler says is should not be a threat. Threat to fish pond walls (Kapua). A mangrove but doesn't grow in the water. Maybe try to prevent from getting in to other fishponds for cultural reasons (Kapua), **use this info to take to city and county to have them stop planting this list of street trees or around fish ponds**

Convolvulus erubescens	3	Joel doesn't know of it anywhere.
Cordia	3	near heiau in Makaha, spreading (Joel)
Cortaderia selloana	3	Being planted on golf courses in Schofield. Not reported naturalized, but is widely planted on Oahu as ornamental. Planted along Nuuanu hwy. Not known to be invasive in Hawaii, but is invasive in California
Cortaderia jubata	**3 (high priority for research) and 4**	**female plant makes bigger inflorescenses so was the only one previously planted but now bisexual clone is here and spreading? Is spreading on its own on maui. Seen at high elevs on Maui that we don't have on Oahu, therefore maybe not a threat? (Kapua) **need to check all Cortaderia plantings because they may be either species.** has sharp/scratchy leaves, like a big fountain grass (Kapua).**
Crotalaria spectabilis	3	only seen on windward side in road cuts (H-3), other crotalarias are major pests (Kapua)
Cuscuta campestris	3	common along H-1. may be spread by mowing equip. in last 10 years seems to be becoming more widespread (Staples). Joel says he can't tell the native and invasive one apart. Chances are at low elevation it's the invasive species. Aiea, Salt Lake, UH (UH, H-1 onramp), Airport, at DOA (Staples). Serious ag pest on the mainland for clover and alfalfa crops parasite (Staples). See mainland literature for control method. Not on nox weed list, but is on seed list (Nilton). Cuscuta is found on herbaceous plants usually (not woody) (Staples)
Dillenia suffruticosa	**1**	**long roots tap into water sources (therefore invasive where other plants can't grow) (Amy T.). large tree, forms monotypic stands (Leech). Lower Lualaea, Pu'u Pia. Hasn't been seen higher up yet. Waihe'e lower elevs. Unknown whether it will spread to upper elevs. Unconfirmed in Kaneohe. Spreading behind Ho'omaluhia but staff is removing it. Doesn't need disturbance in order to grow (out of uluhe).**
Dissotis rotundifolia	2	ground cover at Lyon Arboretum along road trail. Been there since Ray has been there. Hard to get rid of, is spreading (Ray). Small pop on Pu'u Pia, localized, exposed area, probably out of a backyard (Leech). Groundcover. Roots have gelatinous globules-water retention? for growing on rocky banks; used in landscaping (Ray). Nuuanu Pali Dr? (Becky)
Filicium decipiens	3	(fern tree) common street planting. Seedling found in Manoa, Pu'u Pia. No known history of invasive/big threats in other areas. City and county of Honolulu dropped it from its list of approved trees because: Possibility of a health concern: report of a rash from the pollen; and a messy tree, a pedestrian tried to sue the city for slipping on a fruit (Staples). One seed per fruit, but perfect for bird disp. Waimano (Joel), Pearl City naturalizing (Sailer), Maunawili (Staples). Seedlings under trees here at Lyon but doesn't seem to be spreading (Ray). Not grown in other parts of the world therefore not much info on invasiveness; could be a good candidate for education (but need info on invasiveness first) (Staples). Planted here from the 20's (Ray)
Gossypium hirsutum	3	wind and people dispersed (Staples, Kapua). Not much info, threat unknown.
Hedyotis callitrichoides	2	Joel has no info about it. Herbaceous (not a forestry planting)
Hibiscus mutabilis	2	changes color. Unknown if it makes seed (George says probably not), and Kapua has never seen it naturalized.
Hiptage benghalensis	**1 (work on satellite pops, determine control method)**	**very invasive in La Reunion and Maritius (islands off Madagascar). Invasive on Oahu: Nuuanu, Manoa, etc. impenetrable masses of woody stems, wind dispersed, lots of seedlings (Kapua). Wet forest environment on Kauai, a very serious threat; woody liana, up to 100ft in canopy; more likely to be water dispersed-winged but heavy (staples). Lyon- sprayed 6 oz per gal roundup over a few years did not affect the planting here. Now they are cutting and using garlon (Ray)**
Hypericum canariensis	**4**	**big prob on mainland. On federal noxious weed list (Mindy) Was used as medicine but found to be toxic- causing rash. *H. perforatum* on noxious weed seed list. Only found on Maui, not Oahu, according to George Staples**
Ilex cassine	3	Foster Village (Salt Lake) and Whitmore village, definitely naturalized (Kapua). Lyon has had it a long time and doesn't seem to be spreading (Ray). Army is working on Whitmore Village population (Kapua). Hawaii Kai by heiau in back (Sailer). Don't know how invasive it's going to become, but seems to spread readily (Kapua)
Jasminum fluminense	3	big island hot and dry area, 5 acre site, orig planted by houses, forms 2m tall sprawling thicket, very dry site (Mindy). Reportedly being spread by birds (Mindy).
Kappaphycus spp.	2	no known control method, fragments when pulled (Mindy); now have completed surveys for 5 or 6 other algaes. *Gracilaria salicornia* in Waikiki (Mindy)
Leptospermum polygalifolium	**1**	**Pearl City above Waimano Home Road, intermixed with other manuka (Ed). May be at beginning of Laie trail (Talbert) but Ed thinks its not polygal.**
Medinilla cummingii	3	naturalizing in Manoa and Nuuanu (OISC). Species of concern on Maui. Old Pali road btwn Pali and Likelike highways (Kapua). Name may also be *M. speciosa* ?; and this or something similar planted at Waimea (Ray)
Melastoma septemnervium (previously M. candidum)	**1**	**really bad in Hilo (Jordan), gives rash to some people (Kapua). Back of Waihe'e valley, fully mature plants that didn't look like they displaced anything (Talbert). Upper Kahalu'u, dispersed from Waihe'e (Kapua). Jim Jacobi says it goes up to 4000ft elev, could be a problem here. Could be incipient in conservation zone, but large reservoir in lower elevs (Talbert). One plant in someone's yard in Kalihi (Kapua, Pat Conant). Maunawili reservoir 500, and up by power poles and on road to banana plantations (Talbert). Big trees below, but no plants at upper elevs in Waihe'e; can't use herbicide there, on BWS land (Kapua).**
Melastoma sanguineum	3 (is it on O'ahu?)	naturalized on big island. One specimen was collected from Tantalus, but eventually found to be a different species; Becky (DOA found it) (Staples)
Melochia umbellata	**1**	**all over Hilo. Same habitat as Melastoma candidum. Only pop on Oahu is in Kahuku TA-really bad, lots of seedlings and huge seedbank, but definitely eradicable (Kapua). Lyon has had it for many years, can't think of live ones, kill them when they see them? (Ray). Forestry planted in Waianae (Staples)**
Myrica faya	**1 (keep out of Ko'olaus, control satellite pops in Waianaes)**	**concentrated just in Honouliuli preserve, where Nanakuli and Lualualei meet; probably at least 100 acres on rough terrain; spreading north (Dan Sailer). Small forestry plantings of some trees on Pu'uhapapa, and in Makua but all dead as far as we know (Kapua). Major habitat modifier, really bad on big island. Consider controlling satellite pops and keeping out of Ko'olaus. Tough to kill (Sailer). One big one in Hauula on a ridge, killed, btwn Hauula and Kaipapa'u drainages (Kapua, Charlotte). 2 planted in Hauula; 6 planting sites, most unspecific (Rob Hauff).**
Passiflora quadrangularis	3	Joel hasn't seen it.
Phyllostachys aurea	3 (distribution, control method)	planted a lot in yards, lower part of Haiku stairs (Kapua), seen in aiea (Mindy). Something similar is spreading on the Big Island (Staples). Control method unknown. Lyon had cut and painted with 8% trichloper? Seems to have worked (same species??)
Pimenta dioica	2	allspice, everywhere! (Kapua). forestry planting 2200 trees all over the island
Pimenta racemosa	3	bay rum. Planted at Lyon. ID problems btwn bay rum and all spice.
Pistia stratiotes	2	all over Kawainui. Koa pond in Haleiwa (ron). Dump road (Kailua).
Pittosporum pentandrum	3	invasive in Florida. Naturalizing in Heeia (Staples), common street tree
Rhodomyrtus tomentosa	**1**	**big pop at Heeia (100s of acres). Monoculture on H3 (Kapua). Satellites being controlled. Waimano small pop, one ridge, Waiawa couple ridges (Charlotte). Smaller pops could be wiped out in couple days/weeks**

Salvinia molesta	2	known invasive in other places. Biocontrol has been successful in other places (a weevil) but we would have to import here (Mindy). DOA not looking at the biocontrol b/c it hasn't been doing damage; Nilton asked DOA for aquatic list but no answer. On homeland security list (Nilton). A federally listed nox weed (Staples). Lake Wilson, Waikane, garden cultivated-all over the island, lo'i, Ko'olau farmers, dump road. Federally listed and federal money: maybe worth keeping on the list for these reasons (Staples).
Santalum album	2	7500 trees, 12 forestry reserves, planted all over (forestry). Can cross with native santalums (Joel).
Schizachyrium condensatum	**1**	**IDed by Bishop Museum (specimen from H3). Thousands of dollars spent at Volcanoes NP controlling it. Much larger variety of the species on Kauai (more similar habitat to Oahu) (Kapua). Even higher fire fuel than Fountain Grass (Jordan). Must have seeded H3 with it. More distribution research needs to be done, but there are no other vouchers from Oahu.**
Tecoma castanifolia	3	only known naturalized in the Waianaes. Threat unknown.
Tetrazygia bicolor	**3 (priority)**	**Mike thought the manual says it was present on Oahu in 1996, but this finding can't be confirmed. 8 trees planted on Kauai only. Joel hasn't seen it.**
Tibouchina herbacea	**4**	**not on O'ahu**
Tibouchina urvilleana	**1 and 3 (priority)**	**Big Island and Kauai grows along roadsides. Only documented to reproduce vegetatively. On Oahu, seedlings documented from above Whitmore village. Army is doing control work there. Therefore should be more concerned about yard plantings here on Oahu, and need more research as to why it is seeding here (Kapua). Brian Stevens said it is so much worse to control than Miconia because it has hairs and forms dense stands. Start campaign to have homeowners remove it. One plant known from Kahalu'u (Kapua).**
Urtica urens	3	turned up 10 years ago and DOA killed it-probably eradicated then -but fred found only one voucher so put it on the list (that's what George had understood).
Typha sp.	2	Honouliuli, Kawainui marshes, Pearl Harbor. Control method unknown (have to pull out by the roots).
Vernonia elliptica	3	may be African. Brought in in the 60s as a tough species to cover up junkyards, etc, to beautify. Only one known pop along Kalanianaole by Keolu-quarter to half mile along the roadside. Little wind dispersed seeds. Don't know about threat, but does spread aggressively and grows easily. (Staples).
*Tabebuia rosea (*probably *T. heterophylla)*	2	Joel said its naturalizing in Waianaes on Palikea ridge. Widely planted street tree. Lyon has had it a long time. "Good pop going", localized spreading (Ray). Kurt Daeler says not likely to become a serious pest.
Others mentioned:		
Heliocarpus popayensis (Sailer, Kapua)	2	Windward side recruiting into Schofield, planted at Ewa, Honolulu, Honouliuli. Not for OISC but keep out of natural areas (Army, TNC, etc) (Sailer)
Setaria sphacelata	**3 (priority)**	**not collected in Hawaii previously. Stretched over a mile of H3 on both sides of the road on windward side. Only on that road cut. Setaria's are usually invasive. Need to find threat potential**
Leptospermum scoparium	**1**	**OISC should keep working on satellite pops like Konahuanui, easy to kill, easy to see from the air. Almost eradicated on Poamoho trail (Army) northern Ko'olau pops too big, and maybe Waimano. Could control certain pops like Kipapa, Konahuanui. (Kapua)**