Laukahi: The Hawai‘i Plant Conservation Network

Priority	Research Topic	Genus/Species and comments
1	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	Cyanea hamatiflora ssp. carlsonii. We have had difficulties getting good seed from this species in its South Kona Range. In the Hualalai population this is not as much of a problem. Wondering what is going on in South Kona - too few founders left? No or limited genetic transfer amongst individuals?
1		Hibiscus waimeae subsp. hannerae, Capparis sandwichiana, Schiedea apokremnos, Brighamia insignis, Cyanea leptostegia, Hesperomannia lydgatei, Kadua fluviatilis, Phyllostegia electra, Phyllostegia renovans, Platydesma spathulata, Strongylodon ruber, Gardenia remyi

1	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	How is the loss of native pollinators and seed dispersers affecting montane plant communities? I don't have a particular species in mind - many plants may be susceptible
1		The idea of researching and identifying microbial symbiotic mutualisms with native plants and native microorganisms.
1		Common and rare fruiting species of plants. Native (Puaiohi) and non-native dispersers (Japanese White Eye, Shama, rats)
1		for rare and listed species-
1		Any taxa that are likely bird dispersed or pollinated. Campanulaceae. Also any taxa with low survivorship that could benefit from symbiotic fungal inoculation.
1		Peristylus (Platanthera) holochila, Liparis hawaiensis, and Anoectochilus sandvicensis and their obligate mycorrhizal fungal symbionts.

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2	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	Phyllostegia spp.,Geranium arboreum, Schiedea haleakalensis, Clermontia samuelii subsp. samuelii, Cyrtandra ferripilosa, Cyanea asplenifolia, Hillebrandia sandwicensis
2		Vicia menziesii (pollinator)
2		Joinvillea ascendens- tried to germinate in peat mix. Germinated but died shortly after. Assumed it used up nutrients from seed. Sowed seeds in live soil and seedlings grew to outplatable size. Assuming symbolic microorganism association needed to provide nutrients?
2		Exocarpus luteolus, Joinvillea ascendens var. ascendens
2		Cyrtandra
2		Priority to most endangered and species that have been most challenging in cultivation.
3	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	this goes back to Sakai and Weller, looking at arthropods and other pollinators/dispersers and their own current conservation standing (i.d. a specific arthropod is no longer extant and the dependent plant is also then in trouble. What are the missing holes or links, and can they be successfully filled or linked; even if it is a novel or radical approach never before contemplated.
3		-Species with seeds larger than those that can be dispersed by introduced birds or by rats. -Species for which seedset seems to be low (pollinators)

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3	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	Pockets of rare plants seem to coexist. Identifying the microclimatic conditions present, along with the mutualisms would be greatly beneficial equally interesting.
3		Understanding certain mutualism issues is critical for assessing if individual species and communities to be able to survive, and particularly when your monitoring shows that plants are not able to get established and maintain their populations after the immediate threats (ungulates) are controlled.
3		Lobeliads
4	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	Schiedea.: This topic goes along with understand how mating system and pollination system impact the genetic diversity, reproductive isolation, etc. of native species in the wild and in restored plots. If you put plants where they do not have a needed pollinator, reproduction may be very low.
4		It's all about interactions. We need so much more knowledge about the various organisms that enable plants to disperse, establish, reproduce, and survive - and this research would inform conservation and management of the mutualists too. The majority of the flora needs more study in this respect.
4		Need a better understanding of what goes on under the soil i.e.soil biota and how it relates to our conservation efforts and identify the threats to our soils/substates
4	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	We could learn a lot more about pollination of native plants that might help with recover. Visiting OANRP and seeing Stenogyne kanehoana in large numbers and looking incredibly healthy was a pretty amazing experience after seeing one unhappy plant sticking out of a Lantana patch in 1987. What was almost as remarkable was to learn that despite all sorts of effort to pollinate and obtain seeds from the plants in cultivation, very few have been produced. I have trouble imagining that this plant is self incompatible (I don't think many mints are), but it would be great to know more about why seed production is so low. I think the broader impacts of research programs on these plants ought to include these kinds of questions. Although I am obviously influenced by our work on Schiedea, I think that we might expect academic researchers to consider theses issues.

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5	Mutualisms (identifying pollinator, disperser, mycorrhizal symbionts)	Little is known about soil mycorrhizal associations. ie Platanthera holochila.
5		Species with no or poor seed set for no apparent reason. Populations in declining health and/or in environments that have seen significant ecological change.
5		Understanding how these species interact with pollinators, mycorrhizal symbionts, and dispersers helps determine why they may or may not be declining and potentially how to reverse those trends. Uhiuhi (Mez kav) may be one species that is dependent on mycorrhizae and knowing that could help with management.: Argyroxiphium kauense, Asplenium peruvianum var. insulare, Bonamia menzisii, Chrysodracon hawaiiensis, Colubrina oppositifolia, Delissea undulata, Haplostachys haplostachya, Hibiscadelphus hualalaiensis, Hibiscus brackenridgei ssp. brackenridgei, Kokia drynarioides, Mezoneuron kavaiense, Neraudia ovata, Nothocestrum breviflorum, Portulaca sclerocarpa, Silene lanceolata, Solanum incompletum, Stenogyne augustifolia, Zanthoxylum dipetalum var. tomentosum, Zanthoxylum hawaiiensis.
5		All native flowering plants