No Ka Lāhui: Using IUCN Data to Inform Recovery of Imperiled Species of Hawai‘i, for Hawai‘i

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I. Abstract

Extinction rates have increased dramatically over the past century, a trend that is likely to continue with the increasing prevalence of threats such as climate change. Global databases are critical not only to highlight potential conservation solutions, but also to provide global and regional datasets for increased collaboration. Despite this potential, many global databases still lack comprehensive data regarding threats and conservation actions. The IUCN Red List is the most well-known of these global databases for species assessments. In this study IUCN Red List data for at-risk species in Hawai‘i were evaluated in regards to: (1) threats and conservation actions across taxonomic groups; (2) recovery actions to address climate change explicitly addressed in Red List data; and (3) incorporation of Indigenous and Local Knowledge (ILK). A total of 401 species from the Hawaiian Islands had threat and conservation action data on the IUCN Red List, and were therefore included in this study. Plants were the most numerous taxonomic group (n=361), followed by vertebrates (n=32) and invertebrates (n=8). Plants faced the highest number of threats, with habitat loss/modification and nonnative species invasion identified as the main threats. The number of species in each threat category differed significantly (X^2_{12}=1449.7, p<0.05). Although climate change was identified as a threat for some species, no specific conservation actions were identified to address this threat, in contrast to other identified threats. The disparity in data availability across taxonomic groups limited analyses for invertebrates, with threat data only available for eight arthropods and absent for all tree snail species, many of which are well-known locally to be on the brink of extinction. Hawaiian names were noted for some species, but other forms of ILK have yet to be incorporated in the Red List, despite published and written repositories of knowledge regarding Hawaiian species that are available in both English and Hawaiian languages. These results highlight the need for a structured elicitation process to be incorporated into the IUCN listing framework to increase inclusion of ILK knowledge and the identification of specific actions to address the threat posed by climate change to globally threatened species.

Keywords: Red List of Threatened Species, Endangered Species, Wildlife Conservation, Indigenous & Local Knowledge, ILK, Threat Analysis

II. Motivation

In the Anthropocene, an era resulting from industrialization, colonization, and exploitation, we are facing increasing threats to biodiversity from climate change, invasive species, disease, and the ever-expanding human population (Harfoot et al. 2018, Lightfoot et al. 2013, Fletcher et al. 2021, Cahill et al. 2012, Butchart et al. 2010). Indigenous people have felt these losses for centuries, and also hold repositories of knowledge that can allow humans and nature to coexist (Reyes-Garcia et al. 2022). The worldviews and approaches that created this upheaval following millennia of minimal human footprints on the planet, are not the approaches that will allow humans and nature to thrive into the future (Pearson 2011). Despite widespread recognition of both the threat of climate change and the potential solutions offered by Indigenous and Local Knowledge (ILK), global databases intended to inform global solutions continue to lack tangible recognition of both (Youdelis et al. 2021, Pearson 2011).

The Red List of Threatened Species is a database intended to be an easily and widely understood system for classifying plant, animal, and fungi species at high risk of global extinction. The International Union for the Conservation of Nature (IUCN) is the at-large environmental network that is responsible for managing the Red List repository, which provides species specific information on range, population size, habitat and ecology, use and/or trade, threats, and conservation actions needed to inform conservation decisions (IUCN Red List). However, well known deficiencies exist such as a lack of representation of plants and invertebrates in proportion to their abundance, and in comparison with information available for vertebrates. These deficiences are, in part, due to disproportionate research effort toward vertebrates.

Imperiled species of "Threatened" or "Endangered" status are able to gain federal or state-level protections, along with funding towards conservation actions, with the goal of eventual recovery and delisting. At the State of Hawaii level, the list of endangered and threatened species protected under the Hawai‘i Revised Statute (HRS) 195D automatically includes species pursuant to the ESA or by determination of the Department of Land and Natural Resources (DLNR) (HRS §195D-4). There are 495 species currently protected under HRS 195D, with 13 species listed as "Threatened" and 482 listed as "Endangered". The mission of the Hawai‘i DLNR is to '*responsibly manage and protect watersheds, native ecosystems, and cultural resources, and provide outdoor and sustainable forest opportunities, while facilitating partnerships, community involvement and education*' (DLNR). Interestingly, only 1.3% of the Hawai‘i State budget is dedicated to natural resource management and only a subset of these funds are available to endangered species management where many species continue to decline (Department of Budget and Finance, 2022). The DLNR‘s mission is usually compromised by underfunded management projects and staffing capacity, which is where co-management with Indigenous Peoples and Local Communities (IPLC) may serve to be a mutually beneficial endeavor. While some programs and personnel are successful in engaging communities, the lack of biocultural resource management approaches involving IPLC within state agencies, and a general lack of proactive management with communities, continues to hinder progress toward effective conservation.

Though still a barrier for some fields, ILK is progressively becoming more widely identified and valued in academic discourse, especially as it pertains to climate resiliency.

International efforts by the IUCN (Red List Committee, Sustainable Use and Livelihoods Specialist Group, and others) to recognize ILK through implementation of environmental decision making, management, policy, and assessments have been synthesized, but a structured elicitation process is lacking (IUCN 2018). Eliciting ILK from Indigenous Peoples and Local Communities (IPLCs) is a sensitive process, and recommendations have surfaced to design a trust-building process, for example by spending the time to build relationships, involving an intermediary in many cases, and negotiating an International Resource Panel (IRP) agreement with ILK holders on what can be shared and/or published and how it will be accredited (IUCN 2018). More recently, large strides in regulatory jurisdiction in the U.S. Department of the Interior have recently reflected the beginning of intention setting for collaborative and cooperative approaches with the Native Hawaiian (hereafter referred to as ʻŌiwi) community and tribes to fultill the trust responsibility in stewarding federal lands and waters (Department of the Interior 2022).

Comprehensive action plans aimed at resilience and recovery that integrate communities and address current and future threats such as climate change are critical to achieve thriving social-ecological communities into the future. Hawaiʻi has faced extensive degradation of native ecosystems with hundreds of species that have gone extinct. However, no study to date has evaluated trends across imperiled taxonomic groups for the archipelago of Hawaiʻi. The literature reflects support in eliciting expert knowledge when tackling complex problems in conservation science (Martin et al. 2011), but institutions as a whole still lack the inclusion and recognition of Indigenous knowledge systems. ʻŌiwi communities have embedded genealogical ties with the ʻāina: a term generally used for "land", translates to "that which feeds", and specifically recognizes the relationship that humans have to indicate land (Malo 1898). Recognizing the deep social-ecological relationships that generations of ʻŌiwi have with ʻāina are not only critical, but likely required for the recovery of imperiled Hawaiian species (Price et al. 2021).

III. Background

Throughout the Hawaiian islands, or Federal "Region 1", there are currently 474 species listed as Endangered or Threatened (USFWS). Of these federally listed species, 366 plant taxa are listed as Endangered or Threatened by both the Federal and State government agencies (DLNR), with 238 endemic Hawaiian plant species that currently have less than 50 individuals remaining in the wild (Werden 2022). Species that are classified as 'data deficient' are likely to go extinct without notice (Cardoso et al. 2011, Bland et al. 2015), reinforcing the importance of acquiring data for underrepresented taxonomic groups. Hundreds of other species likely warrant listing, but data gaps and lack of funding or interest have resulted in a lack of attention for plant and invertebrate species (Puckett et al. 2016). Moreover, few species have specific plans in place to address increasing negative impacts associated with climate change, let alone a long-term plan for persistence under dramatically different climatic conditions in the future. Thus, a threat and conservation action analysis across taxonomic groups, combined with an evaluation of potential solutions, is critical to providing a roadmap to persistence of these species in the future.

Successful contributing factors to restoration efforts in the Hawaiian Islands to aid in the recovery of imperiled species include identifying clear objectives, reducing uncertainty while increasing probability of a desired outcome, innovative solutions, and interdisciplinary

partnerships (Price and Toonen 2017). The integration of biocultural approaches may prove to satisfy, at least in part, the need to address innovative solutions and interdisciplinary partnerships (Winter et al. 2020, Winter et al. 2021). A biocultural paradigm, in which the relationship between humans and nature is inherent and integrated actions are based on longstanding relationships and Indigenous knowledge (Winter et al. 2020). The biocultural paradigm of ʻŌiwi incorporates the concept of ʻāina kaumaha, an innate obligation to steward biocultural health across ecosystems due to genealogical positionality (Kurashima et al. 2018). Though broad scale application of biocultural approaches across agencies has yet to be adopted (Winter et al. 2020), site-specific ecological restoration case studies highlight the value of implementing biocultural approaches for both Indigenous communities and imperiled wildlife (Winter et al. 2020, Libby et al. 2022). Incorporating ILK and engaging IPLC in global repositories are not only critical for preventing species extinctions and allowing for better communication across IPLC and conservation management agencies (Merçon et al. 2019, Winter et al. 2020), but they also open the door for co-management of places that have been largely successful in their application (Vaughan and Caldwell 2015, Winter et al. 2021). It is paramount to mention that incorporation of a biocultural approach to conservation management must put ʻŌiwi and local communities at the forefront to discourage unethical ILK extraction that further perpetuates inequities and discrimination of Indigenous peoples (Robinson et al. 2021).

IPLCs are identified as being some of the most at risk gropus facing health issues and having to relocate due to climate change impacts even though they do not bear the fault for greenhouse gas emissions and other contributions to a warming climate. Endemic taxonomic groups, comprising of more-than-human species, face parallel injustices that are due to humans. Not only have humans failed in providing adequate conservation management approaches to mitigate for the irreversible extinction of a species, but we have also failed in working proactively to give these species a chance to thrive. Optimistic studies reveal that time may not be up to turn the tide of biodiversity loss, however they suggest that it will not be possible without ambitious, integrated action combining conservation and restoration efforts with a transformation of the food system (WWF 2020). Threats that imperiled species face as a result of climate change are better understood than paired solutions to adequately address them, which hinders approaches to proactive management and policy-making.

IV. Objectives

My overarching objective was to evaluate species from the Hawaiian Islands assessed under the IUCN Red List of Threatened Species to find potential synergies and collaborative solutions for proactive conservation management across taxonomic groups, as well as whether the listings identified actions to address impacts from climate change to the listed species, and the inclusion of Indigenous and Local Knowledge. To address this, I compiled three types of information from the IUCN Red List data on Endangered species in Hawaiʻi: (1) listed threats and conservation actions across taxonomic groups; (2) recovery actions that address climate change impacts to species; and (3) Indigenous and Local Knowledge (ILK) regarding species or conservation actions.

V. Approach

A total of 401 species native to the Hawaiian Islands were assessed under the Red List and included information specific to the Hawaiian Islands. ‘Threats’ and ‘Conservation Action’ categories were pre-determined based on descripgions given by the IUCN. Threats were

categorized as: habitat loss/modification, invasive species: plants, invasive species: predators, invasive species: disease vector, invasive species: hybridization, invasive species: competitors, disease, human disturbance, natural disturbance, climate change, sea-level rise, loss of coevolved symbionts and single population. Similarly, conservation actions that were identified for each species as necessary to address threats were categorized as: (1) Land/water protection, (2) Land/water management, (3) Species Management, (4) Education & Awareness, Law & Policy, and (6) Livelihood, Economic, & Other Incentives.

In the software program R (R Core Team 2021), a Fisher's Exact Test was used to determine if there was a significant difference in the number of species affected by each type of threats. A Chi-square Goodness of Fit test was conducted to determine if plants were disproportionately impacted by different threats (Figure 1).

Honoring the Hawaiian names of species is important in addressing Indigenous Knowledge in these listings, despite the predicted lack of incorporation of ILK. To identify Hawaiian names for all species listed as threatened or endangered on State, Federal, and IUCN databases, I cross-referenced common English names and scientific names with multiple versions of the Hawaiian Dictionary and with the ECOS database to identify all Hawaiian names for each species.

VI. Results

Out of 586 imperiled native Hawaiian species were identified under State, Federal, and International assessments (Price et al., in prep), there were 420 (72%) assessed on the IUCN Red List of Threatened Species and of those, 401 (68%) species had viable data necessary for this study. All 19 listed kāhuli (snail) species and two arthropod species lacked appropriate data, as

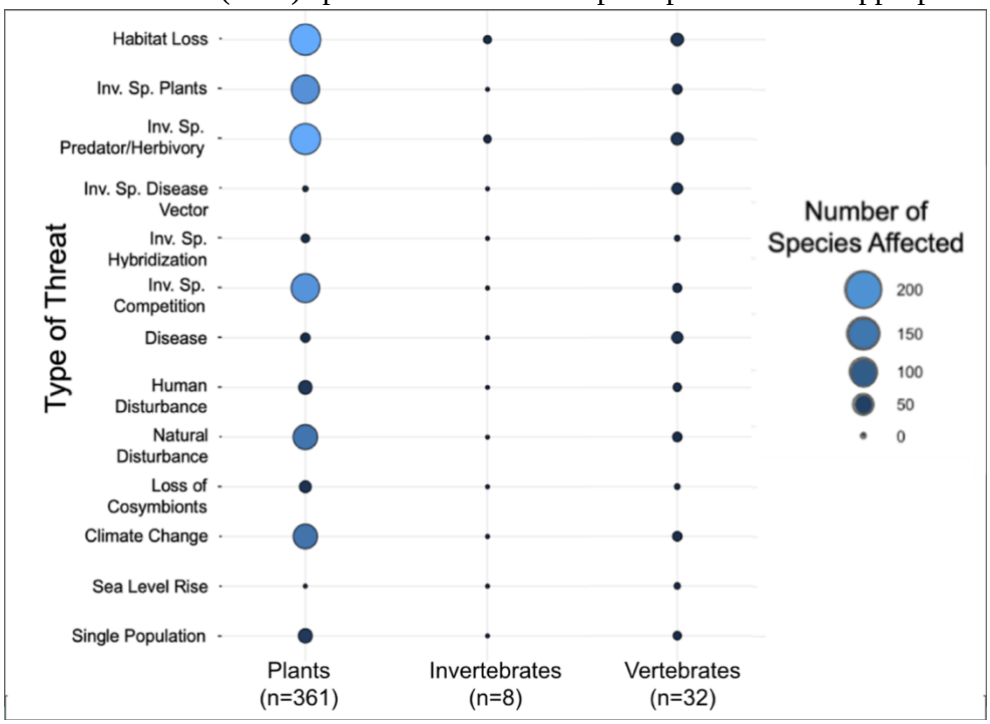

Figure 1. Distribution of threats affecting each respective taxonomic group with the number of species affected indicated by the size and color of bubble. Types of threats varied disproportionately across taxonomic groups (p <0.05), with mechanisms of habitat loss and nonnative species invasion threatening the most species.

they were all last assessed in 1996 (IUCN Red List). Of these remaining 401 species, there were 361 plants, 21 forest birds, 5 waterbirds, 5 seabirds, 8 arthropods, and 1 raptor included in subsequent analyses.

In comparison with all species assessed under State, Federal, and International listings, IUCN Red List of Threatened Species included 14% (N= 8 out of 57) of imperiled Hawaiian invertebrates, 63% (N= 32 out of 51) of imperiled Hawaiian vertebrates, and 73% (N= 361 out of 493) imperiled plants. Though climate change was commonly mentioned as a threat to the assessed species, there were no conservation actions identified to address the impacts of this threat. The conservation action identified for the most plants was 'Species Management' (75% of plants assessed), followed by 'Land/water management' (73% of plants assessed).

The distribution of threats differed among taxonomic groups, with habitat loss (and degradation) impacting the most taxonomic groups (X^2_{12}=1449.7, p<0.05). For plants in particular, the number of species also were affected disproportionately in relation to each threat category (X^2_{12}=1451.2, p<0.05). Nonnative plant invasions were most threatening to plants, with 277 species being the highest amount of species affected by a threat.

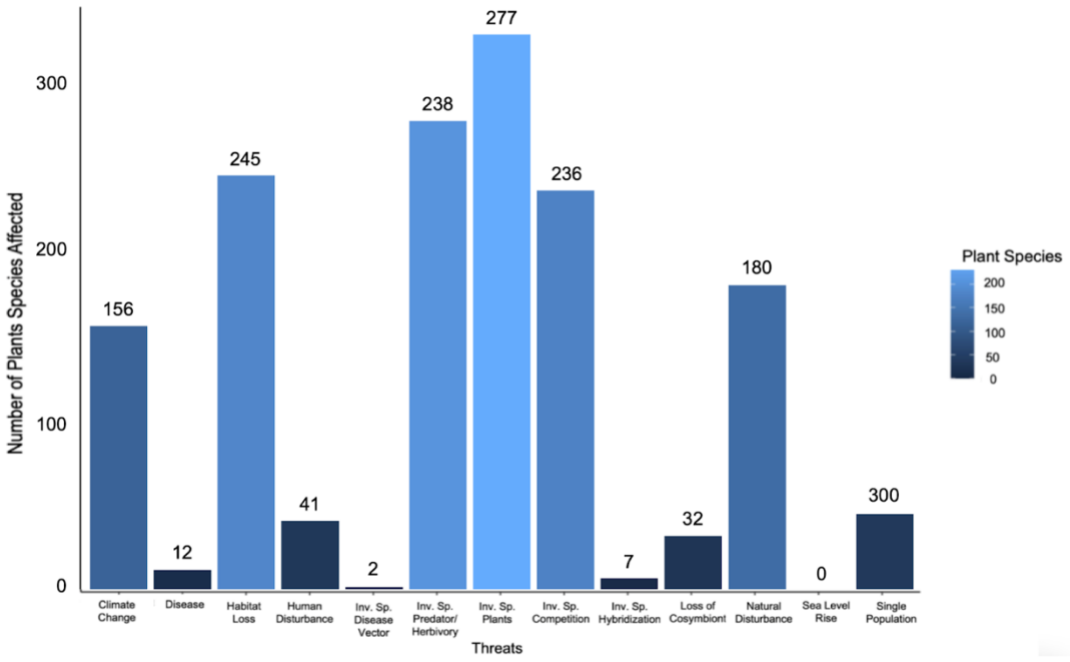

Figure 2. The amount of plant species affected varied greatly across threat categories and were disproportionately affected Plants were disproportionately affected by types of threats. Habitat Loss and Invasive Species impacted the most plant species (X^2_{12}=1451.2, p<0.05).

The IUCN Red List did not have a specific conservation action categories related to addressing impacts from climate change or related phenomena such as sea level rise. The conservation action most commonly identified for species was 'Land/Water Mangement'. Conservation Actions indicated for invertebrates were only Land/Water Management and Protections. The types of conservation needed for each taxonomic group differed significantly (X^2_{10}=37.855, p<0.05).

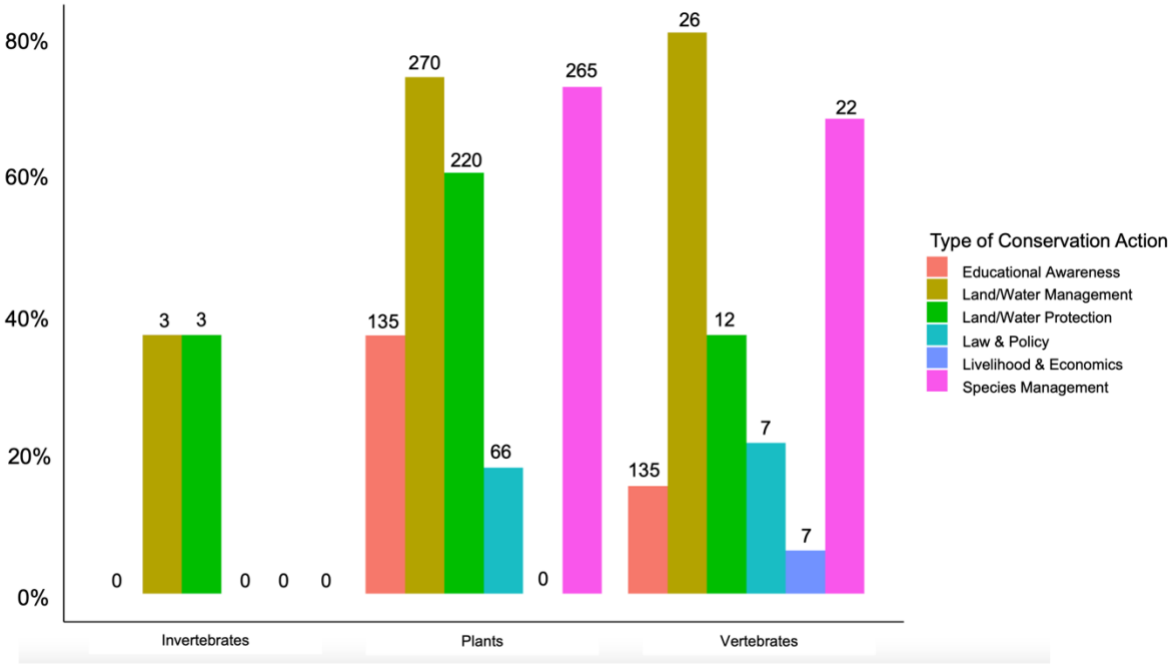

Figure 3. The amount of species indicated as needing a conservation action was divided by total number of species within the taxonomic group for percentages. Total number of species associated with each conservation action category is noted at the top of each bar.

ILK was largely missing for most listed Hawaiian species in the IUCN database. Some species had inoa Hawai‘i (Hawaiian names) noted, but many were misspelled. For invertebrate species, umbrella Hawaiian terms were given for genera. For example, the listed *Hylaeus spp.* were all identified as “nalomeli maoli” and all *Drosophila spp.* were “pōnalo” (Pukui-Elbert 1986). I was able to identify Hawaiian names for 522 species of the 586 species identified as threatened or endangered under State, Federal, and international assessments (Appendix A). The remaining 64 species likely have Hawaiian names, but the scope of this project did not allow for a more comprehensive search.

VII. Discussion

Global policies and actions to address wide-ranging threats depend, in part, on global databases, yet based on this study, actions to address the greatest threat to biodiversity in our lifetime are largely lacking from the most widely known global database. Further, despite the potential for Indigenous and Local Knowledge (ILK) to transform conservation biology and achieve recovery of endangered species in the Anthropocene (Price et al. 2021), ILK is largely lacking from the IUCN Red List. Further, consistent with other global assessments, invertebrates in the Hawaiian Islands were largely lacking from the IUCN Red List. This is particularly concerning for a taxonomic group that is estimated to have 1.3 million species on the planet Earth, in comparison with 66,800 vertebrates (IUCN Red List). This lack of assessment is intertwined with a lack of funding for both research and conservation. As a result, much is still unknown about both the threats to invertebrates and the conservation actions needed to address declines.

The impacts of climate change were identified as a threat for some species, however paired solutions to mitigate these effects are absent for these species on the IUCN Red List. Established systems like those used in the IUCN Red List that perpetuate the status quo may need to be revised or replaced to explicitly consider solutions that are being driven by impacts of climate change (Stanton 2015). Assessments used in determining a species' risk to extinctions may be illustrating misleading thresholds and inaccurate warning times to evoke action in time to prevent biodiversity loss (Cardoso et al. 2011, Stanton et al. 2015, Bland et al. 2015). Stronger communication between scientists, IPLCs, and policymakers are required for a stronger articulation of embedding a biocultural paradigm into processes focused on climate change solutions (Merçon 2019).

Indigenous Knowledge of Hawaiian species was largely lacking in the Red List, other than the notation of a few Hawaiian names. Further, more than 27 years have passed since some of the Hawaiian species on the Red List have been updated, including the kāhuli species that locally are known to be close to extinction. Fittingly, the "Year of the Kāhuli" may serve to be the year that this change occurs where these tree snails can function as a flagship species for other terrestrial invertebrates. Literally translating to "an overturning", the possibilities in the next year for kāhuli to open up the door for the inclusion of ILK (when appropriate) in data repositories, increased efforts in researching these data deficient species, and implemented into conservation practices today. With something so simple as respecting a species' Hawaiian name, species listings should strive to accomplish this at a minimum. Honoring these names, much like human names and human relationships would, has the ability to introduce a species. Hawaiian names often proved insight into the living habits, cultural uses, nature of a species, or other observed phenomenon of a given species or taxa. The results of this study can infer an inadequate quantity and quality of relationships that the science community has with ʻŌiwi communities across Hawaiʻi. Failure to collaborate with IPLC and value ILK from conservation management continue to further endure the colonial legacies that continue to oppress ecosystems and communities in Hawaiʻi.

Similar to other studies (Brito et al. 2010), our study found that about 20% of the species identified as threatened or endangered under the U.S. Endangered Species Act and/or Hawaiʻi statute 195D were not assessed under the IUCN Red List, with invertebrates particularly under-represented. Importantly, listing of species is associated with an increase in research attention for data deficient species (Jarić et al. 2017), highlighting the importance of a listing effort for inveretebrates and plants in Hawaiʻi. Delaying listing of species may either result in or indicate a lack of adequate attention until species are already at critically low numbers, as seen with the ʻAkikiki and ʻAkekeʻe, which were listed under the ESA in 2010, but recognized as Endangered by the IUCN in 1994 (Harris et al. 2012). To address these issues, increased assessment of species may be catalized through community engagement, networking, and student-led projects (Böhm et al. 2022).

Assessments available from the IUCN Red List are "open to challenge", meaning petitions representing disagreements may be made against published information on species, subspecies, or geographic subpopulations (IUCN Red List). Any party may contact the Red List Unit (RLU) at any time to express these disagreements, and supporting information must be collated to support the petition and accepted petitions will be made note of and added to the queue of updates scheduled for the next "Planned Update". Petitioning all of the species within the scope of this project was not feasible with the time limitations.

Results from this study will support a similar multi-agency project involving Conservation Action Optimization and Spatial Optimization teams contributing to a Maui Nui comprehensive landscape plan. Maui Nui and State taxonomic experts and land managers will contribute threat, conservation action, and feasibility data to conduct a Priority Threat Assessment, which will essentially allow synergies in conservation actions across identified taxonomic groups to surface. The implications of this project will be critical for preventing species extinctions, while weighing out cost and benefits of actions, and further allow for proactive planning rather than strictly trauma-response actions. Application of a similar project to this for Hawai‘i would be beneficial to species recovery across all islands.

Above all, there is a need to alter processes contributing to the systems in place for these global assessments, as business-as-usual models solely focused on risk assessments are not serving the conservation action needs of imperiled species and the IPLCs associated with them. Shifting to a biocultural paradigm will be paramount in bridging gaps between communities and innovating conservation actions directly tied to impacts of climate change. Hawai‘i is not an outlier when it comes to underassessment of invertebrates and ILK on a global scale, as this is a systemic issue that needs to be addressed for IPLCs on a global scale. Identifying clear objectives and tackling the difficult questions related to climate change impacts are pertinent to achieving recovery for species of Hawai‘i.

X. References

Bland, L. M., Collen, B., Orme, C. D. L. & Bielby, J. Predicting the conservation status of data-deficient species: Predicting Extinction Risk. *Conservation Biology* 29, 250–259 (2015).

Böhm, M. *et al.* Catalyzing Red List Assessments of Underrepresented Taxa through Partner Networks and Student Engagement. *Diversity* 14, 723 (2022).

Brito, D. *et al.* How similar are national red lists and the IUCN Red List? *Biological Conservation* 143, 1154–1158 (2010).

Butchart, S. H. M. *et al.* Global Biodiversity: Indicators of Recent Declines. *Science* 328, 1164–1168 (2010).

Cadorso, P. *et al.* Adapting the IUCN Red List criteria for invertebrates. *Biological Conservation* 144, 2432-2440 (2011).

Cahill, A. E. *et al.* How does climate change cause extinction? *Proc. R. Soc. B.* 280, 20121890 (2013).

Fletcher, M.-S., Hamilton, R., Dressler, W. & Palmer, L. Indigenous knowledge and the shackles of wilderness. *Proc. Natl. Acad. Sci. U.S.A.* 118, e2022218118 (2021).

Haw. Rev. Stat. Section§195D-4. Revised 1983.

Harfoot, M. B. J. *et al.* Present and future biodiversity risks from fossil fuel exploitation. *CONSERVATION LETTERS* 11, e12448 (2018).

"Interior Department Issues Guidance to Strengthen Tribal Co-Stewardship of Public Lands and Waters." U.S. Department of the Interior, 13 Sept. 2022, https://www.doi.gov/pressreleases/interior-department-issues-guidance-strengthen-tribal-co-stewardship-public-lands-and.

International Union for the Conservation of Nature (IUCN). Application of Indigenous & Local Knowledge (ILK) in IUCN Red List assessments: White paper. Version One (2022).

Jarić, I., Roberts, D. L., Gessner, J., Solow, A. R. & Courchamp, F. Science responses to IUCN Red Listing. *PeerJ* 5, e4025 (2017).

Kurashima, N. *et al.* ʻĀina Kaumaha: The Maintenance of Ancestral Principles for 21st Century Indigenous Resource Management. *Sustainability* 10, 3975 (2018).

Lightfoot, K. G., Panich, L. M., Schneider, T. D. & Gonzalez, S. L. European colonialism and the Anthropocene: A view from the Pacific Coast of North America. *Anthropocene* 4, 101–115 (2013).

"Listed Species Believed to or Known to Occur in Hawaii." *Environmental Conservation Online System (ECOS)*, United States Fish and Wildlife Service (USFWS), 13 Feb. 2015, https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=HI&stateName=Hawaii&statusCategory=Listed.

Malo, Davida. Hawaiian Antiquities: Moolelo Hawaii; Translated from the Hawaiian by Nathaniel B. Emerson. Bernice P. Bishop Museum (1951).

Martin, T. G. *et al.* Eliciting Expert Knowledge in Conservation Science: *Elicitation of Expert Knowledge*. *Conservation Biology* 26, 29–38 (2012).

Merçon, J. *et al.* From local landscapes to international policy: contributions of the biocultural paradigm to global sustainability. *Glob. Sustain.* 2, e7 (2019).

Pearson, D. L. Biodiversity in the Anthropocene. *J Insect Conserv* 24, 1–3 (2020).

Price, M. R. & Toonen, R. J. Scaling Up Restoration Efforts in the Pacific Islands: A Call for Clear Management Objectives, Targeted Research to Minimize Uncertainty, and Innovative Solutions to a Wicked Problem. *Pacific Science* 71, 391–399 (2017).

Price M., Berry L., Ching S, Crampton L.C., Fortini L., Haines W., Jonasson K., Keir M., King C., Mounce H., Paxton E., Plentovich S., Raine A., Siddiqi A., Sischo D., VerderWerf E., Weisenberger L., Wilhite C., Young L.. (Manuscript in preparation). (2019).

Pukui, M. K., & S. H. Elbert. "Hawaiian Dictionary, revised and enlarged edition." Honolulu: University of Hawaii (1986).

Puckett, E. E., Kesler, D. C. & Greenwald, D. N. Taxa, petitioning agency, and lawsuits affect time spent awaiting listing under the US Endangered Species Act. *Biological Conservation* 201, 220–229 (2016).

"Rare Plant Program." *Division of Forestry and Wildlife: Native Ecosystems Protection & Management*, State of Hawai'i Department of Land and Natural Resources, 20 Jan. 2022, https://dlnr.hawaii.gov/ecosystems/rare-plants/#:~:text=Officially%2C%20366%20of%20the%20Hawaiian,species%20are%20Proposed%20as%20Endangered.

Reyes-García, V. *et al.* Recognizing Indigenous peoples' and local communities' rights and agency in the post-2020 Biodiversity Agenda. *Ambio* 51, 84–92 (2022).

Robinson, J. M. *et al.* Traditional ecological knowledge in restoration ecology: a call to listen deeply, to engage with, and respect Indigenous voices. *Restor Ecol* 29, (2021).

Stanton, J. C., Shoemaker, K. T., Pearson, R. G. & Akçakaya, H. R. Warning times for species extinctions due to climate change. *Global Change Biology* 21, 1066–1077 (2015).

Vaughan, M. B. & Caldwell, M. R. Hana Pa'a: Challenges and lessons for early phases of co-management. *Marine Policy* 62, 51–62 (2015).

Werden, L. K. *et al.* Ex situ conservation of threatened plant species in island biodiversity hotspots: A case study from Hawai'i. *Biological Conservation* 243, 108435 (2020).

Wiens, J. J. Climate-Related Local Extinctions Are Already Widespread among Plant and Animal Species. *PLoS Biol* 14, e2001104 (2016).

Winter, K. B., Ticktin, T. & Quazi, S. A. Biocultural restoration in Hawai'i also achieves core conservation goals. *E&S* 25, art26 (2020).

Winter, K. B., M. Blaich Vaughan, N. Kurashima, L. Wann, E. Cadiz, A. Kawelo, M. Cypher, L. Kaluhiwa, and H. K. Springer. 2023. Indigenous stewardship through novel approaches to collaborative management in Hawai'i. Ecology and Society 28(1):26. https://doi.org/10.5751/ES-13662-280126

WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland.

Youdelis, M., Townsend, J., Bhattacharyya, J., Moola, F. & Fobister, J. B. Decolonial conservation: establishing Indigenous Protected Areas for future generations in the face of extractive capitalism. *Journal of Political Ecology* 28, (2021).

Appendix A: Imperiled Hawaiian Species. Listing of cross-referenced imperiled species found on state, federal, and/or international listings.

Taxon Group	Inoa Hawai‘i	Family	Genus	Species	Subspecies or Variety
bat	‘Ōpe‘ape‘a	Vespertilionidae	*Lasiurus*	*cinereus*	*semotus*
forest bird	‘Alalā	Corvidae	*Corvus*	*hawaiiensis*	
forest bird	‘Elepaio (Kaua‘i)	Monarchidae	*Chasiempis*	*sclateri*	
forest bird	‘Elepaio (O‘ahu)	Monarchidae	*Chasiempis*	*ibidis*	
forest bird	‘Elepaio (Hawai‘i)	Monarchidae	*Chasiempis*	*sandwichensis*	
forest bird	‘Ōma‘o	Turdidae	*Myadestes*	*obscurus*	
forest bird	Puaiohi	Turdidae	*Myadestes*	*palmeri*	
forest bird	‘Akikiki	Fringillidae	*Oreomystis*	*bairdi*	
forest bird	‘Alauahio (Maui)	Fringillidae	*Paroreomyza*	*montana*	
forest bird	Palila	Fringillidae	*Loxioides*	*bailleui*	
forest bird	‘Ākohekohe	Fringillidae	*Palmeria*	*dolei*	
forest bird	‘I‘iwi	Fringillidae	*Drepanis*	*coccinea*	
forest bird	Kiwikiu	Fringillidae	*Pseudonestor*	*xanthophrys*	
forest bird	‘Akiapōlā‘au	Fringillidae	*Hemignathus*	*wilsoni*	
forest bird	‘Anianiau	Fringillidae	*Magumma*	*parva*	
forest bird	‘Amakihi (O‘ahu)	Fringillidae	*Chlorodrepanis*	*flava*	
forest bird	‘Amakihi (Kaua‘i)	Fringillidae	*Chlorodrepanis*	*stejnegeri*	
forest bird	‘Alawī	Fringillidae	*Loxops*	*mana*	
forest bird	‘Akeke‘e	Fringillidae	*Loxops*	*caeruleirostris*	
forest bird	‘Ākepa (Hawai‘i)	Fringillidae	*Loxops*	*coccineus*	
forest bird	Palihoa/‘Ainohu Nihoa	Fringillidae	*Telespyza*	*ultima*	
forest bird	‘Ekupu‘u/‘Ainohu Kauō	Fringillidae	*Telespyza*	*cantans*	
forest bird	Ulūlu	Fringillidae	*Acrocephalus*	*familiaris*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*bulimoides*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*byronii*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*concavospira*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*decipiens*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*fulgens*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*fuscobasis*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*lila*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*livida*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*mustelina*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Achatinella*	*sowerbyana*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*variabilis*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*semicarinata*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Newcombia*	*cumingi*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Newcombia*	*canaliculata*	

land snail	Kāhuli	Amastridae	*Amastra*	*micans*	
land snail	Kāhuli	Amastridae	*Amastra*	*cylindrica*	
land snail	Kāhuli	Amastridae	*Amastra*	*rubens*	
land snail	Kāhuli	Amastridae	*Amastra*	*spirizona*	
land snail	Kāhuli	Amastridae	*Laminella*	*sanguinea*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*splendida*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*tessilata*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*proxima*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*mighelsiana*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*redfieldi*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*tappaniana*	
land snail	Kāhuli/Pupukanioe	Achatinellidae	*Partulina*	*physa*	
arthropod	ʻŌkaʻI (general)	Sphingidae	*Manduca*	*blackburni*	
arthropod	Peʻepeʻe maka ʻole	Lycosidae	*Adelocosa*	*anops*	
arthropod	ʻUku noho ana	Talitridae	*Spelaeorchestia*	*koloana*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*aglaia*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*differens*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*digressa*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*hemipeza*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*heteroneura*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*montgomeryi*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*mulli*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*musaphila*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*neoclavisetae*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*obatai*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*orchobasis*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*substenoptera*	
arthropod	Pōnalo (general)	Drosophilidae	*Drosophila*	*tarphytichia*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*leptodemas*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*nesiotes*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*nigrohamatum nigrolineatum*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*oceanicum*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*pacificum*	
arthropod	Pinapinao (general)	Coenagrionidae	*Megalagrion*	*xanthomelas*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*anthracinus*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*assimulans*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*facilis*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*hilaris*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*kuakea*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*longiceps*	
arthropod	Nalomeli maoli	Colletidae	*Hylaeus*	*mana*	
arthropod	ʻŌpae ʻula	Procarididae	*Vetericaris*	*chaceorum*	
arthropod	ʻŌpae ʻula	Procarididae	*Procaris*	*hawaiana*	
raptor	ʻIo	Accipitridae	*Buteo*	*solitarius*	
raptor	Pueo	Strigidae	*Asio*	*Flammeus*	*sandwichensis*

seabird	ʻUaʻu	Procellaridae	*Pterodroma*	*sandwichensis*	
seabird	ʻAʻo	Procellaridae	*Puffinus*	*newelli*	
seabird	Oeoe/ʻAkēʻakē/Lupeʻakeke	Hydrobatidae	*Hydrobates*	*castro*	
seabird	Kaʻupu/Mōlī? (general)	Diomedeidae	*Phoebastria*	*albatrus*	
seabird	Manu o Kū	Laridae	*Gygis*	*alba*	
waterbird	ʻAlae keʻokeʻo	Rallidae	*Fulica*	*alai*	
waterbird	ʻAlae ʻula	Rallidae	*Gallinula*	*galeata*	
waterbird	Koloa Kauō "Laysan Teal"	Anatidae	*Anas*	*laysanensis*	
waterbird	Nēnē	Anatidae	*Branta*	*sandvicensis*	*sandvicensis*
waterbird	Koloa maoli	Anatidae	*Anas*	*wyvilliana*	
waterbird	Aeʻo	Recurvirostridae	*Himantopus*	*mexicanus*	*knudseni*
plant	-	Amaranthaceae	*Achyranthes*	*mutica*	
plant	ʻEwa Hinahina	Amaranthaceae	*Achyranthes*	*splendens*	*rotundata*
plant	Pāpala (general)	Amaranthaceae	*Charpentiera*	*densiflora*	
plant	Pāpala (general)	Amaranthaceae	*Charpentiera*	*elliptica*	
plant	Kuluʻi	Amaranthaceae	*Nototrichium*	*humile*	
plant	Makou	Apiaceae	*Peucedanum*	*sandwicense*	
plant	Makou (general)	Apiaceae	*Sanicula*	*mariversa*	
plant	Makou (general)	Apiaceae	*Sanicula*	*purpurea*	
plant	Makou (general)	Apiaceae	*Sanicula*	*sandwicensis*	
plant	Makou (general)	Apiaceae	*Spermolepis*	*hawaiiensis*	
plant	Hōlei	Apocynaceae	*Ochrosia*	*haleakalae*	
plant	Hōlei	Apocynaceae	*Ochrosia*	*kauaiensis*	
plant	Kaulu	Apocynaceae	*Pteralyxia*	*kauaiensis*	
plant	Kaulu	Apocynaceae	*Pteralyxia*	*macrocarpa*	
plant	ʻŌlapa/Lapalapa	Araliaceae	*Cheirodendron*	*dominii*	
plant	ʻŌlapa/Lapalapa	Araliaceae	*Cheirodendron*	*fauriei*	
plant	ʻŌlapa/Lapalapa	Araliaceae	*Cheirodendron*	*platyphyllum*	*kauaiense*
plant	ʻŌlapa/Lapalapa	Araliaceae	*Cheirodendron*	*trigynum*	*helleri*
plant	ʻOheʻohe	Araliaceae	*Polyscias*	*bisattenuata*	
plant	ʻOhe	Araliaceae	*Polyscias*	*flynnii*	
plant	ʻOheʻohe	Araliaceae	*Polyscias*	*gymnocarpa*	
plant	ʻOhe	Araliaceae	*Polyscias*	*lydgatei*	
plant	Pōkalakala	Araliaceae	*Polyscias*	*racemosa*	
plant	ʻOhe	Araliaceae	*Polyscias*	*waialeale*	
plant	ʻOhe Kikoʻola	Araliaceae	*Polyscias*	*waimeae*	
plant	Loulu	Arecaceae	*Pritchardia*	*bakeri*	
plant	Loulu	Arecaceae	*Pritchardia*	*flynii*	
plant	Loulu	Arecaceae	*Pritchardia*	*forbesiana*	
plant	Loulu	Arecaceae	*Pritchardia*	*glabrata*	
plant	Loulu	Arecaceae	*Pritchardia*	*hardyi*	
plant	Loulu	Arecaceae	*Pritchardia*	*kaalae*	
plant	Loulu	Arecaceae	*Pritchardia*	*lanigera*	
plant	Loulu	Arecaceae	*Pritchardia*	*maideniana*	
plant	Loulu	Arecaceae	*Pritchardia*	*minor*	
plant	Loulu	Arecaceae	*Pritchardia*	*munroi*	
plant	Loulu	Arecaceae	*Pritchardia*	*napaliensis*	

plant	Loulu	Arecaceae	*Pritchardia*	*perlmanii*	
plant	Loulu	Arecaceae	*Pritchardia*	*remota*	
plant	Loulu	Arecaceae	*Pritchardia*	*schattaueri*	
plant	Loulu	Arecaceae	*Pritchardia*	*viscosa*	
plant	Halapepe	Asparagaceae	*Chrysodracon*	*aurea*	
plant	Halapepe	Asparagaceae	*Chrysodracon*	*fernaldii*	
plant	Halapepe	Asparagaceae	*Chrysodracon*	*forbesii*	
plant	Halapepe	Asparagaceae	*Chrysodracon*	*hawaiiensis*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*dielerectum*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*dielfalcatum*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*diellaciniatum*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*dielmannii*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*dielpallidum*	
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*peruvianum*	*insulare*
plant	ʻĒkaha	Aspleniaceae	*Asplenium*	*unisorum*	
plant	Paʻiniu	Asteliaceae	*Astelia*	*argyrocoma*	
plant	Paʻiniu	Asteliaceae	*Astelia*	*waialealae*	
plant	-	Athyriaceae	*Athyrium*	*haleakalae*	
plant	-	Athyriaceae	*Deparia*	*kaalaana*	
plant	-	Athyriaceae	*Diplazium*	*molokaiense*	
plant	ʻAmaʻu	Blechnaceae	*Sadleria*	*wagneriana*	
plant	ʻAnaunau	Brassicaceae	*Lepidium*	*arbuscula*	
plant	ʻAnaunau	Brassicaceae	*Lepidium*	*orbiculare*	
plant	ʻAnaunau	Brassicaceae	*Lepidium*	*serra*	
plant	Alula/ʻŌlulu/Puaʻala	Campanulaceae	*Brighamia*	*insignis*	
plant	Alula/ʻŌlulu/Puaʻala	Campanulaceae	*Brighamia*	*rockii*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*calophylla*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*drepanomorpha*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*lindseyana*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*oblongifolia*	*brevipes*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*oblongifolia*	*mauiensis*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*peleana*	*peleana*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*peleana*	*singulifora*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*pyrularia*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*samuelii*	*hanaensis*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*samuelii*	*samuelii*
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*tuberculata*	
plant	ʻŌhā wainui	Campanulaceae	*Clermontia*	*waimeae*	
plant	ʻŌhā wainui		*Clermontia*	*hawaiiensis*	
plant	Hāhā	Campanulaceae	*Cyanea*	*acuminate*	
plant	Hāhā	Campanulaceae	*Cyanea*	*asarifolia*	
plant	Hāhā	Campanulaceae	*Cyanea*	*asplenifolia*	
plant	Hāhā	Campanulaceae	*Cyanea*	*calycina*	
plant	Hāhā	Campanulaceae	*Cyanea*	*copelandii*	*haleakalaensis*

plant	Hāhā	Campanulaceae	*Cyanea*	*crispa*	
plant	Hāhā	Campanulaceae	*Cyanea*	*dunbariae*	
plant	Hāhā	Campanulaceae	*Cyanea*	*duvalliorum*	
plant	Hāhā	Campanulaceae	*Cyanea*	*gibsonii*	
plant	Hāhā	Campanulaceae	*Cyanea*	*glabra*	
plant	Hāhā	Campanulaceae	*Cyanea*	*grimesiana*	*grimesiana*
plant	Hāhā	Campanulaceae	*Cyanea*	*grimesiana*	*obatae*
plant	Hāhā	Campanulaceae	*Cyanea*	*hamatiflora*	*carlsonii*
plant	Hāhā	Campanulaceae	*Cyanea*	*hamatiflora*	*hamatiflora*
plant	Hāhā nui	Campanulaceae	*Cyanea*	*horrida*	
plant	Hāhā	Campanulaceae	*Cyanea*	*humboldtiana*	
plant	Hāhā	Campanulaceae	*Cyanea*	*kauaulaensis*	
plant	Hāhā	Campanulaceae	*Cyanea*	*konahuanuiensis*	
plant	Hāhā	Campanulaceae	*Cyanea*	*koolauensis*	
plant	Hāhā	Campanulaceae	*Cyanea*	*kuhihewa*	
plant	Hāhā	Campanulaceae	*Cyanea*	*kunthiana*	
plant	Hāhā	Campanulaceae	*Cyanea*	*lanceolata*	
plant	Hāhā	Campanulaceae	*Cyanea*	*lobata*	*baldwinii*
plant	Hāhā	Campanulaceae	*Cyanea*	*lobata*	*lobata*
plant	Hāhā	Campanulaceae	*Cyanea*	*longiflora*	
plant	Hāhā	Campanulaceae	*Cyanea*	*magnicalyx*	
plant	Hāhā	Campanulaceae	*Cyanea*	*mannii*	
plant	Hāhā	Campanulaceae	*Cyanea*	*maritae*	
plant	Hāhā	Campanulaceae	*Cyanea*	*marksii*	
plant	Hāhā	Campanulaceae	*Cyanea*	*mceldowneyi*	
plant	Hāhā	Campanulaceae	*Cyanea*	*membranacea*	
plant	Hāhā	Campanulaceae	*Cyanea*	*munroi*	
plant	Hāhā	Campanulaceae	*Cyanea*	*obtusa*	
plant	Hāhā	Campanulaceae	*Cyanea*	*pinnatifida*	
plant	Hāhā	Campanulaceae	*Cyanea*	*platyphylla*	
plant	Hāhā	Campanulaceae	*Cyanea*	*procera*	
plant	Hāhā	Campanulaceae	*Cyanea*	*profuga*	
plant	Hāhā	Campanulaceae	*Cyanea*	*purpurellifolia*	
plant	Hāhā	Campanulaceae	*Cyanea*	*recta*	
plant	Hāhā	Campanulaceae	*Cyanea*	*remyi*	
plant	Hāhā	Campanulaceae	*Cyanea*	*rivularis*	
plant	Hāhā	Campanulaceae	*Cyanea*	*shipmanii*	
plant	Hāhā	Campanulaceae	*Cyanea*	*solanacea*	
plant	Hāhā	Campanulaceae	*Cyanea*	*st.-johnii*	
plant	Hāhā	Campanulaceae	*Cyanea*	*stictophylla*	
plant	Hāhā	Campanulaceae	*Cyanea*	*superba*	*superba*
plant	Hāhā	Campanulaceae	*Cyanea*	*tritomantha*	

plant	Hāhā	Campanulaceae	*Cyanea*	*truncata*	
plant	Hāhā	Campanulaceae	*Cyanea*	*undulata*	
plant	Hāhā	Campanulaceae	*Delissea*	*argutidentata*	
plant	Hāhā	Campanulaceae	*Delissea*	*kauaiensis*	
plant	Hāhā	Campanulaceae	*Delissea*	*rhytidosperma*	
plant	Hāhā	Campanulaceae	*Delissea*	*waianaeensis*	
plant	ʻŌhā/Hāhā/ʻŌhāwai	Campanulaceae	*Lobelia*	*gaudichaudii*	
plant	ʻŌhā/Hāhā/ʻŌhāwai	Campanulaceae	*Lobelia*	*koolauensis*	
plant	ʻŌhā/Hāhā/ʻŌhāwai	Campanulaceae	*Lobelia*	*monostachya*	
plant	ʻŌhā/Hāhā/ʻŌhāwai	Campanulaceae	*Lobelia*	*niihauensis*	
plant	ʻŌhā/Hāhā/ʻŌhāwai	Campanulaceae	*Lobelia*	*oahuensis*	
plant	Koliʻi	Campanulaceae	*Trematolobelia*	*kauaiensis*	
plant	Koliʻi	Campanulaceae	*Trematolobelia*	*singularis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*adamantis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*apokremnos*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*attenuata*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*diffusa*	*diffusa*
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*diffusa*	*macraei*
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*haleakalensis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*hawaiiensis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*helleri*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*hookeri*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*jacobii*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*kaalae*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*kauaiensis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*kealiae*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*laui*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*lychnoides*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*lydgatei*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*membranacea*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*nuttallii*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*obovata*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*perlmanni*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*pubescens*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*salicaria*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*sarmentosa*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*spergulina*	
plant	Māʻoliʻoli/Laulihilihi	Caryophyllaceae	*Schiedea*	*stellarioides*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*trinervis*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*verticillata*	
plant	Māʻoliʻoli	Caryophyllaceae	*Schiedea*	*viscosa*	

plant	-	Caryophyllaceae	*Silene*	*alexandri*	
plant	-	Caryophyllaceae	*Silene*	*hawaiiensis*	
plant	-	Caryophyllaceae	*Silene*	*lanceolata*	
plant	-	Caryophyllaceae	*Silene*	*perlmanii*	
plant	Hāpuʻu	Cibotiaceae	*Cibotium*	*nealiae*	
plant	ʻĀhinahina	Compositae	*Argyroxiphium*	*kauense*	
plant	ʻĀhinahina	Compositae	*Argyroxiphium*	*sandwicense*	*macrocephalum*
plant	ʻĀhinahina	Compositae	*Argyroxiphium*	*sandwicense*	*sandwicense*
plant	ʻĀhinahina	Compositae	*Artemisia*	*kauaiensis*	
plant	Koʻokoʻolau	Compositae	*Bidens*	*amplectens*	
plant	Koʻokoʻolau	Compositae	*Bidens*	*campylotheca*	*pentamera*
plant	Koʻokoʻolau	Compositae	*Bidens*	*campylotheca*	*waihoiensis*
plant	Koʻokoʻolau	Compositae	*Bidens*	*conjuncta*	
plant	Koʻokoʻolau/Poʻolā nui	Compositae	*Bidens*	*cosmoides*	*forbesii*
plant	Koʻokoʻolau	Compositae	*Bidens*	*forbesii*	*kahiliensis*
plant	Koʻokoʻolau	Compositae	*Bidens*	*hillebrandiana*	*hillebrandiana*
plant	Koʻokoʻolau	Compositae	*Bidens*	*micrantha*	*ctenophylla*
plant	Koʻokoʻolau	Compositae	*Bidens*	*micrantha*	*kalealaha*
plant	Koʻokoʻolau	Compositae	*Bidens*	*sandvicensis*	*confusa*
plant	Koʻokoʻolau	Compositae	*Bidens*	*valida*	
plant	Koʻokoʻolau	Compositae	*Bidens*	*wiebkei*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*arborea*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*herbstobatae*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*imbricata*	*imbricata*
plant	Naʻenaʻe	Compositae	*Dubautia*	*kalalauensis*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*latifolia*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*microcephala*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*pauciflorula*	
plant	Naʻenaʻe	Compositae	*Dubautia*	*plantaginea*	*humilis*
plant	Naʻenaʻe	Compositae	*Dubautia*	*plantaginea*	*magnifolia*
plant	Naʻenaʻe	Compositae	*Dubautia*	*waialealae*	
plant	-	Compositae	*Hesperomannia*	*arborescens*	
plant	-	Compositae	*Hesperomannia*	*arbuscula*	
plant	-	Compositae	*Hesperomannia*	*lydgatei*	
plant	-	Compositae	*Keysseria*	*erici*	
plant	-	Compositae	*Keysseria*	*helenae*	
plant	Nehe	Compositae	*Lipochaeta*	*lobata*	*leptophylla*
plant	Nehe	Compositae	*Melanthera*	*fauriei*	
plant	Nehe	Compositae	*Melanthera*	*kamolensis*	
plant	Nehe	Compositae	*Melanthera*	*micrantha*	*micrantha*
plant	Nehe	Compositae	*Melanthera*	*tenuifolia*	
plant	Nehe	Compositae	*Melanthera*	*venosa*	
plant	Nehe	Compositae	*Melanthera*	*waimeaensis*	
plant	ʻEnaʻena	Compositae	*Pseudognaphalium*	*sandwicensium*	*molokaiense*
plant	-	Compositae	*Remya*	*kauaiensis*	
plant	-	Compositae	*Remya*	*mauiensis*	

plant	-	Compositae	*Remya*	*montgomeryi*	
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*arenarium*	*arenarium*
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*filiforme*	*filiforme*
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*filiforme*	*polyphyllum*
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*lepidotum*	*lepidotum*
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*remyi*	
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*rockii*	*calcisabulorum*
plant	Pāmakani (general)	Compositae	*Tetramolopium*	*rockii*	*rockii*
plant	Iliau	Compositae	*Wilkesia*	*gymnoxiphium*	
plant	Iliau	Compositae	*Wilkesia*	*hobdyi*	
plant	-	Convolvulaceae	*Bonamia*	*menziesii*	
plant	ʻĀnunu	Cucurbitaceae	*Sicyos*	*albus*	
plant	ʻĀnunu	Cucurbitaceae	*Sicyos*	*lanceoloideus*	
plant	ʻĀnunu	Cucurbitaceae	*Sicyos*	*macrophyllus*	
plant	-	Cyperaceae	*Carex*	*kauaiensis*	
plant	Puʻukaʻa (general)	Cyperaceae	*Cyperus*	*fauriei*	
plant	Puʻukaʻa (general)	Cyperaceae	*Cyperus*	*neokunthianus*	
plant	Puʻukaʻa (general)	Cyperaceae	*Cyperus*	*pennatiformis*	*bryanii*
plant	Puʻukaʻa (general)	Cyperaceae	*Cyperus*	*pennatiformis*	*pennatiformis*
plant	Puʻukaʻa (general)	Cyperaceae	*Cyperus*	*trachysanthos*	
plant	Olua	Dennstaedtiaceae	*Hypolepis*	*hawaiiensis*	*mauiensis*
plant	Palapalai	Dennstaedtiaceae	*Microlepia*	*strigosa*	*mauiensis*
plant	Pauoa	Dryopteridaceae	*Ctenitis*	*squamigera*	
plant	Palapalai ʻaumakua	Dryopteridaceae	*Dryopteris*	*crinalis*	*podosorus*
plant	Kilau/Hohiu	Dryopteridaceae	*Dryopteris*	*glabra*	*pusilla*
plant	Kilau/Hohiu	Dryopteridaceae	*Dryopteris*	*glabra*	*flynnii*
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*celastroides*	*kaenana*
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*deppeana*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*eleanoriae*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*haeleeleana*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*halemanui*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*herbstii*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*kuwaleana*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*remyi*	*kauaiensis*
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*remyi*	*remyi*
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*rockii*	
plant	ʻAkoko	Euphorbiaceae	*Euphorbia*	*skottsbergii*	*skottsbergii*
plant	ʻĀwiwi	Gentianaceae	*Schenkia*	*sebaeoides*	
plant	Nohoanu	Geraniaceae	*Geranium*	*arboreum*	
plant	Nohoanu	Geraniaceae	*Geranium*	*hanaense*	
plant	Nohoanu	Geraniaceae	*Geranium*	*hillebrandii*	
plant	Nohoanu	Geraniaceae	*Geranium*	*kauaiense*	
plant	Nohoanu	Geraniaceae	*Geranium*	*multiflorum*	
plant	Māpele/Haʻiwale/Kanawao	Gesneriaceae	*Cyrtandra*	*cyaneoides*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*dentata*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*ferripilosa*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*filipes*	

plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*giffardii*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*gracilis*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*heinrichii*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*hematos*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*kaulantha*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*kealiae*	*kealiae*
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*munroi*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*nanawalensis*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*oenobarba*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*oxybapha*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*paliku*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*polyantha*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*sessilis*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*subumbellata*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*tintinnabula*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*viridiflora*	
plant	Haʻiwale	Gesneriaceae	*Cyrtandra*	*wagneri*	
plant	Naupaka papa	Goodeniaceae	*Scaevola*	*coriacea*	
plant	ʻOhe	Joinvilleaceae	*Joinvillea*	*ascendens*	*ascendens*
plant	Honohono	Lamiaceae	*Haplostachys*	*haplostachya*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*bracteata*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*brevidens*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*floribunda*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*haliakalae*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*helleri*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*hirsuta*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*hispida*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*kaalaensis*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*mannii*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*mollis*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*parviflora*	*lydgatei*
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*parviflora*	*parviflora*
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*pilosa*	
plant	Kīponapona	Lamiaceae	*Phyllostegia*	*racemosa*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*renovans*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*stachyoides*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*velutina*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*waimeae*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*warshaueri*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*wawrana*	
plant	Kīponapona (general)	Lamiaceae	*Phyllostegia*	*electra*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*angustifolia*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*bifida*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*campanulata*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*cranwelliae*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*kaalae*	*sherfii*
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*kanehoana*	

plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*kauaulaensis*	
plant	Mōhihi/Māʻohiʻohi (general)	Lamiaceae	*Stenogyne*	*kealiae*	
plant	ʻĀwikiwiki/Puakauhi	Leguminosae	*Canavalia*	*kauaiensis*	
plant	ʻĀwikiwiki/Puakauhi	Leguminosae	*Canavalia*	*molokaiensis*	
plant	ʻĀwikiwiki/Puakauhi	Leguminosae	*Canavalia*	*napaliensis*	
plant	ʻĀwikiwiki/Puakauhi	Leguminosae	*Canavalia*	*pubescens*	
plant	ʻĀwikiwiki/Puakauhi		*Canavalia*	*hawaiiensis*	
plant	Kanaloa	Leguminosae	*Kanaloa*	*kahoolawensis*	
plant	Uhiuhi/Kāwaʻu	Leguminosae	*Mezoneuron*	*kavaiense*	
plant	Kāʻeʻe	Leguminosae	*Mucuna*	*persericea*	
plant	Nukuʻiʻiwi/Kāʻiʻiʻiwi	Leguminosae	*Strongylodon*	*ruber*	
plant	-	Leguminosae	*Vicia*	*menziesii*	
plant	Nanea/Mohihi (general)	Leguminosae	*Vigna*	*o-wahuensis*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*cyrtandrae*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*helleri*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*hosakana*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*kaalae*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*lorenciana*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*lydgatei*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*pumila*	
plant	Kāmakahala	Loganiaceae	*Labordia*	*tinifolia*	*lanaiensis*
plant	Kāmakahala	Loganiaceae	*Labordia*	*tinifolia*	*wahiawaensis*
plant	Kāmakahala	Loganiaceae	*Labordia*	*triflora*	
plant	Wāwaeʻiole	Lycopodiaceae	*Huperzia*	*mannii*	
plant	Wāwaeʻiole	Lycopodiaceae	*Huperzia*	*nutans*	
plant	Wāwaeʻiole	Lycopodiaceae	*Huperzia*	*stemmermanniae*	
plant	Maʻo/Koʻoloaʻula	Malvaceae	*Abutilon*	*eremitopetalum*	
plant	Maʻo/Koʻoloaʻula	Malvaceae	*Abutilon*	*menziesii*	
plant	Maʻo	Malvaceae	*Abutilon*	*sandwicense*	
plant	Hau kuahiwi	Malvaceae	*Hibiscadelphus*	*distans*	
plant	Hau kuahiwi	Malvaceae	*Hibiscadelphus*	*giffardianus*	
plant	Hau kuahiwi	Malvaceae	*Hibiscadelphus*	*hualalaiensis*	
plant	Hau kuahiwi	Malvaceae	*Hibiscadelphus*	*woodii*	
plant	Kokiʻo keʻokeʻo/Aloalo	Malvaceae	*Hibiscus*	*arnottianus*	*immaculatus*
plant	Maʻo Hau Hele	Malvaceae	*Hibiscus*	*brackenridgei*	*brackenridgei*
plant	Maʻo Hau Hele	Malvaceae	*Hibiscus*	*brackenridgei*	*mokuleianus*
plant	Kokiʻo	Malvaceae	*Hibiscus*	*clayi*	
plant	Kokiʻo keʻokeʻo/Aloalo	Malvaceae	*Hibiscus*	*waimeae*	*brackenridgei*
plant	Kokiʻo	Malvaceae	*Kokia*	*cookei*	
plant	Hau Hele ʻUla/Kokiʻa	Malvaceae	*Kokia*	*drynarioides*	
plant	Kokiʻo	Malvaceae	*Kokia*	*kauaiensis*	
plant	ʻIhiʻihi	Marsileaceae	*Marsilea*	*villosa*	
plant	Nīoi	Myrtaceae	*Eugenia*	*koolauensis*	
plant	ʻŌhiʻa [lehua]/Lehua mamo	Myrtaceae	*Metrosideros*	*macropus*	
plant	ʻŌhiʻa lehua	Myrtaceae	*Metrosideros*	*polymorpha*	*newellii*
plant	ʻŌhiʻa lehua	Myrtaceae	*Metrosideros*	*polymorpha*	*pseudorugosa*
plant	Lehua papa	Myrtaceae	*Metrosideros*	*rugosa*	
plant	ʻĀhihi/Lehua ʻĀhihi/ʻĀhihi kū	Myrtaceae	*Metrosideros*	*tremuloides*	

	ma kua/ Kūmakua/Lehua ʻĀhihi/ʻŌhiʻa ʻĀhihi				
plant	Pāpala kēpau	Nyctaginaceae	*Pisonia*	*wagneriana*	
plant	-	Orchidaceae	*Platanthera*	*holochila*	
plant	Hame/Haʻa/Haʻāmaile/Hamehame/Mehamehame	Phyllanthaceae	*Antidesma*	*platyphyllum*	*hillebrandii*
plant	Mēhamehame	Phyllanthaceae	*Flueggea*	*neowawraea*	
plant	Hōʻawa	Pittosporaceae	*Pittosporum*	*gayanum*	
plant	Hōʻawa	Pittosporaceae	*Pittosporum*	*halophilum*	
plant	Hōʻawa	Pittosporaceae	*Pittosporum*	*hawaiiense*	
plant	Hōʻawa	Pittosporaceae	*Pittosporum*	*napaliense*	
plant	Kuahiwi laukahi/Laukahi kuahiwi/Manene	Plantaginaceae	*Plantago*	*hawaiensis*	
plant	Kuahiwi laukahi/Laukahi kuahiwi/Manene	Plantaginaceae	*Plantago*	*princeps*	*anomala*
plant	Kuahiwi laukahi/Laukahi kuahiwi/Manene	Plantaginaceae	*Plantago*	*princeps*	*laxiflora*
plant	Kuahiwi laukahi/Laukahi kuahiwi/Manene	Plantaginaceae	*Plantago*	*princeps*	*longibracteata*
plant	Kuahiwi laukahi/Laukahi kuahiwi/Manene	Plantaginaceae	*Plantago*	*princeps*	*princeps*
plant	-	Poaceae	*Calamagrostis*	*expansa*	
plant	-	Poaceae	*Calamagrostis*	*hillebrandii*	
plant	Kāmanomano	Poaceae	*Cenchrus*	*agrimoniodes*	*agrimoniodes*
plant	Mauʻu (general)	Poaceae	*Eragrostis*	*fosbergii*	
plant	Mauʻu (general)	Poaceae	*Festuca*	*aloha*	
plant	Mauʻu (general)	Poaceae	*Festuca*	*hawaiiensis*	
plant	Mauʻu (general)	Poaceae	*Ischaemum*	*byrone*	
plant	Lauʻehu	Poaceae	*Panicum*	*fauriei*	*carteri*
plant	Lauʻehu	Poaceae	*Panicum*	*niihauense*	
plant	Mauʻu (general)	Poaceae	*Poa*	*mannii*	
plant	Mauʻu (general)	Poaceae	*Poa*	*sandvicensis*	
plant	Mauʻu (general)	Poaceae	*Poa*	*siphonoglossa*	
plant	Wahine noho mauna	Polypodiaceae	*Adenophorus*	*epigaeus*	
plant	ʻIhi makole/Poʻe	Portulacaceae	*Portulaca*	*sclerocarpa*	
plant	ʻIhi	Portulacaceae	*Portulaca*	*villosa*	
plant	Lehua makanoe/kolekole lehua/Kolokolo kuahiwi	Primulaceae	*Lysimachia*	*daphnoides*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*filifolia*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*glutinosa*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*iniki*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*kalalauensis*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*lydgatei*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*maxima*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*pendens*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*scopulensis*	

plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*venosa*	
plant	Kolokolo kuahiwi/Kolokolo lehua	Primulaceae	*Lysimachia*	*ovoidea*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*fosbergii*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*juddii*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*knudsenii*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*linearifolia*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*mezii*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*petiolata*	
plant	Kōlea (general)	Primulaceae	*Myrsine*	*vaccinioides*	
plant	Kumuniu/‘Iwa‘iwa	Pteridaceae	*Doryopteris*	*angelica*	
plant	Kumuniu/‘Iwa‘iwa	Pteridaceae	*Doryopteris*	*takeuchii*	
plant	-	Pteridaceae	*Pteris*	*lidgatei*	
plant	Makou	Ranunculaceae	*Ranunculus*	*hawaiensis*	
plant	Makou	Ranunculaceae	*Ranunculus*	*mauiensis*	
plant	Kauila/Kauwila	Rhamnaceae	*Colubrina*	*oppositifolia*	
plant	-	Rhamnaceae	*Gouania*	*hillebrandii*	
plant	-	Rhamnaceae	*Gouania*	*meyenii*	
plant	-	Rhamnaceae	*Gouania*	*vitifolia*	
plant	‘Ahakea	Rubiaceae	*Bobea*	*timonioides*	
plant	Pilo	Rubiaceae	*Coprosma*	*cordicarpa*	
plant	Pilo	Rubiaceae	*Coprosma*	*elliptica*	
plant	Pilo	Rubiaceae	*Coprosma*	*kauensis*	
plant	Pilo	Rubiaceae	*Coprosma*	*kawaikiniensis*	
plant	Nānū/Nā‘ū	Rubiaceae	*Gardenia*	*brighamii*	
plant	Nānū/Nā‘ū	Rubiaceae	*Gardenia*	*mannii*	
plant	Nānū/Nā‘ū	Rubiaceae	*Gardenia*	*remyi*	
plant	‘Awiwi	Rubiaceae	*Kadua*	*cookiana*	
plant	Kopa	Rubiaceae	*Kadua*	*cordata*	*remyi*
plant	Kio‘ele	Rubiaceae	*Kadua*	*coriacea*	
plant	-	Rubiaceae	*Kadua*	*degeneri*	*degeneri*
plant	-	Rubiaceae	*Kadua*	*fluviatilis*	
plant	-	Rubiaceae	*Kadua*	*flynii*	
plant	-	Rubiaceae	*Kadua*	*haupuensis*	
plant	Pilo	Rubiaceae	*Kadua*	*laxiflora*	
plant	-	Rubiaceae	*Kadua*	*parvula*	
plant	-	Rubiaceae	*Kadua*	*st.-johnii*	
plant	Kōpiko	Rubiaceae	*Psychotria*	*grandiflora*	
plant	Kōpiko	Rubiaceae	*Psychotria*	*hexandra*	*oahuensis*
plant	Kōpiko	Rubiaceae	*Psychotria*	*hobdyi*	
plant	‘Alani (general)	Rutaceae	*Melicope*	*adscendens*	
plant	‘Alani (general)	Rutaceae	*Melicope*	*christophersenii*	
plant	‘Alani (general)	Rutaceae	*Melicope*	*cinerea*	
plant	‘Alani (general)	Rutaceae	*Melicope*	*cornuta*	*cornuta*
plant	‘Alani (general)	Rutaceae	*Melicope*	*cornuta*	*decurrens*
plant	‘Alani (general)	Rutaceae	*Melicope*	*degeneri*	
plant	‘Alani (general)	Rutaceae	*Melicope*	*haupuensis*	

plant	ʻAlani (general)	Rutaceae	*Melicope*	*hiiakae*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*knudsenii*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*lydgatei*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*makahae*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*mucronulata*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*munroi*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*oppenheimeri*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*orbicularis*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*ovalis*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*pallida*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*paniculata*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*puberula*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*quadrangularis*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*reflexa*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*remyi*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*rostrata*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*saint-johnii*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*sandwicensis*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*waialealae*	
plant	ʻAlani (general)	Rutaceae	*Melicope*	*zahlbruckneri*	
plant	Kāwaʻu/Heaʻe	Rutaceae	*Zanthoxylum*	*dipetalum*	*tomentosum*
plant	Kāwaʻu/Heaʻe/Aʻe	Rutaceae	*Zanthoxylum*	*hawaiiense*	
plant	Kāwaʻu/Heaʻe	Rutaceae	*Zanthoxylum*	*oahuense*	
plant	-	Salicaceae	*Xylosma*	*crenatum*	
plant	Hulumoa/Kaumahana/Heaʻe	Santalaceae	*Exocarpos*	*gaudichaudii*	
plant	Hulumoa/Kaumahana/Heaʻe	Santalaceae	*Exocarpos*	*luteolus*	
plant	Hulumoa/Kaumahana/Heaʻe	Santalaceae	*Exocarpos*	*menziesii*	
plant	Hulumoa	Santalaceae	*Korthalsella*	*degeneri*	
plant	ʻIliahi	Santalaceae	*Santalum*	*freycinetianum*	
plant	ʻIliahi	Santalaceae	*Santalum*	*haleakalae*	*lanaiense*
plant	ʻIliahi	Santalaceae	*Santalum*	*involutum*	
plant	ʻAlaʻalahua/Māhoe	Sapindaceae	*Alectryon*	*macrococcus*	*auwahiensis*
plant	ʻAlaʻalahua/Māhoe	Sapindaceae	*Alectryon*	*macrococcus*	*macrococcus*
plant	ʻAiea/Hālena	Solanaceae	*Nothocestrum*	*breviflorum*	
plant	ʻAiea/Hālena	Solanaceae	*Nothocestrum*	*latifolium*	
plant	ʻAiea/Hālena	Solanaceae	*Nothocestrum*	*peltatum*	
plant	Pōpolo kū mai	Solanaceae	*Solanum*	*incompletum*	
plant	ʻĀkia	Solanaceae	*Solanum*	*nelsonii*	
plant	ʻAiakeakua/Pōpolo	Solanaceae	*Solanum*	*sandwicense*	
plant	Kupukupu Makaliʻi	Thelypteridaceae	*Cyclosorus*	*boydiae*	
plant	Kupukupu Makaliʻi	Thelypteridaceae	*Cyclosorus*	*wailele*	
plant	ʻĀkia/Kauhi/ʻĀkia manolo	Thymelaeaceae	*Wikstroemia*	*bicornuta*	
plant	ʻĀkia/Kauhi/ʻĀkia manolo	Thymelaeaceae	*Wikstroemia*	*skottsbergiana*	
plant	ʻĀkia/Kauhi/ʻĀkia manolo	Thymelaeaceae	*Wikstroemia*	*villosa*	
plant	Maʻoloa	Urticaceae	*Neraudia*	*angulata*	*angulata*
plant	Maʻoloa	Urticaceae	*Neraudia*	*angulata*	*dentata*
plant	Maʻoloa	Urticaceae	*Neraudia*	*kauaiensis*	

plant	Maʻoloa	Urticaceae	*Neraudia*	*ovata*	
plant	Maʻoloa	Urticaceae	*Neraudia*	*sericea*	
plant	Ōpuhe	Urticaceae	*Urera*	*kaalae*	
plant	Aupaka	Violaceae	*Isodendrion*	*hosakae*	
plant	Aupaka	Violaceae	*Isodendrion*	*laurifolium*	
plant	Aupaka	Violaceae	*Isodendrion*	*longifolium*	
plant	Wahine noho kula	Violaceae	*Isodendrion*	*pyrifolium*	
plant	Pāmakani/ʻOlopū	Violaceae	*Viola*	*chamissoniana*	*chamissoniana*
plant	Nani Waiʻaleʻale	Violaceae	*Viola*	*helenae*	
plant	Nani Waiʻaleʻale	Violaceae	*Viola*	*kauaensis*	*wahiawaensis*
plant	Nani Waiʻaleʻale	Violaceae	*Viola*	*lanaiensis*	
plant	Nani Waiʻaleʻale	Violaceae	*Viola*	*oahuensis*	