

# Hawai‘i Limited Distribution List

2024-09-16

With feedback from partners, HDOA compiled a non-regulatory Hawai‘i Limited Distribution List of high-impact invasive species not yet found on one or more of the major Hawaiian Islands. This list is intended to guide key actions in Strategy 2 & 3 of the HISC & CGAPS 2025 Joint Strategy. These key actions focus on preventing the inter-island and intra-island spread of terrestrial (Strategy 2) and aquatic (Strategy 3) invasive species.

This is not a comprehensive list of all species of concern, nor is it intended to be a regulatory list—it is solely for planning, communication, and assessment purposes. This list describes some regulations that apply to each species; it reflects regulatory status at the time the table was made. Other regulations could apply and designations change over time. The regulations column is not legal advice.

This list does not contain pathogens of concern; plant pathogens have been evaluated separately by HDOA.

Pathways of invasion are included to guide prevention and containment strategies. Note that many invasive species can be transported via multiple pathways, and this list is intended to capture only the major pathway(s) per species. We document the pathways representing the context under which each species is generally moved by humans, although in some cases pathways of initial introduction can differ from pathways underlying subsequent inter-island and intra-island spread. Pathway definitions follow the Convention on Biological Diversity (CBD) and are described at the end of this document.

Island distributions are represented as follows:

- 0 for islands on which a species is not known to be established,
- 1 for islands on which it is known or highly suspected of establishment OR
- the year in which the species was first known to be established on a given island;
- -1 for islands on which the species is considered eradicated.

Note that limited survey effort in many areas leads to 0s where species may be present; this list captures only known records. Additional biosurveillance would likely find new populations. This list does not distinguish between small and widespread populations within an island; some populations indicated by a 1 or a year may be targets for eradication or intra-island control while others are widespread within the island. Prevention of inter-island spread is relevant for all species on this list.

## Algae:

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Smothering seaweed	<i>Eucheuma sp.</i>	DLNR-DAR	1974	0	0	0	0	0	0	Escape from Confinement	Aquaculture	10
Smothering seaweed	<i>Kappaphycus alvarezii</i>	DLNR-DOFAW	1974	0	0	0	0	0	0	Escape from Confinement	Aquaculture	10
Smothering seaweed	<i>Kappaphycus striatum</i>	DLNR-DOFAW	1974	0	0	0	0	0	0	Escape from Confinement	Aquaculture	10
Hookweed	<i>Hypnea musciformis</i>	DLNR-DOFAW	1974	0	1982	1982	1	0	0	Release in Nature, Transport Stowaway, Corridor, Transport Contaminant	NA	10
Gorilla ogo	<i>Gracilaria salicornia</i>	DLNR-DAR	1975	1971	0	0	1	0	0	Escape from Confinement, Transport Stowaway	NA	9
Leather mudweed	<i>Avrainvillea erecta</i>	DLNR-DAR	1985	0	1	0	1	1	0	Transport Stowaway	NA	10
Leather mudweed	<i>Avrainvillea lacerata</i>	DLNR-DAR	1981	0	1	0	0	0	0	Transport Stowaway	Ballast water	10

**Plants:**

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Cattail	<i>Typha latifolia</i>	DLNR-DOFAW	1	0	1	1	0	0	0	Escape from Confinement, Corridor, Transport Contaminant, Release in Nature	NA	None
Arrowhead vine	<i>Syngonium podophyllum</i>	KMWP	1	1	0	1	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Taiwanese cheese-wood	<i>Pittosporum pentandrum</i>	UH Botany	1	1	1	0	0	0	0	Escape from Confinement	Horticulture	None
European holly	<i>Ilex aquifolium</i>	BIISC	0	1	0	1	0	0	0	Escape from Confinement	Horticulture	None
Dahoon holly	<i>Ilex cassine</i>	BIISC	1	1	0	0	0	0	0	Escape from Confinement	Horticulture	None
Nipa palm	<i>Nypa fruticans</i>	HAR 4-70A (pending)	0	0	1	0	0	0	0	Escape from Confinement; Transport/Unaided; Stowaway;	Horticulture	None
Ivory cane palm	<i>Pinanga coronata</i>	UH Botany	1	1	0	0	0	0	0	Escape from Confinement	Horticulture	None
Ivory cane palm	<i>Pinanga coronata</i>	KMWP	1	1	0	0	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Devil weed	<i>Chromolaena odorata</i>	NA	1	1	0	0	0	0	0	Transport Contaminant	Seed contaminant	None

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Mauui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Canada thistle	<i>Cirsium arvense</i>	UH Botany	0	0	0	1	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Natural dispersal	12
Cape ivy	<i>Delairea odorata</i>	IUCN 100	1	1	0	1	0	1	0	Escape from Confinement	Horticulture	None
Milk thistle	<i>Silybum marianum</i>	UH Botany	0	0	0	1	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	None
Barbados gooseberry	<i>Pereskia aculeata</i>	DLNR-DOFAW	1	1	1	1	1	0	0	Escape from Confinement	Horticulture	None
Water hyacinth	<i>Eichhornia crassipes</i>	DLNR, DOFAW	1	1	1	1	0	1	0	Escape from Confinement	Horticulture	None
Shrubby simpoh	<i>Dillenia suffruticosa</i>	DLNR, BIISC, KISC, KMWP	1	0	0	0	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Long-thorn kiawe	<i>Prosopis juliflora</i>	HISC	1	0	1	0	1	1	0	NA	NA	12
Wax myrtle	<i>Morella cerifera</i>	KISC	0	1	0	1	0	0	0	Escape from Confinement	Horticulture	None
Hard alstonia	<i>Alstonia macrophylla</i>	UH Botany	1	1	0	0	0	0	0	Escape from Confinement	Horticulture	None
Milk-rope	<i>Cynanchum gerrardii</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement	Horticulture	None
Chinese violet	<i>Asystasia gangetica micrantha</i>	NA	1	1	1	1	0	0	0	Escape from Confinement	Horticulture	None

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Mauui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Blue trumpet vine	<i>Thunbergia grandiflora</i>	DLNR, KMWP	1	1	1	1	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Smoke bush	<i>Buddleja madagascariensis</i>	DLNR-DOFAW	1	1	1	1	0	0	0	Escape from Confinement	Horticulture	None
Bellyache bush	<i>Jatropha gossypifolia</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	None
Bingabing	<i>Macaranga mappa</i>	HISC	1	1	0	0	0	0	0	Escape from Confinement; Release in Nature	Horticulture	None
Parasol leaf tree	<i>Macaranga tanarius</i>	HISC	1	1	1	1	0	0	0	Escape from Confinement; Release in Nature	Horticulture	None
Redwing	<i>Heteropterys brachiata</i>	BIISC	1	1	0	0	0	0	0	Escape from Confinement	Horticulture	None
Banana poka	<i>Passiflora tarminiana</i>	HISC	0	1	1	1	0	0	0	Escape from Confinement	Horticulture	1 (4-70-33 HAR), 12 (P. mollissima a CABI listed synonym)
Bishop wood	<i>Bischofia javanica</i>	KISC	1	0	1	0	0	0	0	Escape from Confinement; Release in Nature	Horticulture	None
Miconia	<i>Miconia calvescens</i>	HDOA Noxious Weed	1	1	1	1	0	0	0	Transport Contaminant; Unaided; Escape from Confinement	Seed contaminant	12

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Bristletips	<i>Oryzpora paniculata</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	12
Cane tibouchina	<i>Tibouchina herbacea</i>	HDOA Noxious Weed	1	1	0	1	1	1	0	Transport Contaminant	Contaminant nursery material	12
Glory bush	<i>Tibouchina urvilleana</i>	HDOA Noxious Weed	1	1	1	1	0	0	0	Escape from Confinement	Horticulture	12
Mānuka	<i>Leptospermum scoparium</i>	UH Botany	1	0	1	1	0	1	0	Escape from Confinement; Transport Contaminant; Unaided	Horticulture	None
False kava	<i>Piper auritum</i>	DLNR-DOFAW	1	1	1	1	0	0	0	Escape from Confinement	Horticulture	None
West indian foxtail grass	<i>Andropogon bicornis</i>	UH Botany	0	1	1	0	0	0	0	Transport Contaminant; Unaided	Seed contaminant	2, 12
Bushy bluestem	<i>Andropogon tenuispathus</i>	UH Botany	1	1	0	0	0	0	0	Transport Contaminant; Unaided	Natural dispersal	2
Feather-topped fountain grass	<i>Cenchrus longisetus</i>	DLNR, OISC	1	1	0	0	0	0	0	Escape from Confinement	Horticulture	2

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Pampas grass	<i>Cortaderia jubata/selloana</i>	C. jubata HDOA Noxious Weed	1	-1	0	1	0	0	0	Transport Contaminant; Unaided; Escape from Confinement	Horticulture	2, 12 (C. jubata)
East african couch grass	<i>Digitaria abyssinica</i>	UH Botany	0	0	1	1	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Seed contaminant	2
NA	<i>Digitaria scalarum</i>	UH Botany	1	1	1	1	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Agriculture	2, 17
Velvet fingergrass	<i>Digitaria velutina</i>	UH Botany	0	0	0	1	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Seed contaminant	2, 17
Viper grass	<i>Dinebra retroflexa var. retroflexa</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Agriculture	2
Couch grass	<i>Elymus repens</i>	HDOA, UH Botany	0	0	0	1	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Seed contaminant	2

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Cogon grass	<i>Imperata cylindrica</i>	UH Botany	0	-1	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Transport Stowaway; Unaided	Horticulture	2, 12, 17
Paddle grass	<i>Ischaemum polystachyum</i>	UH Botany	0	1	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Seed contaminant	2
Ruby grass	<i>Melinis nerviglumis</i>	OISC	1	0	0	0	0	0	0	Escape from Confinement	Horticulture	2
Pacific island silvergrass	<i>Miscanthus floridulus</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	2, 12
Mexican feather grass	<i>Nassella tenuissima</i>	OISC	1	0	0	0	0	0	0	Escape from Confinement	Horticulture	2
Smilo grass	<i>Oloptum miliaceum</i>	UH Botany	0	1	0	1	0	0	0	Transport Contaminant	Seed contaminant	2
Crowngrass	<i>Paspalum pilosum</i>	UH Botany	1	0	1	0	1	0	0	Release in Nature; Transport Contaminant	Erosion control	2
Lyon's grass	<i>Themeda villosa</i>	UH Botany	1	1	1	0	0	0	0	Escape from Confinement; Transport Contaminant	Natural dispersal	2, 12



(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Mauui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Southern cattail	<i>Typha domingensis</i>	UH Botany	1	0	0	0	0	0	0	Transport Stowaway; Unaided	NA	None
Broadleaf cattail	<i>Typha latifolia</i>	UH Botany	1	1	1	0	0	0	0	Transport Stowaway; Unaided	NA	None
Cotoneaster	<i>Cotoneaster pannosus</i>	HISC/BIISC	0	1	1	1	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	None
Himalayan raspberry	<i>Rubus ellipticus</i>	IUCN 100	1	1	0	0	0	0	0	Escape from Confinement; Transport Contaminant	Seed contaminant	12 ( <i>Rubus ellipticus</i> var. <i>obcordatus</i> ); None (all others)
Snowpeaks raspberry	<i>Rubus niveus</i>	USDA Noxious Weed	0	1	1	1	0	0	0	Escape from Confinement	Horticulture	12
Molucca raspberry	<i>Rubus sieboldii</i>	NA	0	1	1	0	0	0	0	Escape from Confinement	Horticulture	12
Himalayan blackberry	<i>Rubus ulmifolius</i>	DLNR-DOFAW	1	0	0	1	0	0	0	Escape from Confinement	Horticulture	None
NA	<i>Phenax hirtus</i>	BIISC	0	1	0	0	0	0	0	NA	NA	None
Showy balloonvine	<i>Cardiospermum grandifolium</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Horticulture	None
Flamegold rain tree	<i>Koelreuteria elegans</i>	UH Botany	1	0	0	1	0	0	0	Escape from Confinement; Unaided	Horticulture	None
NA	<i>Cissus repens</i>	OISC	1	0	0	0	0	0	0	NA	NA	NA

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Seasonvine	<i>Cissus verticillata</i>	KISC	1	0	1	0	0	0	0	Escape from Confinement; Transport Contaminant	Horticulture	None
NA	<i>Costus dubius</i>	KMWP	1	0	0	0	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Golden lobster claw	<i>Heliconia latispatha</i>	KMWP	1	1	1	1	0	0	0	Escape from Confinement	Ornamental purpose other than horticulture	NA
Fire flag	<i>Thalia geniculata</i>	UH Botany	1	0	1	0	0	0	0	Escape from Confinement	Horticulture	None
Centipede fern	<i>Blechnum orientale</i>	UH Botany	1	0	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Natural dispersal	None
Giant hypolepis	<i>Hypolepis dicksonoides</i>	UH Botany	0	1	0	0	0	0	0	Escape from Confinement; Unaided	Natural dispersal	None
Giant salvinia	<i>Salvinia molesta</i>	DLNR-DAR	1999	2003	2015	0	0	0	0	Escape from Confinement, Transport Contaminant	Horticulture	13, 17
Japanese climbing fern	<i>Lygodium japonicum</i>	UH Botany	1	1	0	0	0	0	0	Escape from Confinement; Transport Contaminant; Unaided	Horticulture	None

## Invertebrates:

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Varroa mite	<i>Varroa destructor</i>	HDOA	2007	2008	0	0	0	0	0	Transport Contaminant	Parasites on animals	7, 14 (V. jacobsoni; V. destructor was previously included under V. jacobsoni), 15
Queensland longhorn beetle	<i>Acalolepta aesthetica</i>	HDOA	0	2009	0	0	0	0	0	Transport Contaminant, Transport Stowaway	Parasites on plants, hitchhikers in or on airplane, hitchhikers on ship/boat, container/bulk, timber trade	7
Coconut rhinoceros beetle	<i>Oryctes rhinoceros</i>	Hawai'i Injurious Wildlife; HDOA Pest for Control	2013	2023	2023	2023	0	0	0	Transport Contaminant, Transport Stowaway	Transportation of habitat material, parasites on plants, contaminant nursery material, contaminant on plants	14, 15, Prohibited transportations (4-72-4, HAR)
Yellow fever mosquito	<i>Aedes aegypti</i>	DOH	0	1	0	0	0	0	0	Transport Stowaway	Container/bulk	NA
Acacia whitefly	<i>Tetraleurodes acaciae</i>	HDOA	2021	0	0	0	0	0	0	Transport Contaminant	Parasites on plants	7
Two-lined spittlebug	<i>Prosapia bicincta</i>	UH-CTAHR	0	2016	0	0	0	0	0	Transport Contaminant; Transport Stowaway	Parasites on plants	7

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Glassy winged sharp-shooter	<i>Homalodisca vitripennis</i>	HDOA	2004	0	0	0	0	0	0	Transport Contaminant, Transport Stowaway	Parasites on plants	7
Croton scale	<i>Phalacroccoccus howertoni</i>	HDOA	2019	0	2020	0	0	0	0	Transport Contaminant	Parasites on plants	7
NA	<i>Philephedra tuberculosa</i>	HDOA	2018	0	0	0	0	0	0	Transport Contaminant	Parasites on plants	7
Grey scale	<i>Pseudoparlatoria ostreata</i>	HDOA	2014	0	2018	0	0	0	0	Transport Contaminant	Parasites on plants	7
Cycad aulacaspis scale	<i>Aulacaspis yasumatsui</i>	HDOA	1998	2000	2003	0	0	0	0	Transport Contaminant	Parasites on plants	7
Hala scale	<i>Thysanococcus pandani</i>	HDOA	1	0	0	1995	2013	0	0	Transport Contaminant; Transport Stowaway	Parasites on plants; contaminant nursery material; people and their luggage/equipment	7
Passion vine hopper	<i>Scolypopa australis</i>	HDOA, Army Natural Resources Program	2020	0	0	0	0	0	0	Transport Contaminant, Transport Stowaway	Parasites on plants, container/bulk	1 (4-70-33 HAR); 7
Avocado lace bug	<i>Pseudacysta perseae</i>	HDOA, UH	2019	2020	1	1	0	0	0	Transport Contaminant	Contaminant nursery material	NA

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Little fire ant	<i>Wasmannia auropunctata</i>	Hawai'i Injurious Wildlife; HDOA Pest to Control	1	1999	1	1	0	0	0	Transport Contaminant, Transport Stowaway	Contaminant nursery material, transportation of habitat material, contaminant on plants, container/bulk, timber trade, people and their luggage/equipment	7, 14, 15
Naio thrips	<i>Klambothrips myopori</i>	OISC	2018	2009	0	0	0	0	0	Transport Contaminant	Parasites on plants	7
Ramie moth	<i>Arcte coerulea</i>	DLNR-DOFAW HDOA, UH	0	2020	0	2018	0	0	0	Transport Contaminant	Parasites on plants, contaminant nursery material	7
Carribbean corkscrew anenome	<i>Bartholomea annulata</i>	NA	2019	0	0	0	0	0	0	NA	NA	7
Beaded coral/mushroom coral	<i>Discosoma nummiforme</i>	DAR	1997	0	0	0	0	0	0	Escape from Confinement, Transport Stowaway	Pet/aquarium/terrarium species, ship/boat hull fouling	NA
Kenya green tree coral	<i>Capnella spicata</i>	DAR	2019	0	0	0	0	0	0	Escape from Confinement, Transport Stowaway	Pet/aquarium/terrarium species, ship/boat hull fouling	NA
Pulsing xenia	<i>Unomia stolonifera</i>	DAR	2019	0	0	0	0	0	0	Escape from Confinement, Transport Stowaway	Pet/aquarium/terrarium species, ship/boat hull fouling	NA

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Upside down jellyfish	<i>Cassiopea andromeda</i>	DAR	1941	1	0	0	1	0	0	Transport Stowaway	Ship/boat ballast water	NA
Asiatic clam	<i>Corbicula fluminea</i>	DLNR-DAR	1977	1	1	1	0	0	0	Transport Stowaway, Escape from Confinement, Transport Contaminant, Release in Nature	Ship/boat ballast water	3, 14, 15
NA	<i>Pila conica</i>	DLNR-DOFAW	0	0	0	0	1	0	0	Transport Contaminant, Escape from Confinement	Parasites on plants, contaminant nursery material, aquaculture/mariculture	4, 14
NA	<i>Pomacea canaliculata</i>	DLNR-DOFAW	1	1	1	1	0	0	0	Transport Contaminant, Escape from Confinement	Parasites on plants, contaminant nursery material, aquaculture/mariculture	4, 14, 15
Grey encrusting sponge	<i>Gelliodes fibrosa</i>	Bishop Museum	1996	1	1	1	0	0	0	Transport Stowaway	Ship/boat hull fouling	7
Orange keyhole sponge	<i>Mycale armata</i>	DLNR-DAR	1996	0	0	2001	0	0	0	Transport Stowaway	Ship/boat hull fouling	7

## Vertebrates:

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Freshwater eel	<i>Anguilla sp.</i>	DLNR-DAR	0	0	0	1	0	0	0	Escape from Confinement	NA	7
Convict cichlid	<i>Archocentrus nigrofasciatus</i>	DLNR-DAR	1983	0	1983	2018	0	0	0	Escape from Confinement	Aquarium	7
Banded jewel cichlid	<i>Hemichromis elongatus</i>	DLNR-DAR	1990	0	0	0	0	0	0	Escape from Confinement	Aquarium species	7
Nile tilapia	<i>Oreochromis niloticus</i>	NA	0	1	0	0	0	0	0	Escape from Confinement, Release in Nature	Aquaculture	5
Grass carp	<i>Ctenopharyngodon idella</i>	NA	0	2013	1	0	0	0	0	Release in Nature	Fishery in the wild	5 (C. idellus)
Suckermouth catfish	<i>Hypostomus sp.</i>	DLNR-DAR	1990	0	0	2005	0	0	0	Escape from Confinement	Aquaculture	6 (H. plecostomus & H. punctatus); 7 (All other species)
Orinoco sailfin catfish	<i>Pterygoplichthys multiradiatus</i>	IUCN 100	1	0	0	0	0	0	0	Escape from Confinement	Aquarium	7
Coqui frog	<i>Eleutherodactylus coqui</i>	Hawai'i Injurious Wildlife; HDOA Pest for Control	1	1	0	1	0	0	0	Transport Contaminant, Transport Stowaway	Contaminant on plants	7, 14, 15
Red-vented bulbul	<i>Pycnonotus cafer</i>	Hawai'i Injurious Wildlife	1	1	0	0	0	0	0	Escape from Confinement	Pet species	3

(continued)

Common Name	Scientific Name	Source	O'ahu	Hawai'i	Kaua'i	Maui	Moloka'i	Lāna'i	Kaho'olawe	Pathway Category	Pathway Subcategory	Regulations
Red-whiskered bulbul	<i>Pycnonotus jocosus</i>	IUCN 100	1	0	0	0	0	0	0	Escape from Confinement	Pet species	3, 15, 16
Axis deer	<i>Axis axis</i>	NA	0	0	0	1	1	1	0	Release in Nature	Hunting	5; DLNR has requirements for hunting.
Small indian mongoose	<i>Herpestes javanicus</i>	Hawai'i Injurious Wildlife; HDOA 142-92	1	1	0	1	1	0	0	Release in Nature, Transport Stowaway	Container/bulk	4 (H. auropunctatus, a CABI listed synonym), 15, 16
Jackson's chameleon	<i>Chamaeleo jacksonii</i>	Hawai'i Injurious Wildlife	1	1	0	1	0	0	0	Escape from Confinement	Pet species	5
Cuban knight anole	<i>Anolis equestris</i>	IUCN 100	1	0	0	0	0	0	0	NA	NA	4
Madagascar day gecko	<i>Phelsuma grandis</i>	HDOA, DLNR	1997	0	0	0	0	0	0	Escape from Confinement	Pet/aquarium/terra species	NA
Iguana	<i>Iguana iguana</i>	HDOA	1	0	0	1	0	0	0	Escape from Confinement	Pet/aquarium/terra species	NA
Chinese softshell turtle	<i>Pelodiscus sinensis</i>	HDOA, DLNR	1	0	1	0	0	0	0	Escape from Confinement	NA	NA



## Key to regulation column:

1. HI plant/host material import restrictions (ch. 70 HAR). HDOA permit required for domestic import.
2. HI import restrictions on grass family species (§4-70-10 HAR). HDOA permit required for domestic import of live plant material.
3. HI prohibited animal (§4-71-6 HAR). May not be imported into HI.
4. HI restricted animal part A (§4-71-6.5 HAR). HDOA permit required for import and possession.
5. HI restricted animal part B (§4-71-6.5 HAR). HDOA permit required for import and possession.
6. HI conditionally approved animal (§4-71-6.5 HAR). HDOA permit required for import.
7. HI unlisted animal (§4-71-6.5). HDOA permit required for import and possession.
8. HI restricted microorganism part A (§4-71A-21). HDOA permit required for import.
9. HI restricted microorganism part B (§4-71A-22). HDOA permit required for import.
10. HI unlisted microorganism (§4-71A-25 HAR). HDOA permission required for import.
11. HI restrictions on intrastate movement (ch 4-72 HAR)
12. HI noxious weed; import for research only, by HDOA permit; may not be sold in HI (ch 4-68 HAR; §150A-6.1(d))
13. HI prohibited from domestic import and sale within HI (§ 150A-6.1(e))
14. HI pest for control or eradication (ch 4- 69A HAR)
15. HI injurious wildlife (ch 13-124 HAR) DLNR permit required for release into the wild, transport to locations where species is not established, & export.
16. USFWS injurious wildlife (50 CFR part 16). USFWS permit required for import into HI from a foreign country or shipment between HI & continental US.
17. USDA noxious weed (7 CFR 360). USDA permit required for import and interstate movement.

## Notes:

- Source column is often based on in-person communication with biologists at listed agencies, and also includes online and published sources.
- CBD Horticulture and ‘Ornamental purpose other than horticulture’ pathways were combined and recorded as Horticulture.
- Acronyms used in this document are as follows:
  - BIISC: Big Island Invasive Species Committee
  - CABI-ISC: Centre for Agriculture and Bioscience International - Invasive Species Compendium
  - CBD: Convention on Biological Diversity
  - CGAPS: Coordinating Group on Alien Pest Species
  - DLNR-DAR: Department of Land and Natural Resources - Division of Aquatic Resources
  - DLNR-DOFAW: Department of Land and Natural Resources - Division of Forestry and Wildlife
  - HDOA: Hawai‘i Department of Agriculture
  - HISC: Hawai‘i Invasive Species Council
  - IUCN 100: Lowe S., M. Browne, S. Boudjelas, M. De Poorter. 2000. 100 of the World’s Worst Invasive Alien Species A selection from the Global Invasive Species Database. Published by The Invasive Species Specialist Group (ISSG) a specialist group of the Species Survival Commission (SSC) of the World Conservation Union (IUCN), 12pp.
  - KISC: Kaua‘i Invasive Species Committee
  - KMWP: Ko‘olau Mountains Watershed Partnership
  - OISC: O‘ahu Invasive Species Committee
  - UH Botany: University of Hawai‘i Botany Department
  - UH CTAHR: University of Hawai‘i College of Tropical Agriculture and Human Resources
  - USDA: United States Department of Agriculture

## Additional Information on CBD Pathways:

- The Convention on Biological Diversity has a hierarchical categorization that describes the means and reasons non-native species are purposely and inadvertently introduced. The following CBD Categories and Subcategories are relevant for species included in this Limited Distribution List. For more information on CBD pathway definitions see: Harrower, C.A., R. Scalera, S. Pagad, K. Schonrogge, & H.E. Roy. 2018. Guidance for interpretation of CBD categories on introduction pathways. Technical note prepared by IUCN for the European Commission.
- Category: Release in Nature
  - This category describes intentional releases of non-native species into natural or semi-natural environments. Little to no care is provided after release.
  - Subcategories:
    - \* Biological control
    - \* Erosion control
    - \* Fishery in the wild
    - \* Hunting
    - \* Landscape/flora/fauna “improvement” in the wild
    - \* Conservation or wildlife management
    - \* Release in nature for use (other than above, e.g., fur, medical use)
    - \* Other intentional release
- Category: Escape from Confinement
  - This category describes the unintentional escape into the wild of species intentionally brought to the region to be kept in confinement or in controlled situations (e.g., agriculture or forestry). Subcategories reflect the intention behind species’ presence in the region (and so intentional release of pets or live baits is included here rather than above).
  - Subcategories:
    - \* Agriculture
    - \* Aquaculture / mariculture
    - \* Botanical garden/zoo/aquaria (excluding domestic aquaria)
    - \* Pet/aquarium/terrarium species (including live food for such species)
    - \* Farmed animals
    - \* Forestry
    - \* Horticulture and ornamental purposes other than horticulture (note: combined subcategories)
    - \* Research and breeding in facilities
    - \* Live food and live bait
    - \* Other escape from confinement
- Category: Transport Contaminant

- This category describes unintentional movement of an organism that contaminates a commodity that is intentionally transported. Contaminants have biological associations and interactions with their products (e.g., as pests or diseases).
- Subcategories:
  - \* Contaminant nursery material
  - \* Contaminated bait
  - \* Food contaminant
  - \* Contaminant of animals
  - \* Parasites on animals
  - \* Contaminant on plants
  - \* Parasites on plants
  - \* Seed contaminant
  - \* Timber trade
  - \* Transportation of habitat material (soil, vegetation)
- Category: Transport Stowaway
  - This category describes the accidental movement of live organisms as stowaway or hitchhikers. This category can be distinguished from the transport contaminant category because a stowaway has no biological association with the material or vector on which it is moving, whereas a contaminant has a biological association (e.g., as with an invertebrate being transported on its host plant).
  - Subcategories:
    - \* Angling/fishing equipment
    - \* Container/bulk
    - \* Hitchhikers in or on airplane
    - \* Hitchhikers on ship/boat (excluding ballast water and hull fouling)
    - \* Machinery/equipment
    - \* People and their luggage (tourism)
    - \* Organic packing material (wood packaging)
    - \* Ship/boat ballast water
    - \* Ship/boat hull fouling
    - \* Vehicles
    - \* Other means of transport
- Category: Corridor
  - This category describes movement of non-natives following the construction of transport infrastructure, without which spread would not have been possible.
- Category: Unaided
  - This category describes natural dispersal, without assistance by humans, from one area in which a species is non-native into another. This follows introduction via another pathway.