

Flagship invasion prevention species by pathway

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An invasion pathway is an intentional or unintentional route through which an invasive species is introduced to new locations. A flagship species is one that acts as a representative, in this case for other species that could be introduced via a given invasion pathway. This document provides examples of flagship invasive species that pose a risk to the Hawaiian Islands. These species are not currently established on the Hawaiian Islands, and are representative of the many other problematic invaders that could be introduced via each pathway. This list is non-regulatory and intended for purposes of communication and outreach. Note that many species have multiple pathways of introduction, just as many species can be introduced via a given pathway. The ‘Arrive via Mail’ column highlights species and pathways for which e-commerce and other mail pose a risk of introduction. Pathway definitions follow the Convention on Biological Diversity (CBD).

For more information on CBD pathway definitions see: Harrower, C. A., Scalera, R., Pagad, S., Schonrogge, K., & Roy, H. E. 2018. Guidance for interpretation of CBD categories on introduction pathways. Technical note prepared by IUCN for the European Commission.

Pathway Category	Pathway Subcategory	Scientific Name	Common Name	Arrive via Mail
Release in nature	Erosion control/ dune stabilization (windbreaks, hedges, ...)	<i>Rhizophora stylosa</i>	Stilted mangrove	
Release in nature	Fishery in the wild (including game fishing)	<i>Lates niloticus</i>	Nile perch	
Release in nature	Hunting			
Release in nature	Landscape/flora/fauna “improvement” in the wild	<i>Harmonia axyridis</i>	Harlequin ladybird	Yes
Release in nature	Introduction for conservation purposes or wildlife management	<i>Gomphocarpus fruticosus</i>	Swan milkweed	Yes
Release in nature	Release in nature for use (other than above, e.g., fur, transport, medical use)	<i>Apis mellifera scutellata</i>	Africanized honeybee	Yes
Release in nature	Other intentional release	<i>Birgus latro</i>	Coconut crab	

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Pathway Category	Pathway Subcategory	Scientific Name	Common Name	Arrive via Mail
Escape from confinement	Agriculture (including Biofuel feedstocks)	<i>Rubus fruticosus</i>	European blackberry	Yes
Escape from confinement	Aquaculture / mariculture	<i>Trapa natans</i>	Waterchestnut	
Escape from confinement	Botanical garden/zoo/aquaria (excluding domestic aquaria)	<i>Melianthus comosus</i>	Tufted honey flower	
Escape from confinement	Pet/aquarium/terrarium species (including live food for such species)	<i>Python molurus bivittatus</i>	Burmese python	Yes
Escape from confinement	Farmed animals (including animals left under limited control)			
Escape from confinement	Forestry (including reforestation)	<i>Cecropia schreberiana</i>	Trumpet tree	
Escape from confinement	Horticulture / Ornamental	<i>Myoporum laetum</i>	Ngaio, mousehole tree	Yes
Escape from confinement	Research and ex-situ breeding (in facilities)	<i>Ciona savignyi</i>	Pacific transparent sea squirt	
Escape from confinement	Live food and live bait	<i>Helix pomatia</i>	Roman snail	
Transport contaminant	Contaminant nursery material	<i>Moniliophthora roreri</i>	Frosty pod	
Transport contaminant	Food contaminant (including of live food)	<i>Asfarvirus</i>	African swine fever	Yes
Transport contaminant	Contaminant on animals (except parasites, species transported by host/vector)	<i>Drymaria arenarioides</i>	Lightning weed	
Transport contaminant	Parasites on animals (including species transported by host and vector)	<i>Haemaphysalis longicornis</i>	Asian longhorned tick	Yes
Transport contaminant	Contaminant on plants (except parasites, species transported by host/vector)	<i>Theba pisana</i>	White garden snail	
Transport contaminant	Parasites on plants (including species transported by host and vector)	<i>Candidatus Liberibacter asiaticus</i>	Citrus huanglongbing	
Transport contaminant	Seed contaminant	<i>Onopordum acaulon</i>	Stemless thistle / horse thistle	Yes
Transport contaminant	Timber trade	<i>Anoplophora glabripennis</i>	Asian longhorned beetle	
Transport contaminant	Transportation of habitat material (soil, vegetation,...)	<i>Ralstonia solanacearum R3B2</i>	Potato brown rot	

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Pathway Category	Pathway Subcategory	Scientific Name	Common Name	Arrive via Mail
Transport stowaway	Angling/fishing equipment	<i>Assimineea parasitologia</i>	New zealand mudsnail	
Transport stowaway	Container/bulk	<i>Solenopsis invicta</i>	Red imported fire ant	
Transport stowaway	Hitchhikers in or on airplane	<i>Boiga irregularis</i>	Brown tree snake	
Transport stowaway	Hitchhikers on ship/boat (excluding ballast water and hull fouling)	<i>Lymantria dispar</i>	Spongy moth	
Transport stowaway	Machinery/equipment	<i>Vespula germanica</i>	German yellowjacket	
Transport stowaway	People and their luggage/equipment (in particular tourism)	<i>Halyomorpha halys</i>	Brown marmorated stink bug	Yes
Transport stowaway	Organic packing material, in particular wood packaging	<i>Anoplophora glabripennis</i>	Asian longhorned beetle	
Transport stowaway	Ship/boat ballast water	<i>Causitive agent not yet identified but ballast water is suspected vector</i>	Stony coral tissue loss disease	
Transport stowaway	Ship/boat hull fouling	<i>Carcinus maenas</i>	European green crab	
Transport stowaway	Vehicles (car, train, ...)	<i>Otala lactea</i>	Milk snail	