

Crazy Ant (*Anoplolepis* ~~g~~ *illipes*)

Photo: H. T. Imai and M. Kubota



Crazy ants (so called because of their frenetic movements) have invaded native ecosystems and caused environmental damage from Hawai'i to the Seychelles and Zanzibar. On Christmas Island in the Indian Ocean, they have formed multi-queen supercolonies in at least eight areas of rainforest, foraging in all habitats, including the rainforest canopy. They are also decimating the red land crab (*Gecarcoidea natalis*) populations. In 18 months the crazy ants were able to kill 3 million crabs. The land crabs play an important role in Christmas Island's forest ecosystem

helping in litter breakdown and influencing forest composition by eating leaves and seedlings of rainforest trees. Crazy ants also prey on, or interfere in, the reproduction of a variety of arthropods, reptiles, birds and mammals on the forest floor and canopy. Their ability to farm and protect sap-sucking scale insects, which damage the forest canopy on Christmas Island, is one of their more surprising attributes. Although less than 5% of the rainforest on Christmas Island has been invaded so far, scientists are concerned that endangered birds such as the Abbott's booby (*Sula abbotti*), which nests nowhere else in the world, could eventually be driven to extinction through habitat alteration and direct attack by the ants.

Brown Tree Snake (*Bolga irregularis*)

A native of Australia, Indonesia, Papua New Guinea, and the Solomon Islands, the brown tree snake is thought to have hitchhiked to Guam on military aircraft in the late 1940s or early 1950s. The lack of natural predators and ample prey allowed the snake population to explode. By the 1970s it was found island-wide and had done

extensive economic and ecological damage. It has caused major power outages across the island and sometimes bites people, but is most infamous for its near complete extermination of Guam's native forest birds. The brown tree snake is a serious threat to the biological diversity of other tropical islands. It is able to conceal itself in cargo on boats and aircraft and even in airplane wheel-wells and has reached destinations as far afield as Micronesia, Hawai'i, mainland United States and Spain. Areas most at risk are wet tropical locations that receive large volumes of human and commercial traffic.



Photo: Gordon Rodda

Caulerpa Seaweed (*Caulerpa taxifolia*)

Caulerpa was introduced to the Mediterranean around 1984, possibly as waste from the Monaco Aquarium in France. There is speculation that the species released into the Mediterranean was a hardier clone of the original tropical seaweed. It adapted well to colder waters and has spread throughout the northern Mediterranean where it is a serious threat to the native marine flora and fauna. New colonies are able to start from small segments of this plant and, being an opportunistic hitchhiker, it is a threat to the whole of the Mediterranean. Wherever it has established itself, it has smothered habitats such as the beds of native sea grass that serve as nurseries for many species. On 12th June 2000, divers in a lagoon near San Diego in the United States discovered a patch of Caulerpa measuring 20 metres by 10 metres. In this case too, it is thought that the infestation occurred after somebody emptied a fish tank into a storm-water drain. Luckily this invasion was discovered at an early stage and measures were taken to eradicate it.

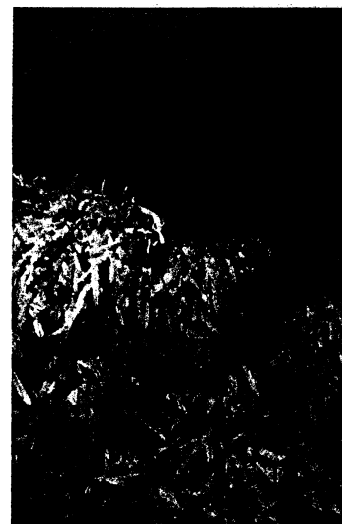


Photo: Alexandre Menes

Caulerpa infestation

Avian Malaria (*Plasmodium relictum*)

Avian malaria was introduced to Hawai'i in exotic birds kept by settlers, but it needed a vector to spread. This was made possible following the introduction of the southern house mosquito (*Culex quinquefasciatus*) in the water barrels of a sailing ship in 1826. Hawaii's unique native birds succumbed quickly because, unlike non-native birds, they have no resistance to avian malaria. Unique birds such as the colour-ful honeycreepers, which evolved into a diverse array of species and subspecies to fill different niches, are threatened by this disease and by habitat loss. Avian malaria, through its mosquito vector has contributed to the extinction of at least 10 native bird species in Hawai'i and threatens many more.



Honeycreeper with malaria carrying mosquitos

Photo: Jack Jeffrey Photography

100 OF THE WORLD'S WORST INVASIVE ALIEN SPECIES

MICRO-ORGANISM

avian malaria	(<i>Plasmodium relictum</i>)
banana bunchy top virus	(<i>Banana bunchy top virus</i>)
chestnut blight	(<i>Cryphonectria parasitica</i>)
crayfish plague	(<i>Aphanomyces astaci</i>)
Dutch elm disease	(<i>Ophiostoma ulmi</i>)
frog chytrid fungus	(<i>Batrachochytrium dendrobatidis</i>)
phytophthora root rot	(<i>Phytophthora cinnamomi</i>)
rinderpest virus	(<i>Rinderpest virus</i>)

AQUATIC PLANT

caulerpa seaweed	(<i>Caulerpa taxifolia</i>)
common cord-grass	(<i>Spartina anglica</i>)
wakame seaweed	(<i>Undaria pinnatifida</i>)
water hyacinth	(<i>Eichhornia crassipes</i>)

LAND PLANT

African tulip tree	(<i>Spathodea campanulata</i>)
black wattle	(<i>Acacia mearnsii</i>)
Brazilian pepper tree	(<i>Schinus terebinthifolius</i>)
cogon grass	(<i>Imperata cylindrica</i>)
cluster pine	(<i>Pinus pinaster</i>)
erect pricklypear	(<i>Opuntia stricta</i>)
fire tree	(<i>Myrica faya</i>)
giant reed	(<i>Arundo donax</i>)
gorse	(<i>Ulex europaeus</i>)
hiptage	(<i>Hiptage benghalensis</i>)
Japanese knotweed	(<i>Polygonum cuspidatum</i>)
Kahili ginger	(<i>Hedychium gardnerianum</i>)
Koster's curse	(<i>Clidemia hirta</i>)
kudzu	(<i>Pueraria lobata</i>)
lantana	(<i>Lantana camara</i>)
leafy spurge	(<i>Euphorbia esula</i>)
leucaena	(<i>Leucaena leucocephala</i>)
melaleuca	(<i>Melaleuca quinquenervia</i>)
mesquite	(<i>Prosopis glandulosa</i>)
miconia	(<i>Miconia calvescens</i>)
mile-a-minute weed	(<i>Mikania micrantha</i>)
mimosa	(<i>Mimosa pigra</i>)
privet	(<i>Ligustrum robustum</i>)
pumpwood	(<i>Cecropia peltata</i>)
purple loosestrife	(<i>Lythrum salicaria</i>)
quinine tree	(<i>Cinchona pubescens</i>)
shoebutton ardisia	(<i>Ardisia elliptica</i>)
Siam weed	(<i>Chromolaena odorata</i>)

LAND PLANT (CONTINUED)

strawberry guava	(<i>Psidium cattleianum</i>)
tamarisk	(<i>Tamarix ramosissima</i>)
wedelia	(<i>Wedelia trilobata</i>)
yellow Himalayan raspberry	(<i>Rubus ellipticus</i>)

AQUATIC INVERTEBRATE

Chinese mitten crab	(<i>Eriocheir sinensis</i>)
comb jelly	(<i>Mnemiopsis leidyi</i>)
green crab	(<i>Carcinus maenas</i>)
marine clam	(<i>Potamocorbula amurensis</i>)
Mediterranean mussel	(<i>Mytilus galloprovincialis</i>)
Northern Pacific seastar	(<i>Asterias amurensis</i>)
spiny water flea	(<i>Cercopagis pengoi</i>)
zebra mussel	(<i>Dreissena polymorpha</i>)

LAND INVERTEBRATE

Argentine ant	(<i>Linepithema humile</i>)
Asian longhorned beetle	(<i>Anoplophora glabripennis</i>)
Asian tiger mosquito	(<i>Aedes albopictus</i>)
big-headed ant	(<i>Pheidole megacephala</i>)
common malaria mosquito	(<i>Anopheles quadrimaculatus</i>)
common wasp	(<i>Vespula vulgaris</i>)
crazy ant	(<i>Anoplolepis gracilipes</i>)
cypress aphid	(<i>Cinara cupressi</i>)
flatworm	(<i>Platydemus manokwari</i>)
Formosan subterranean termite	(<i>Coptotermes formosanus shiraki</i>)
giant African snail	(<i>Achatina fulica</i>)
golden apple snail	(<i>Pomacea canaliculata</i>)
gypsy moth	(<i>Lymantria dispar</i>)
khapra beetle	(<i>Trogoderma granarium</i>)
little fire ant	(<i>Wasmannia auropunctata</i>)
red imported fire ant	(<i>Solenopsis invicta</i>)
rosy wolf snail	(<i>Euglandina rosea</i>)
sweet potato whitefly	(<i>Bemisia tabaci</i>)

AMPHIBIAN

bullfrog	(<i>Rana catesbeiana</i>)
cane toad	(<i>Bufo marinus</i>)
Caribbean tree frog	(<i>Eleutherodactylus coqui</i>)

FISH

brown trout	(<i>Salmo trutta</i>)
carp	(<i>Cyprinus carpio</i>)
large-mouth bass	(<i>Micropterus salmoides</i>)

FISH (CONTINUED)

Mozambique tilapia	(<i>Oreochromis mossambicus</i>)
Nile perch	(<i>Lates niloticus</i>)
rainbow trout	(<i>Oncorhynchus mykiss</i>)
walking catfish	(<i>Clarias batrachus</i>)
Western mosquito fish	(<i>Gambusia affinis</i>)

BIRD

Indian myna bird	(<i>Acridotheres tristis</i>)
red-vented bulbul	(<i>Pycnonotus cafer</i>)
starling	(<i>Sturnus vulgaris</i>)

REPTILE

brown tree snake	(<i>Boiga irregularis</i>)
red-eared slider	(<i>Trachemys scripta</i>)

MAMMAL

brush-tail possum	(<i>Trichosurus vulpecula</i>)
domestic cat	(<i>Felis catus</i>)
goat	(<i>Capra hircus</i>)
grey squirrel	(<i>Sciurus carolinensis</i>)
macaque monkey	(<i>Macaca fascicularis</i>)
mouse	(<i>Mus musculus</i>)
nutria	(<i>Myocastor coypus</i>)
pig	(<i>Sus scrofa</i>)
rabbit	(<i>Oryctolagus cuniculus</i>)
red deer	(<i>Cervus elaphus</i>)
red fox	(<i>Vulpes vulpes</i>)
ship rat	(<i>Rattus rattus</i>)
small Indian mongoose	(<i>Herpestes javanicus</i>)
stoat	(<i>Mustela erminea</i>)

Species on the list were selected to illustrate important issues of biological invasion. **Absence from the list does not imply that a species poses a lesser threat.**

The development of the 100 of the World's Worst Invasive Alien Species list and database has been made possible by the generous contribution of the Fondation d'Entreprise TOTAL. The *Global Invasive Species Database* contains further information on these and other alien invasive species (e.g. ecology, habitat, impacts, pathways of introduction).

