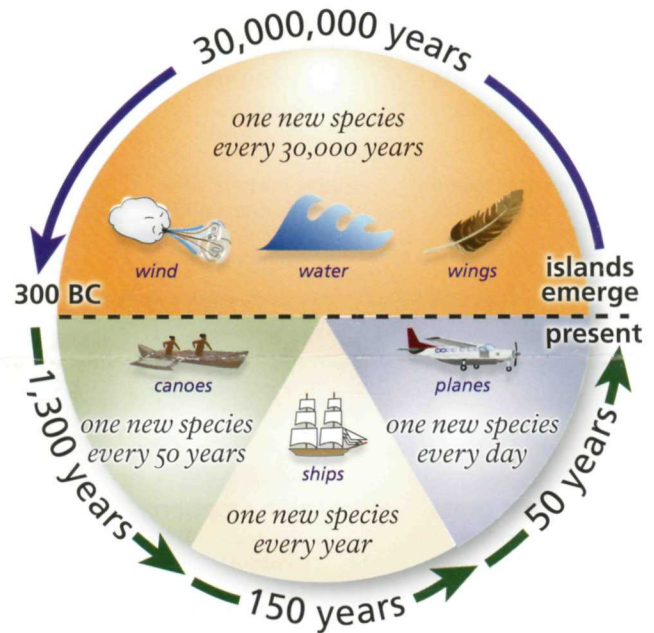




Respect Hawai'i Volcanoes National Park – a natural and cultural treasure –

More than 2,000 miles from the closest continent, only a handful of insects, seeds, and birds found their way to Hawaii before human contact. These early colonizers adapted to a unique land environment—a place with no four-legged animals, reptiles, amphibians, mosquitoes, or ants. Over the evolutionary course of millions of years, entirely new species emerged. But the arrival of humans 1500 years ago, ships in the last 200 years, and airplanes in recent decades has resulted in hundreds of new species being rapidly introduced. This pace has not allowed Hawaii's unique native plants and animals time to adapt—many are now extinct, and more will be lost without our care and stewardship.



Lava flows from Kilauea into the ocean.



Native lehua blossom.

Non-native plants and animals have been arriving at an ever increasing rate. Approximately 10% of non-native plants are considered highly disruptive and targeted for control in Hawai'i Volcanoes National Park.

The native species in these habitat zones are threatened by invasive species.

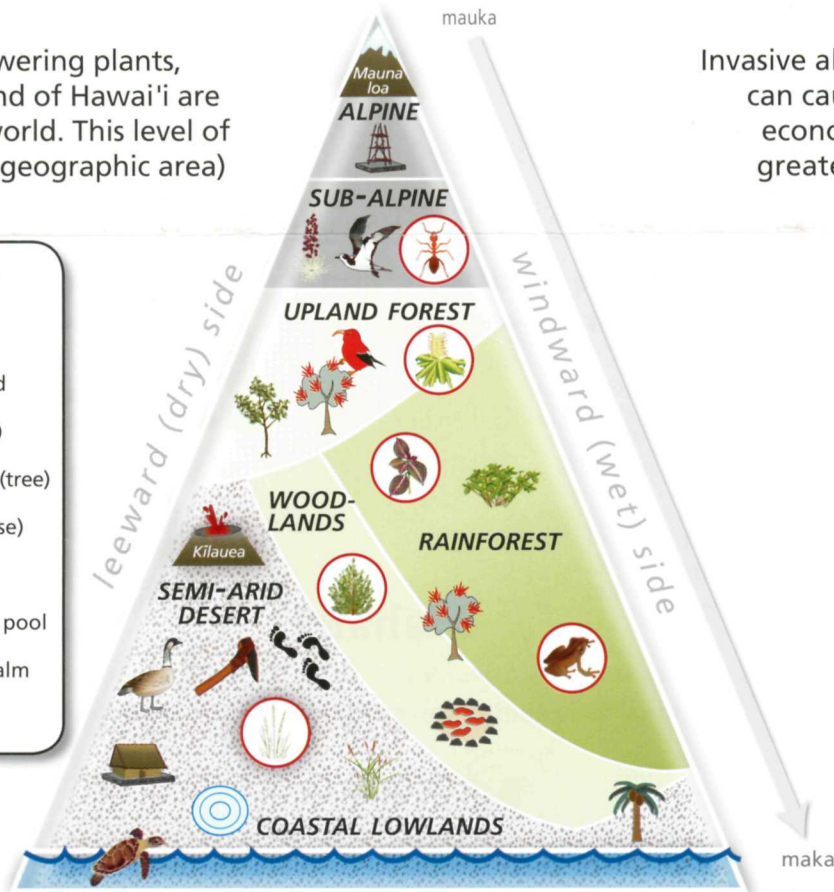
Natural resources

Greater than 90% of the flowering plants, birds, and insects on the island of Hawai'i are found nowhere else in the world. This level of endemism (native to a small geographic area) is unsurpassed in the world.

Invasive species
Invasive alien plants and animals can cause environmental and economic harm, and are the greatest threat to the native wildlife in the Park.

Major cultural and natural resources in Hawai'i Volcanoes National Park

- | | |
|-----------------|-------------------|
| shrine | summit |
| Hawaiian petrel | silversword |
| 'ōhi'a (tree) | 'i'iwi (bird) |
| olonā (shrub) | acacia koa (tree) |
| trails | nēnē (goose) |
| basalt quarry | pili (grass) |
| agriculture | anchialine pool |
| house site | coconut palm |
| | sea turtle |



Major invasive species threatening Park resources

- Argentine ant
- kāhili ginger
- miconia
- coqui frog
- Christmas berry
- fountain grass

Hawai'i Volcanoes National Park's *least* wanted

Invasive species and their impacts:



Argentine ant
(*Linepithema humile*)

Extensive predation of native insects that are native plant pollinators



banana poka
(*Passiflora tarminiana*)

Highly invasive vine that smothers and shades host native plants



cane tibouchina
(*Tibouchina herbacea*)

Forms thickets that displace and shades native plants



Christmas berry
(*Schinus terebinthifolius*)

Spreads aggressively and changes soil to reduce competition



coqui frog
(*Eleutherodactylus coqui*)

Eats huge numbers of beneficial insects and has no natural predator



firetree
(*Morella faya*)

Forms dense forests and changes soil, out-competing native plants

IMPACTS

IMPACTS



fountain grass
(*Pennisetum setaceum*)

Very flammable, regrows quickly after fire and dominates habitats



Himalayan raspberry
(*Rubus ellipticus*)

Forms dense thickets that exclude native plants



kāhili ginger
(*Hedychium gardnerianum*)

Spreads rapidly by seeds and rhizomes in native forest understory



ēkoa
(*Leucaena leucocephala*)

Destructive roots and large seed production, rapidly spreading its range



miconia
(*Miconia calvescens*)

Dominates understory and shades out native plants



strawberry guava
(*Psidium cattleianum*)

Spread by feral pigs eating fruits, outcompeting native forests

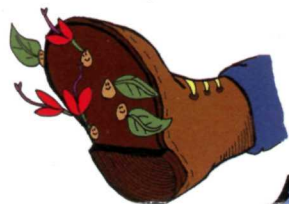
IMPACTS

IMPACTS

Leave no trace



What you can do to protect Hawai'i Volcanoes National Park while you are here...



brush off your boots



remove seeds, dirt, and mud from your clothes



take out your trash and recycle



volunteer for invasive species removal during your park visit



learn to identify invasive species



make sure your car is free of hitchhiking coqui frogs

Mahalo!

Additional information can be obtained from the following:



Hawai'i Volcanoes National Park
National Park Service
www.nps.gov/havo



Pacific Island Network Inventory & Monitoring Program
National Park Service
science.nature.nps.gov/im/units/pacn/



Integration & Application Network
University of Maryland Center for Environmental Science
www.ian.umces.edu