IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 12 November 2014

Please note: this is an archived Conservation Outlook Assessment for Hawaii Volcanoes National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Hawaii Volcanoes National Park

SITE INFORMATION

Country:
United States of America (USA)
Inscribed in: 1987
Criteria:
(viii)

Site description:
This site contains two of the most active volcanoes in the world, Mauna Loa (4,170 m high) and Kilauea (1,250 m high), both of which tower over the Pacific Ocean. Volcanic eruptions have created a constantly changing landscape, and the lava flows reveal surprising geological formations. Rare birds and endemic species can be found there, as well as forests of giant ferns. © UNESCO

SUMMARY

2014 Conservation Outlook

Good

While the outlook for the geological values of the site for which it was inscribed is good, the outlook for its biodiversity values is of some concern. A comprehensive protection and management program exists in this National Park. There is an established and credible applied research and educated management program in place; the Park enjoys a reputation for several major successes in alien species control, species recovery, and ecosystem restoration; there is a partnership alliance with a group of neighboring land managers and agencies (Three Mountain Alliance) that covers a very wide expanse of Hawaii Island lands; the Park enjoys designation as a World Heritage Site and as well an International Biosphere Reserve; and the main threshold community, Volcano Village, is ardently supportive of the Park and its values.

Current state and trend of VALUES

Good
Trend: Data Deficient

Hawaii Volcanoes National Park is fortunate in being well established (1916) with a tradition of mostly sound management and with traditions of excellent applied research, resources management, and interpretation of cultural values. Mauna Loa and Kilauea volcanoes are the highly visible and accepted icons of this site. The value of these features can be diminished by excessive tourist access, but this is highly unlikely.

Overall THREATS

Very Low Threat

The overall threats to the park’s geological values are very low. The perception of the park’s unique landscape values is somewhat affected by commercial helicopter flights.

However, the threats to the park’s biological values are high. Alien plants and animals constitute the most serious threats to the Park’s biodiversity values Invasive species control is a widely known problem for land managers in island ecosystems Climate change is probably the most significant potential threat to the site’s biodiversity values.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The Park’s tradition of applied research and science-based management has proven to be effective in partial restoration of natural ecosystems in selected areas. There is a greater need to extend this tradition to areas that are less intact and where problems are more widely spread.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Two of the world’s most active and best understood volcanoes**
  Criterion:(viii)

  This property is a unique example of significant island building through ongoing volcanic processes. It represents the most recent activity in the continuing process of the geologic origin and change of the Hawaiian Archipelago. The park contains significant parts of two of the world's most active and best understood volcanoes, Kilauea and Mauna Loa. Kilauea has been in continuous eruption since January, 1983, and is reasonably accessible to Park visitors year round. Mauna Loa erupted briefly in 1984, simultaneously with the ongoing activity at Kilauea. Both volcanoes are intensively studied by scientists of the Dept of Interior U. S. Geological Survey, and are probably the most studied volcanoes in the world (Statement of Significance, 2006).

- **Exceptional volcanic landscape**
  Criterion:(viii)

  Active volcanoes are not uncommon features for national parks, though Hawaii Volcanoes presents remarkably vivid exposure to volcanic features. Visitors to the Park are afforded close and relatively free access to lava flows, active volcanic vents, an array of features resulting from very recent activity. The National Park is by far the primary destination for visitors who come to Hawaii Island, and one of the most popular destinations for visitors to the several Hawaiian Islands. Social surveys of Park visitors indicate that the

majority of visitors come to the Park to see active volcanism or recent volcanic landscape features.

Other important biodiversity values

► Intact endemic plant and animal communities

The National Park encompasses native forest ecosystems that span an unusually steep climatic gradient, from wet mid-elevation forest, to mesic forest and shrubland, to semi arid and arid shrub and desert, and sub-alpine and alpine vegetation types. Some intact insect and bird populations persist, and are recovering in some areas due to alien species control measures carried out by National Park managers.

► Native marine coastal animals

The National Park shoreline extends for approximately 45 km along the rugged and mostly intact southern coast of Hawaii Island. Native green sea turtles, the Green turtle (Chelonia mydas) (Threatened) and the Hawksbill turtle (Eretmochelys imbricata) (Endangred) occur in near shore waters; the Hawksbill turtle come ashore to most of the small sandy beaches to nest, where sites are protected from predatory mongooses and feral cats. The Hawaiian monk seal (Monachus schauinslandi) (Endangered) have quite recently been observed on Park beaches.

► Marine and pelagic birds

Several species of shore birds and pelagic birds feed and reproduce in National Park lands. Significantly, the pelagic Hawaiian petrel (Petrodroma sandwichensis) (Endangered) and the Newell’s shearwater (Puffinus auricularis newelli) (Threatened) reproduce in nests situated in high elevation burrows (Mauna Loa), where they are threatened by feral cats and mongooses, and as well by obstructions in lowland areas, such as fences and utility lines and by distractions from outdoor night lighting in settled areas. Other pelagic and shore birds, such as Black noddy (Anous minutes melanogenys) and White-tailed tropic bird (Phaethon lepturus dorotheae) maintain nests in shoreline and inland cracks and crevices, as in Kilauea

Caldera.

Assessment information

Threats

Current Threats

Very Low Threat

The current threats to the park’s geological values are very low.
However, the threats to the park’s biological values are very high. Alien plants and animals constitute the most serious threats to the Park’s biodiversity values. The dominant alien plants are flammable grasses, which compound the threat by serving as the source of destructive wildfires, which inhibit recovery of emerging native species. These grasses are not controlled in any measurable standard, and therefore pose a long term threat to the recovery of native Park ecosystems. Invasive shrubs and trees in mesic and wet forest areas pose equally serious threats and are not easily controllable. Alien animals, ungulates particularly, have caused extensive damage to natural vegetation, but are mostly eliminated or substantially reduced throughout the Park. Alien predators remain widely distributed, but can be controlled in selected small areas where sensitive species can receive a measurable level of protection. Helicopters are intrusive, noisy, and significantly disturb the perception of the unique landscape of the park.

► Invasive Non-Native/ Alien Species

Very High Threat
Inside site

Native lowland plant and animal ecosystems are especially impacted by introduced non-native grasses and by feral ungulates. Feral goats, pigs, cats, mongooses, and rats. Recent invasion of Mouflon sheep have impacted upper elevation areas, which are semi-arid and sensitive to ungulate grazing stresses.
Recent arrival from Puerto Rico is the Coqui frog (Eleutherodactylus coqui), a

nuisance and insectivore known to compete with native birds for food and to deplete native insects and arachnids.
Pathogens, notably avian malaria and avian pox, transmitted by alien mosquitoes, have devastated native bird populations. The virus Papaloma. Infects green sea turtles.

► Fire/ Fire Suppression

Very High Threat

Lowland grasses are particularly prone to wildfire, which not only perpetuate the introduced grasses, but diminish emerging native grasses, shrubs, and lowland/dryland forest trees

► Invasive Non-Native/ Alien Species

Very High Threat
Inside site

Mongoose, feral cats, and rats (2 species) prey on native forest birds and notably on the native terrestrial goose (Nene) and on nesting sea turtles. These predators also prey on the high elevation burrows and nests of pelagic birds. They are difficult to control, except in selected small areas where traps, intensive vigilance by personnel, or avoidance methods are usually effective. Rats additionally harvest fruits and seeds of certain native plants, with the effect of diminishing the reproductive ability of these plants.

► Tourism/ Recreation Areas

High Threat
Inside site

Helicopters deliver thousands of visitors to the Park every year, as over flights to remote areas where lava flows are not easily accessible. Helicopters are intrusive, noisy, and significantly distract visitors who are on the ground, often enjoying features that require a measure of tranquility and focused attention. Commercial tours may contribute toward the benefit of the Park through a fee system agreed upon by the operators and the Park, but they also diminish the Park experience for those who are below them. They also intrude on the tranquility and privacy of neighboring landowners, sometimes resulting in resentment toward the Park. Managing air tours is difficult because of vague and competing jurisdictional authority among Federal,

State, and local agencies.

Potential Threats

Very Low Threat

The potential threats to the park's geological values are very low. However, the threats to the park's biological values are high. Growth of settlements around the Park is unavoidable. The impacts on Park and area resources can be mitigated with wise community planning. This must be a collaborative endeavor among the National Park administration and the local communities.
Changing climate is, for at least the indefinite future, an intractable result of human disregard for atmospheric resources. No single human institution is able to reverse the continuing global discharge of heat-trapping emissions into the atmosphere. Credible recording of the changes of temperature and precipitation and their impacts on the natural system will add to the accumulative documentation of this, with a hope that good evidence will prevail upon reasonable authorities to ultimately reverse human-caused damage to atmospheric resources.

▶ Temperature changes

Very High Threat
Inside site

Increasing drought and higher temperatures are causing trees and shrubs in the Park's landscape to die and yield to more tolerant plant communities, especially in subalpine, alpine, and leeward areas. Diminished wildlife populations, range, and reproductive capacity presumably is a consequence. The potential for wildfire is increased, and along with this potential is the loss of certain native plant and animal species.

▶ Housing/ Urban Areas

High Threat
Outside site

Neighboring settlements are only partially developed. When fully occupied, the human population within the threshold of the Park might be 25,000. The impacts from a population of this size might result in the loss of the

landscape gradient that now buffers the natural forest canopy, the lesser settlement density, noise, nighttime lighting outdoors, and traffic patterns from the more settled, urban, and commercial areas further from the Park..

Protection and management

Assessing Protection and Management

► Sustainable finance

Mostly Effective

The Park is funded through US Government allocations and a mix of partnerships with federal and state programs, non-government organizations, private, and businesses programs. The Park’s base budget is subject to changes and might be insufficient.

► Relationships with local people

Mostly Effective

The National Park/WHS enjoys broad support in the Hawaiian community because of its support for local customs and promotion and interpretation of Hawaiian history, traditional dance, music, language, crafts, etc.
The Park has a designated Cultural Resources Management program, which identifies, records, and protects Hawaiian cultural sites and objects.

► Legal framework and enforcement

Mostly Effective

Enabling legislation, National Park Service management policies, and promulgation of rules that protect resources and providing access are well established and are being implemented.

► Integration into regional and national planning systems

Some Concern

The National Park is often perceived as operating abstractly from Hawaii County and State land planning systems. Of particular concern is a lack of communication with threshold communities, which are developing local long

term plans and seek greater input and cooperation from the Park administration. Similarly, the Park administration is not seen as being interested in County-level land use planning matters, despite the County's critical role in establishing land use zones and managing growth in private lands around the Park.

► Management system

Highly Effective

The Park is neighbor to important protected areas that are managed by the Hawaii Department of Land and Natural Resources. The Park is a partner in a regional land management group, known as the Three Mountain Alliance (TMA). TMA managers collaborate in several alien species control programs, wildfire assessment and management, and present a unified persona in dealings with related agencies and land management entities.
The Park's Resources Management Plan is the result of a collaborative process among other-agency managers, academicians, and other interested people.

► Management effectiveness

Mostly Effective

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► Implementation of Committee decisions and recommendations

Data Deficient

Not applicable

► Boundaries

Highly Effective

Park boundaries are surveyed, secure, and marked.

► Staff training and development

Highly Effective

Park staff are reasonably trained

► Sustainable use

Mostly Effective

The Park’s operations are secure, with exceptions when multitudes of visitors arrive to see unusual lava displays. Such events are not common.

► Education and interpretation programs

Highly Effective

Programs are organized and effective.

► Tourism and interpretation

Mostly Effective

Although visitors are managed effectively, some perceive excessive visitor safety policies. Examples are area closures for no evident hazard, restrictions on access to popular areas, and unilateral cancellations or threats to cancel established and popular events. Concern remains over helicopter tours and large tour busses, which often disturb tranquil areas.

► Monitoring

Mostly Effective

Long term monitoring is an important component of the natural resources management program. More could be done with increased and stable funding.

► Research

Mostly Effective

Applied research in the Park is a long-standing tradition. The Park’s resources management programs are always based on applied research. Increased and stable funding is a perennial concern. The Park regularly promotes its status as a designated WHS. The Park is also a designated International Biosphere Reserve. Both designations could do much to improve the Park’s level of funding and attractiveness as a center for applied research in the fields of alien species control and ecosystem restoration.

Overall assessment of protection and management

Mostly Effective

The Park's tradition of applied research and science-based management has proven to be effective in partial restoration of natural ecosystems in selected areas. There is a greater need to extend this tradition to areas that are less intact and where problems are more widely spread.

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site

Some Concern

External threats consist mostly of introduced plants and animals, which are either carried into the Park by visitors or are delivered incidentally by birds, carried by wind, or by other natural means. Most of the boundary is fenced to keep out ungulates (pigs, goats, Mouflon sheep, and most recently Axis deer.) Such fences are not effective against small animals, reptiles, and birds, spores and seeds.
Research and management of pathogens, biological control of invasive species, more effective predator control, invertebrate attractants and toxins, etc are needed but limited by lack of funding.

▶ Best practice examples

Removal of feral goats and pigs through unit fencing and applied hunting;
Ecosystem restoration of selected areas through strategic exotic plant removal by uprooting, and/or suppression with herbicides;
Restoration of population of endangered native goose, sea turtle, pelagic birds through strategic predator control and protection of nesting sites;
Restoration of selected native, rare (some Endangered) plants by strategic out planting and husbandry;
Suppression of selected alien species by releasing biological control agents;
Commitment to applied research and long term monitoring;
Restoration of fire damaged dryland ohia woodlands by replacing damaged native species components with fire-adapted native species.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Two of the world's most active and best understood volcanoes
Good
Trend:Data Deficient

Mauna Loa and Kilauea volcanoes are the highly visible and accepted icons of this site. The value of these features can be diminished by excessive tourist access, but this is highly unlikely.

▶ Exceptional volcanic landscape
Good
Trend:Data Deficient

The site is well established, with a primary purpose of protecting the landscape of shield volcanoes and their lava flows, caves, and associated landforms and small features.

Other important biodiversity values

▶ Intact endemic plant and animal communities

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Summary of the Values

► Assessment of the current state and trend of World Heritage values

Good

Trend: Data Deficient

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► Assessment of the current state and trend of other important biodiversity values

High Concern

Trend: Data Deficient

Certain alien shrub and tree species are coming under control in special areas which are partially intact or have the potential for recovery if the aliens are removed. Ungulates have come under control to a large extent Park wide, but alien grasses persist. Control programs have been effective where cat and mongoose predators threaten turtle nesting and pelagic bird nesting sites. Coqui frogs are eliminated usually as they appear, only through a targeted specially funded program, and by volunteers in parts of neighboring communities.
Hawksbill sea turtles are protected seasonally in nesting sites, and green sea turtles as well are protected in basking sites through a volunteer program and with limited special funds. Quite recently Hawaiian monk seals have appeared on Park beaches to rest, and they are given similar protection whenever they are seen.
Nesting sites for petrels and, shearwaters are protected by trapping predatory rats, mongooses, and feral cats in nesting territory. Habitat for shore and wetland birds is very limited in the Park, but common in nearby shore areas.
Continued research and management of invasive species control and protection and restoration of threatened native plants and animals remains an urgent need for Park management. Programs in this area would advance further when Park administrators fully understand the fragility of certain populations and allocate a greater share of the Park’s budget toward these programs.

Additional information

Key conservation issues

▶ Invasive plants

Regional

Despite some successes in controlling certain alien plants, many more require attention. Assessment of the threat, feasibility of control, best available suppression methods, evaluation of management action, and long term

monitoring need to be considered for a very long list of species.

▶ Feral animals

Regional

The Park has had success controlling massive herds of feral goats, many hectares infested with feral pigs, local control of mongooses, feral cats, rats, and recently Mouflon sheep. Other, less charismatic and more elusive animals remain on the list of nuisance or destructive species, such as mosquitoes, coqui frog, kalij pheasant, various passerine birds, etc.

▶ Pathogens and diseases and insect pests

Regional

Avian malaria and pox remain, transmitted by mosquitoes, are critically serious constraints to the recovery of forest birds in Park forests and woodlands. Native Acacia koa forests are subject to Vascular wilt disease (a fungus, thought to be native.)

▶ Regional land use planning

Local

Settlements around the Park are filling in, and residents are developing long range plans intended to manage growth and to establish connections with surrounding lands. There is a need for the park to become more involved in regional and community land use planning.

▶ Inappropriate tourist activity

Local

Although tourism is reasonably managed in the Park, the use of large-capacity busses and helicopters creates nuisance problems. Additional control of these vehicles is needed in order to eliminate distractions and disturbances for visitors.

Benefits

Understanding Benefits

▶ Sacred natural sites or landscapes

Park contains spectacular areas of designated wilderness, including the active East Rift (volcanic landforms and mid elevation forest), the Ka'u Desert (dryland dunes, shrub, and short-stature forest), the coastal historic (ancient Hawaiian village sites), and the Mauna Loa (alpine) lava landscape. A recent addition to the Park, the Kahuku Ranch extension of the SW Mauna Loa Rift zone of spectacular volcano landforms and native upland forest, and undisturbed archeological sites.

▶ Is the protected area valued for its nature conservation?

Park protects and displays intact native forest, woodland, and alpine ecosystems in many areas, and interprets these to Park visitors. These areas cover large parts of the Park, and are mostly accessible.

▶ Is the protected area valued for its nature conservation?

Park's management program has indicated significant successes in recovering damaged native ecosystems by removal of feral animals and systematic removal of alien plants, resulting in recovery of natural plant communities, with uncertain recovery of native animals.

▶ Is the protected area valued for its nature conservation?

World Heritage Site designation implies there will be active community acceptance and participation in the development of activities that result. The local community ardently supports the National Park, to the extent that the evolving Volcano Long Term Plan intends to identify all or most of the community as part of the related designation (International Biosphere Reserve) as a Transition Zone, and will thereby adopt land development practices that embrace values similar to those of the Park, in order to assert a landscape gradient appropriate for such designation. The community will welcome and serve Park visitors, will promote WHS designation, will support scientific research and demonstration projects that enhance WHS and IBR designation.

► Wilderness and iconic features

Hawaiian people occupied mostly shore and lowland areas, and developed ingenious harvest systems for both sea and inland resources. The National Park has located and recorded many sites, some of which have been overrun by recent lava flows from Kilauea Volcano. Hawaiian occupation of upland areas was not common or intense, except reverence for and occasional ceremonial visits to Kilauea Volcano. Certain quarry sites and gathering areas are known, some of which are recorded. The importance of the Kilauea Volcano to Hawaiian people cannot be overstated.

► History and tradition

The indigenous Hawaiian culture is dynamic, and is undergoing a renaissance. The National Park, in a significant way, promotes this through intimate encouragement with Hawaiian elders, cultural and educational groups, focused hiring of Hawaiians to Park staff, interpretation of language, music, dance and other art forms to Park visitors, and restoration of historic and pre-Contact sites and features., and especially educating local and non-resident visitors of the cultural significance of the Kilauea Volcano. Park authorities permit limited traditional harvesting of native plants that are important in cultural practices. The Park has a designated Cultural Resources Management program, which identifies, records, and protects Hawaiian cultural sites and objects. Stable, long term funding would improve the outlook for continued survey, inventory, protection, and preservation.

Summary of benefits

Benefits of WHS designation extend beyond the National Park into the threshold communities and to the surrounding lands, especially those with protected status. This Park is situated in an unusually qualified location to display progressive regional land management, exemplary cooperation with neighboring land managers, and to demonstrate the unique benefits of encouraging a threshold community to establish a non-destructive, sustainable imprint on the local environment.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Data deficient		Data deficient

REFERENCES

№	References
1	Statement of Significance (2006)