

II.1 Introduction

(See Section 1 of the current Nomination Form and Section 1, 2 and 3 of the original Nomination Forms)

1a) *State Party:*
USA

1b) *Name of World Heritage property:*
Hawaii Volcanoes National Park

1c) *Please provide geographical coordinates for the site to the nearest second. (In the case of large sites, please give three sets of geographical coordinates.)*

Geographical coordinate: Long. 155 deg. 35 min. 43 sec.; Lat. 19 deg. 31 min. 26 sec.

Geographical coordinate: Long. 155 deg. 40 min. 30 sec.; Lat. 19 deg. 03 min. 30 sec.

Geographical coordinate: Long. 155 deg. 23 min. 50 sec.; Lat. 19 deg. 11 min. 24 sec.

Geographical coordinate: Long. 155 deg. 00 min. 58 sec.; Lat 19 deg. 19 min. 44 sec.

1d) *Give date of inscription on the World Heritage List.*

date (dd/mm/yyyy): 12/11/1987

1e) *Give date of subsequent extension(s), if any.*

date (dd/mm/yyyy): 07/02/2003

1f) List organization(s) responsible for the preparation of this site report.

Organization #1

Organization Name: U.S. National Park Service, Hawai'i Volcanoes
National Park

Last Name: Orlando

First Name: Cynthia

Title: Superintendent

Address: P.O. Box 52

City: Hawai'i National Park

State/Prov: Hawai'i

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II.2 Statement of Significance (see Section 2 of the current Nomination Form and Section 5 of the original Form)

2a) When a State Party nominates a property for inscription on the World Heritage List, it describes the heritage values of the property which it believes justifies the inscription of the property on the World Heritage List. Please summarize the justification for inscription as it appears in the original nomination of the property.

Two of the most active volcanoes in the world, Mauna Loa (4,170 meters/13,681 feet high) and Kilauea (1,234 meters/4,049 feet high), tower over the Pacific Ocean at this site. These volcanoes--classic shield-type volcanoes--are the dominant features of the park. Surrounded by recent lava flows and unique endemic plant communities, these volcanoes are dynamic landforms where new lava flows can drastically change the landscape. Recent eruptions have covered many acres with lava up to approximately 100 meters (328 feet) deep, created new land where flows enter the ocean and built up no fewer than three significantly large new landforms within the park where none existed before. Volcanic eruptions have created a continually changing landscape, and the lava flows reveal surprising geological formations.

Mauna Loa and Kilauea are the most studied and best understood volcanoes in the world. Favorable opportunities afforded for fundamental and detailed research are not duplicated or even approached in any other part of the world. Kilauea is the world's safest and most accessible active volcano for people to see. This dual role makes the park extremely valuable as a world resource, for both research and sightseeing.

Hawai'i flora is remarkable for its extraordinary degree of endemism--95% of the native species are found only in these islands. There is a rich diversity of species and vegetation types in the park. This has helped earn international Biosphere Reserve status for the park and has made it an attraction for scholars and scientists.

2b) At the time of initial inscription of a property on the World Heritage List, the World Heritage Committee indicates the property's outstanding universal value(s) (or World Heritage value(s)) by agreeing on the criteria for which the property deserves to be included on the World Heritage List. Please consult the report of the World Heritage Committee meeting when the property was listed and indicate the criteria for which the Committee inscribed the property on the World Heritage List. (Choose one or more boxes.)

Cultural Criteria

- i
- ii
- iii
- iv
- v
- vi

Natural Criteria

- i
- ii
- iii
- iv

2c) At the time of initial inscription, did the World Heritage Committee agree upon a Statement of Significance for the WHS? (Consult the report or minutes of the World Heritage Committee meeting when the property was listed.

NO

2c1) If YES, please cite it here.

2c2) If NO please propose a Statement of Significance for the World Heritage Site based on the consideration given the property by the Committee when it inscribed the property on the World Heritage List. (Note: Following the completion of the Periodic Report exercise, the State Party, in consultation with appropriate authorities, will determine whether to proceed with seeking a Committee decision to approve any proposed Statement of Significance. The Committee must approve any proposed Statement of Significance through a separate, formal process. See 7g.)

The long history and collaborative research of volcanism at Hawai'i Volcanoes National Park, and the Park's protected status, have made Mauna Loa and Kilauea, two of the most active, studied, and best-understood volcanoes in the world. The approachability to the Park's volcanism affords rare opportunities for fundamental and detailed research, offering relatively safe experiences with lava flows, fountains, and other products of active volcanism. The isolation of the Hawaiian Islands and active volcanism in Hawai'i Volcanoes National Park makes it a living laboratory of biogeography and evolution.

Hawai'i Volcanoes National Park provides a wide variety of habitats for endemic native plants and animals, many of which are threatened or endangered. The Park includes the most extensive tract of montane tropical rain forest under federal protection in the United States. Park lands encompass the largest expanse of Hawaiian natural environment managed as wilderness, with the associated wilderness values of natural sounds, darkness, and opportunities for solitude.

2d) Since the original inscription of the property on the World Heritage List, has the World Heritage Committee agreed with a proposal by the State Party that the property be recognized for additional World Heritage values and added additional criteria to the inscription as a result of a re-nomination and/or extension of the property?

NO

*2d1) If YES, please indicate which new criteria were added and the date.
(dd/mm/yyyy)*

II.3 Statement of Authenticity / Integrity
(See Section 2 of the current Nomination Form and Section 4 of the original Form)

3a) In addition to meeting one or more of the criteria, which justify inscription on the World Heritage List, a natural or cultural property must meet the appropriate conditions of authenticity and/or integrity, as defined in clauses 24b and 44b of the Operational Guidelines for Implementing the World Heritage Convention. If at the time of inscribing the property on the World Heritage list, the State Party and the International Council on Monuments and Sites, ICOMOS and/or the International Union for Conservation of Nature and Natural Resources, IUCN, evaluated the authenticity and integrity of the property, please cite those evaluations here. (Please quote directly from the nomination, Committee minutes and the Advisory Body's evaluation.)

"Hawai'i Volcanoes National Park is considered to be of outstanding universal value and is nominated to the World Heritage list under all Natural Criteria for both selection and integrity, except criterion "v" of "Integrity." The primary values of Hawai'i Volcanoes National Park are based on dynamic, on-going geologic processes of volcanism, of endemic and native biota and human interrelationships with the land, rather than on values related to migratory species." (World Heritage List Nomination Hawai'i Volcanoes National Park, 1985. Page 26 V. Justification for Inclusion on the World Heritage List).

3b) Have there been significant changes in the authenticity or integrity of the property since inscription?

NO

3b1) If YES, please describe the changes to the authenticity or integrity and name the main causes.

II.4 Management

(See Section 4 of the current Nomination Form and Section 2 and 4 of the original Form)

Management Regime

4a) How can the ownership/management of the property best be described? (Select all that apply.)

- management under protective legislation
- management under contractual agreement(s) between State Party and a third party
- management under traditional protective measures
- other

Please describe.

Hawai'i Volcanoes National Park is owned by the United States Government on behalf of the American public. It is managed by the National Park Service, a federal agency. As a National Park it receives the highest level of conservation protection afforded by federal law in the United States.

4b) Please indicate under which level of authority the property is managed

National

Please describe

Hawai'i Volcanoes National Park is owned by the United States Government on behalf of the American public. It is managed by the National Park Service, a federal agency. As a National Park it receives the highest level of conservation protection afforded by federal law in the United States.

4c) Please describe the legal status of the property. For example, is it a national, provincial or territorial park? A national or provincial historic site?

National Park

4d) Please provide the full name, address and phone/fax/e-mail of the agency(ies) directly responsible for the management of the property.

Contact #1

Agency Name: Department of the Interior, National Park Service
First Name: Fran
Last Name: Mainella
Address: P.O. Box 37127
City: Washington
State/Prov: D.C.
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Contact #2

Agency Name: National Park Service, Hawai'i Volcanoes National Park
First Name: Cynthia
Last Name: Orlando
Address: P.O. Box 52
City: Hawai'i National Park
State/Prov: Hawai'i
Postal Code: 96718
Telephone: 808-985-6025
Fax: 808-967-8186
Email: cindy_orlando@nps.gov

4e) Please provide a list of key laws and regulations, which govern the protection and management of the cultural and natural resources of the property.

The following are United States federal statutes:

- Antiquities Act, 1906 (16 USC 431 et seq.)
- Act to Establish Hawai'i Volcanoes National Park August 1, 1916 (39 Stat. 432)
- Act to Establish the National Park Service (Organic Act), 1916 (16 USC 1)
- Wilderness Act, 1964 (16 USC 1131 et seq.)
- National Historic Preservation Act, 1966 (16 USC 470 et seq.)
- Clean Air Act, 1967, as amended (42 USC 7401-671)
- National Environmental Policy Act, 1969, as amended (42 USC 4321 et seq.)

Act to Improve the Administration of the National Park System (General Authorities Act, 1970, as amended (16 USC 1a-5 et seq.)

Federal Water Pollution Control Act, 1972 (Clean Water Act), as amended (33 USC 1251 et seq.)

Endangered Species Act, 1973 (16 USC 1531 et seq.)

Resource Conservation and Recovery Act, 1976, as amended (42 USC 6901 et seq.)

American Indian Religious Freedom Act, 1978 (42 USC 1996 et seq.)

Archaeological Resources Protection Act, 1979 (16 USC 470aa et seq.)

National Parks Overflights Act, 1987 (Public Law 100-91)

Native American Graves Protection and Repatriation Act, 1990 (25 USC 3001 et seq.)

National Park Air Tour Management Act, 2000 (Public Law 106-181)

4f) Please describe the administrative and management arrangements that are in place for the property concerned, making special mention of the institutions and organizations that have management authority over the property and the arrangements that are in place for any necessary coordination of their actions. Make special reference, if appropriate, to the role of First Nations in managing the property.

Management authority for the park rests with the Superintendent of Hawai'i Volcanoes National Park, who reports to the National Park Service Pacific West Regional Director, who reports to Director of the National Park Service in Washington, D.C. Within the park, the Superintendent is assisted by several division chiefs including resources management, interpretation, visitor protection, administration, and maintenance.

The Park works closely with the Kupuna (group of Hawaiian elders) who provides information that assists the Park in making decisions to avoid adversely impacting Hawaiian cultural resources.

4g) Please also note whether there have been any significant changes in the ownership, legal status, contractual or traditional protective measures, or management regime for the World Heritage Site since the time of inscription.

Since the 1987 World Heritage Site inscription, protection of land within the park boundary has been expanded with the acquisition of almost 116,000 acres (47,000 hectares)--a private ranch adjacent to the park. There has been no change in the management regime for the World Heritage Site.

4h) *Is there a management plan for the property?*

YES

4h1) *If YES, please summarize the plan, indicating if the plan is being implemented and since when, and the URL where the plan can be located, if available. (A copy of the plan should be submitted in December 2004. See Section 8)*

Yes, there is a Master Plan that has been in use since 1975. The plan covers the regional environment, the park and its resources, planning consideration, and future management and use.

Issues addressed in the plan include:

- General information on the regional environment, populations, land character, and use.
- Information regarding the Park and its resources such as the geology, vegetation, animal life, history and archeology, and visitor use potential.
- Planning considerations including legal issues, climate, special conditions (primarily volcano eruptions), visitor use, and adjacent resources (what lands adjacent to the Park should be considered for future inclusion).
- Future management and use is next identified. Issues relating to an overall plan are discussed. Interpretation should be comprehensive and flexible, and cover a wide variety of topics. Lands that would complete the story of the Park's resources will be reviewed and listed on a proposed addition list. Continued and expanded research opportunities are identified (environmental stability, effects of fire, oceanographic investigations, exotic species control, threatened and endangered species protection, historical and archeological investigations, etc.). Visitor use issues including traffic patterns, carrying capacities, access, facilities, wilderness, and backcountry use are discussed.

An amendment to the Master Plan is underway to address specific issues regarding the addition of the new lands.

The Master Plan can be found at www.nps.gov/havo. Click on the Management Plans icon to find this document.

4h2) *If NO, is a management plan under preparation or is preparation of such a plan foreseen for the future?*

N/A

Financial Resources

4i) What is the annual operating budget for the property in the current fiscal year? (For sites consisting of more than one property provide the budgets of constituent parts.)

\$5,511,111 USD was allocated for Fiscal Year 2004 budget for base operations. Additional monies are currently being identified for use through special funding sources. This money will be used for special projects such as trail and fence construction, research, maintenance projects, etc.

Sources of Expertise and Training in Conservation and Management Techniques

4k) Please describe any sources of specialized expertise, training, and services that come from sources off-site (e.g., training centers, museum conservation facilities).

Hawai'i Volcanoes National Park employees take advantage of the National Park Service's Training and Development Program, which offers hundreds of classroom-based, computer-based, and television-based training courses, as well as workshops and symposia. Some distance-learning courses are available over the Internet; others are real-time interactive courses delivered via satellite feed to on-site stations. All new employees are required to complete a two-year, five-part program in the fundamental, universal competencies expected of all National Park Service employees. More specialized learning opportunities are available in the areas of supervision; management and leadership; administration and office management support; information management; cultural resources stewardship; historic preservation skills and crafts; planning, design, and construction; natural resources stewardship; interpretation, education, and cooperating associations; recreation and conservation programs; visitor use management; law enforcement and resource protection; fire and aviation management; facility maintenance; and several specialty fields. A catalog of current course offerings and training events is available online at <http://www.nps.gov/training/pdf/2003-catalog.pdf>.

National Park Service training facilities include: Horace M. Albright Training Center (located within Grand Canyon National Park), Stephen T. Mather Training Center, the Historic Preservation Training Center, Capital Training Center, and NPS/Federal Law Enforcement Training Center. Through partnerships with other agencies and institutions, National Park Service employees are encouraged to take advantage of programs offered at such facilities as Arthur Carhart National Wilderness Training Center, Olmsted Center for Landscape Preservation, and National Interagency Fire Center. Sources of off-site expertise and specialized services include the National Park Service's Harpers Ferry Center, which provides a variety of services including: interpretive planning, conservation of objects, audiovisual equipment repair, graphics research, replacement of wayside exhibits, and revision and reprinting of publications. Regional archeological centers, including Western Archeological Center in Tucson, Arizona, offer curatorial facilities for artifacts and expertise in artifact preservation. Additional technical assistance for care and management of museum collections is provided online by the National Park Service's Archeology and Ethnography Program, which also sponsors courses on how to incorporate ethnography into park planning, management, and interpretation.

Online aids provided to employees by the National Park Service include technical publications, searchable databases, notification about learning opportunities both within--and outside--the agency, and Internet links to related Web sites.

4j) Please provide information about the number of staff working at the World Heritage Site (enter figures).

Full Time: 98 (Value must be a number)
Part Time: 3 (Value must be a number)
Seasonal: 12 (Value must be a number)
Other: 50 (Value must be a number)

Please list the job categories of these staff (e.g., Park Superintendent, Historian, Ecologist, Interpreter, General Works/Maintenance Manager) and describe the specialized skills and expertise of the World Heritage Site's staff members.

Senior management positions include park superintendent and management assistant and division chiefs in the areas of resources management (natural and cultural), interpretation, visitor protection (law enforcement), administration, and maintenance. Senior managers supervise program managers, coordinators, park rangers (interpretive and protective), and other specialists who have expertise in numerous subjects, including, but not limited to, wildlife biology, vegetation, air quality, geology, volcanism, hydrology, history, archeology, recreation, planning, engineering, education, technical writing/editing, librarianship, museum curation, information technology, emergency services, fire management, aviation, budgeting, human resources, public relations, and a plethora of construction and maintenance skills.

Visitation

4l) Are there any visitor statistics for the site?

YES

4l1) *If YES, please provide the annual visitation for the most recent year it is available, indicating what year that is, a brief summary of the methodology for counting visitors, and briefly describe the trends in visitation. (In describing these trends, please use the year of inscription as a baseline.)*

For the year 2003 visitation was 2,178,430. This shows a decrease of 9.2% over visitation for 2002. Visitation has shown some variation each year.

1987 - 1,872,595
1990 - 2,368,219
1995 - 2,193,043
2000 - 2,408,216
2001 - 2,341,980
2002 - 2,399,361
2003 - 2,178,430

Visitors are counted at they enter the park at the entrance stations.

4m) *Please briefly describe the visitor facilities at the property.*

Visitor facilities include a visitor center, museum, 88 miles of roads (68 paved, 20 unpaved), 158 miles of trails, interpretive activities (walks, talks, hikes, orientation movies, etc.), two campgrounds (20 sites), art center, hotel with 34 rooms, restaurant, and two gift shops.

4n) *Is there tourism/visitor management plan for the property?*

YES

4n1) *If YES, please briefly summarize the plan, and provide a URL where the plan can be located.*

The existing plan is outdated; a new plan is scheduled for development in 2005 (the old plan is not available electronically).

Scientific Studies

4o) *Please list key scientific studies and research programs that have been conducted concerning the site. (Please use the year of inscription as a baseline.)*

The park issues approximately 50 research permits per year. A research group, the Biological Resource Division, part of the United States Geological Survey organization, is on site. Following is a representative sample of the types of research on-going in the Park:

D`Antonio, C.M., F.R. Hughes, M. Mack, D. Hitchcock, and P. M. Vitousek. 1998. The response of native species to removal of invasive exotic grasses in a seasonally dry Hawaiian woodland. *Journal of Vegetation Science* 9:699-712.

D'Antonio, C.M., J. T. Tunison, and R.K. Loh. 2000. Variations in impact of exotic grasses and fire on native plant communities in Hawai'i. *Journal of Australian Ecology* 25: 507-522.

Tunison, J.T. , C.M. D'Antonio, and R.K. Loh. 2001. Fire and invasive plants in Hawai'i Volcanoes National Park. Pp 122-131 in K.E.M Galley and T.P. Wilson (eds.) *Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species. Fire Conference 2000: the First National Congress on Fire Ecology, Prevention, and Management. Miscellaneous Publications No. 11. Tall Timbers Research Station, Tallahassee, FL.*

Vitousek, P.M. and L.R. Walker. 1989. Biological invasion by *Myrica faya* in Hawai'i: Plant demography, nitrogen fixation, ecosystem effects. *Ecological Monographs* 59(3): 247-265.

Vitousek, P.M., L.R. Walker, L.D. Whiteaker, D. Mueller-Dombois, and P.M. Matson. 1987. Biological invasion by *Myrica faya* alters ecosystem development in Hawai'i. *Science* 238: 802-804.

Walker, L.R. and P.M. Vitousek. 1991. An invader alters germination and growth of a native dominant tree in Hawai'i. *Ecology* 72(4): 1449-1455.

Drake, D.R. and L.W. Pratt. 2001. Seedling mortality in Hawaiian rain forest: the role of small-scale physical disturbance. *Biotropica* 33(2): 319-323.

Tunison, J.T. Alien plant control strategies in Hawai'i Volcanoes National Park. 1992. In *Alien Plant Invasions in Native Ecosystems of Hawai'i: Management and Research* C.P. Stone, C.W. Smith, and J.T. Tunison, eds. University of Hawai'i Press, Honolulu, HI, 887 pp.

Pratt, L.W. and L.L. Abbott. 1997. Rare plants within managed units of `Ola`a Forest, Hawai'i Volcanoes National Park. University of Hawai'i Cooperative National Park resources Studies Unit. Technical Report 115. 66 pp.

Katahria, L.K, P. Finnegan, and C.P.Stone. 1993. Eradication feral pigs in montane mesic habitat at Hawai'i Volcanoes National Park. *Wildlife Society Bulletin* 21(30):269-275.

Volcanism in Hawai'i 1987. (Eds) R.W. Decker, T.L. Wright, and P. Stauffer. US. Geological Survey Professional Paper 1350.

Holcomb. R.T. 1987. Eruptive history and long term behavior of Kilauea Volcano In *Volcanism in Hawai'i.* (Eds) R.W. Decker, T.L. Wright, and P. Stauffer. US. Geological Survey Professional Paper 1350.

T.J. Casadevall and D. Dzurism. 1987. Stratigraphy and petrology of Uwekahuna Bluff section of Kilauea caldera. In *Volcanism in Hawai'i.* (Eds) R.W. Decker, T.L. Wright, and P. Stauffer. US. Geological Survey Professional Paper 1350.

4o1) Please describe how the results of these studies and research programs have been used in managing the World Heritage Site.

This and the many other research documents and activities influence many of the efforts of Park management staff in making decisions to protect natural and cultural resources of the Park while allowing for public access. Examples: data gathered from daily research of the active volcanism provides information on location of potential viewing locations and safety of these locations. Research on the geology assists with the development of interpretive materials available to the visitors. Nene (endangered Hawaiian goose) research helps determine locations to be closed to the public to provide protection for the Nene. Data collected during and after the lava ignited wildland fires has given direction on the revegetation of impacted areas. Information collected during a transportation study has helped management to evaluate alternatives for visitor-use circulation issues.

4o2) What role, if any, has the property's designation as a World Heritage Site played in the design of these scientific studies and research programs? For example, has there been a specific effort in these programs to focus on the recognized World Heritage values of the property?

There is no known connection between the Park being a World Heritage Site and scientific/research programs. However, the identified values that make the site a World Heritage Site are also the values that made the Park a National Park Service site and so scientific studies and research programs provide information that support these values important to both designations.

Education, Information and Awareness Building

4p) Is there a plaque at the property indicating that it is a designated World Heritage Site?

YES

4q) Is the World Heritage Convention logo used on all of the publications for the property?

NO

4r) Are there educational programs concerning the property's World Heritage values aimed at schools?

YES

4r1) *If YES, please briefly describe these programs.*

Environmental Education Programs 2003

A total of 12,306 students participated in environmental education programs in the park and in neighboring schools. Ranger-led hikes guided students through rain forests, over lava flows, to a petroglyph field, and along the rim of the crater as well as to the floor of the crater. Students saw the following first-hand: steaming vents, moving lava flows, lava trees, sulfur banks, and native birds and plants. They learned about Hawaiian geology, the unique plant and animal life and how they depend on each other, and the cultural history of the Hawaiian people and their association with the fire goddess Pele.

Park staff, along with teachers from the Volcano Charter School for Arts and Science, developed new curricula that will be used during the up-coming school year in the park.

The Park provides outreach programs to the community and maintains a sustainable partnership with diverse agencies and organizations. Park staff continue to work on the Hawai'i Alive Project, and revisit the school to conduct student, teacher and community workshops. Students learn about the "Hot Spot Theory" as well as cultural stories of their home and the volcano. Students are introduced and taught that cultural stories were based on observations and that these observers were the cultural equivalent of scientists today. The staff also conducted a cultural exchange program with native Alaskan students on the campus of the University of Alaska, Fairbanks. Final additions and adjustments are being made to the Hawai'i Alive curricula. The pilot program was a success on the island of Moloka'i. Teacher workshops are being conducted using Earth Science curricula. A new grant has extended the program for three more years (until 2006), at which time the curricula will be printed and distributed to all Department of Education middle schools in the state of Hawai'i.

An eField Trip--"Virtual Visit"--was developed to enable students that have access to an internet computer (grades four to six), to go on-line and learn about the geology of the Hawaiian Islands. Students have an opportunity to learn and have fun while interacting with a park ranger on a live e:chat directly from their school. This is the first time the parks education center is participating in a distance-learning program.

4s) *Are there special events and exhibitions concerning the property's World Heritage values?*

YES

4s1) If YES, please briefly describe them.

There are a variety of special events and exhibitions held each year pertaining to the site. We host an "After Dark in the Park" program each that showcases research and information related to park resources (ongoing for over 10 years). The Volcano Arts Center (works under a cooperative agreement) sponsors a wide variety of educational activities every year ranging from concerts, hula demonstrations, art exhibits, etc.

4t) Please briefly describe the facilities, visitor center, site museum, trails, guides and information material that are available to visitors to the World Heritage Site.

The visitor center offers two films (one on the park in general, and the other is a cultural orientation), multiple exhibits, and handouts relating to the natural and cultural history of the park. The Jagger Museum showcases the volcanic and geologic resources of the site. There are approximately 150 miles (241 km) of trails available for hiking. Guided walks, informational programs, and activities at various locations throughout the park (Kilauea Iki, Kilauea Summit, Pu'u Huluhulu, map talks, etc.) are available.

4u) What role, if any, has the property's designation as a World Heritage Site played with respect to the education, information and awareness building activities described above? For example, has the World Heritage designation been used as a marketing, promotional, or educational tool?

Presentation of the fact that we are a World Heritage Site as well as an International Biosphere Reserve is often part of our programs and included in some of our informational materials. The aspect of World Heritage Site designation has not been fully developed.

Recently, enhanced community recognition has developed regarding our World Heritage Site designation.

II.5 Factors Affecting the Property (See Section 5 of the current Nomination Form)

5) Please briefly identify factors affecting the property under the following headings: *Development Pressures, Environmental Pressures, Natural Disasters and Preparedness, Visitor and Tourism Pressures, Number of Inhabitants Within Property and Buffer Zone and Other - major factors likely to affect the World Heritage values of the property. First discuss those that were identified in the original nomination, in the same order in which they were presented there, then those that have been discussed in reports to the World Heritage Committee since inscription, and then other identified factors.*

This section should provide information on all the factors which are likely to affect a property. It should also relate those threats to measures taken to deal with them, whether by application of the protection described in Section 4e or otherwise.

Not all of the factors suggested in this section are appropriate for all properties. The list provided is indicative and is intended to assist the State Party in identifying the factors that are relevant to each specific property.

(In describing these trends, please use the year of inscription as a baseline.)

For EACH Factor, please specify the following:

key actions taken to address factor

any plans that have been prepared to deal with factor in the future

whether the impacts of factor appears to be increasing or decreasing, and the timeframe for which the comparison is being made.

Development Pressures

5a) Provide information about Development Pressures on the following: demolitions or rebuilding; the adaptation of existing buildings for new uses which would harm their authenticity or integrity; habitat modification or destruction following encroaching agriculture, forestry or grazing, or through poorly managed tourism or other uses; inappropriate or unsustainable natural resource exploitation; damage caused by mining; and the introduction of invasive nonnative species likely to disrupt natural ecological processes, creating new centers of population on or near properties so as to harm them or their settings.

The park is on an island which has limited capabilities to expand. Any development directly or indirectly can impact the park, its ecosystems and other resources. The island populace is sensitive to the park as an asset and generally supports its preservation and protection programs.

Key Actions:

- Park Management participates in regional planning and development by review and commenting on planning documents.
- Share GIS data sets with county and state planners so up to date resource information is available to the planning process.
- Park Managers are closely involved in affairs and planning of adjacent communities.

Plans

- No specific plan for dealing with external threats and development has been prepared. Impact and influences of external activity are identified in the Resource Management Plan and Fire Management Plan. A General Management Plan (GMP) has been requested for the site. This plan would address issues relating to development pressures. Currently we are preparing an amendment to our existing Master Plan that will address issues impacting the recent addition to the park.

Impact trends

- Because this is an island environment with limited space for development, compatible development will be an increasing issue in the future. Much of the land adjacent to the park has, in the last few years, been taken out of agriculture with no specific plans for future use. An increase in residential development has been noted on these vacated lands, as well as growth in gateway communities.

Environmental Pressures

5b) Environmental pressures can affect all types of property. Air pollution can have a serious effect on stone buildings and monuments as well as on fauna and flora. Desertification can lead to erosion by sand and wind. What is needed in this section is an indication of those pressures which are presenting a current threat to the property, or may do so in the future, rather than a historical account of such pressures in the past.

- In the original inscription of the World Heritage site, the impacts of invasive species on the fragile ecosystems was noted, as well as the related potential loss of biodiversity of native species. This pressure from invasive species continues at an accelerated pace.

Key Actions

- Recognize the need for regional attention to invasive species control. Invasive species control and ecosystem restoration are dealt with in a number of ways that include partnerships with adjacent land managers for ecosystem recovery. The goal is to enhance the existing patchwork of native forests and strive to produce continuity of native plant communities across political and legal boundaries.

- Development of a system of Special Ecological Areas (SEA's) to focus management and restoration efforts on the areas of highest potential. There are now 23 SEA's in the park, encompassing 65,000 acres (26,305 hectares).

- Target keystone invasive species for removal. Entrance fee funding was used to test effects from removal of a ginger species from the rainforest which was subduing reproduction of all native species. A 100 acre (40 hectare) test area proved successful and is being followed up with 400 more acres (162 hectares) of treatment.

- Expand area of park through land acquisition to suitable adjacent lands to provide direct protection and restoration of ecosystems. 116,000 acres (46,944 hectares) have been added this year.

- Develop cooperative relationships with other government and private sector in scientific research on ecosystems. Current researchers in the park are from Stanford University, United States Geological Survey Biological Resources Division, and cooperative study units of local universities.

Plans

- Natural Resources Management Plan, Fire Management Plan, Land Protection Plan, Cave Resources Protection Plan, Strategic Plan, draft Wilderness Management Plan. A process to amend the parks Master Plan will begin in 2003 to address issues related to the acquisition of the 116,000-acre (46,944 hectare) addition on the Southwest rift zone of Mauna Loa volcano.

Impact trends

- The management of invasive plant and animal species will continue to be an increasing resource issue. Even where there are successes in management of a keystone invasive there opens the opportunity for a new invasive to take hold. The loss of biodiversity in the plant and animal community also opens the opportunities for invasive species to take hold. Since inscription, the park has set in motion the recovery of thousands of acres through a system of Special Ecological Management areas. Until such a system is embraced regionally, species and habitat loss will accelerate.

Natural Disasters and Preparedness

5c) This section should indicate those disasters which present a foreseeable threat to the property and what steps have been taken to draw up contingency plans for dealing with them, whether by physical protection measures or staff training. (In considering physical measures for the protection of monuments and buildings it is important to respect the integrity of the construction.)

The park works regionally with Hawai'i County Civil Defense to optimize response and resources to natural events that have negative impact on life and property. The park is located on two active volcanoes, and natural events noted in the inscription occur periodically. These include volcanic eruptions including lava fountains and flows from the rift zones on both volcanoes and potential for explosive phreatic events. Tsunami waves, tropical storms, and earthquakes also occur. These are natural events that do impact the native ecosystems and cultural resources.

Key Actions:

- All actions are directed at protection of life and property.
- Eruption Plans deal with hazards of volcanic events while developing operation plans that allow visitors to view and experience the activity safely.
- Attempts are made to divert lava from cultural resources.

Plans:

- Emergency Operation Plan is an informal document that has sub sections for responding to specific natural events that could have a negative impact on life and property.

- Fire Management and Resource Management Plan address fire control, restoration methods, and potential use of fire to encourage native plant communities to replace invasive communities.

Impact trends

- Tropical storms and earthquakes have had only limited impact on infrastructure.
- Volcanic event(s) since inscription have produced flows which have covered thousands of cultural features including the Waha'ula heiau (temple) noted in the inscription. Progression of flows potential could cover the Puu Loa petroglyph field also noted in the inscription. Volcanic events will continue to impact remaining physical cultural resources; at the same time, to Native Hawaiians, the flows represent a living aspect of their culture and are manifestations of a deity. While the physical evidence may be covered, their spiritual nature survives.
- Fires, exacerbated by the presence of invasive grass and brush species, have seriously impacted native plant communities.

Visitor and Tourism Pressures

5d) In completing this section what is required is an indication of whether the property can absorb the current or likely number of visitors without adverse effects (i.e., its carrying capacity). An indication should also be given of the steps taken to manage visitors and tourists. Possible impacts from visitation that could be considered include the following:

- i. damage by wear on stone, timber, grass or other ground surfaces ;*
- ii. damage by increases in heat or humidity levels;*
- iii. damage by disturbance to the habitat of living or growing things; and*
- iv. damage by the disruption of traditional cultures or ways of life.*

Key Actions:

- Maintain road and trail system to manage visitor use and protect adjacent sensitive natural and cultural resources (reduces impacts to natural and cultural resources).
- Explain and educate visitors on how to visit the park, eruption sites and other features, in a manner that has minimal impact (reduces impacts to natural and cultural resources).
- Explain and educate visitors to the cultural value of the land and resources to indigenous peoples associated with the area and the need to protect both the resources and access of these peoples to the resources for spiritual purposes (protects against the disruption of traditional cultural practices in the park area).
- Implement a fee system for entering the area, of which a portion is used directly for resource and infrastructure management, protection and restoration (provides resources to maintain infrastructure and restore impacted resources).
- Evaluate visitor circulation patterns to learn methods for reducing noise, air pollution, and congestion.

Plans:

- Master Plan, Resource Management Plan, Wilderness Management Plan, Fire Plans (Structural and Wildland), Sign Plan, trail standards, and Eruption Plan (all contribute to visitor use management), Soundscape Management Plan, and Air Tour Management Plan

Impact trends:

- Changes in global economics have changed visitor use patterns (e.g. have lost a percentage of the Pacific Rim visitor which tended to be on organized tour). Conversely, European and mainland visitors who are renting cars for individual visits to the park. The advent of cruise ships has created a change in visitor use; a large number of visitors come for a very short visit in a concentrated area.
 - September 11, 2001, had a negative impact on island tourism; park visitation has begun to rebound.
 - Commercial Air Tours are increasing in popularity; visitors are arriving on cruise ships (impacts are increasing on natural soundscape and cultural practices of indigenous peoples).

Number of Inhabitants Within Property and Buffer Zone

5e) Include the best available statistics or estimate of the number of inhabitants, if any, within the property and any buffer zone and describe any activities they undertake which affect the property.

Key Actions:

- Government housing has been reduced by 50 percent; only essential dormitory space remains.
 - Military housing has been reduced to essential positions at Kilauea Military Camp (within park).
 - Concessioner has eliminated its dormitory.

Plans:

- Housing Management Plan documents essential housing levels.

Impact trends:

- National management policy directs the Park to continue to assess and eliminate unnecessary housing within park.

5f) List Other Factors

II.6 Monitoring
(See Section 6 of the current Nomination Form)

Administrative Arrangements for Monitoring Property

6a) *Is there a formal monitoring program established for the site? In this case, "monitoring" means the repeated and systematic observation and collection of data on one or more defined factors or variables over a period of time.*

YES

6a1) *If YES, please describe the monitoring program, indicating what factors or variables are being monitored and which partners, if any, are or will be involved in the program.*

The National Park Service is laying the groundwork nationally for a systematic approach to developing region-specific integrated natural resource monitoring programs. Regional networks within the park system are charged with defining the purpose and scope of the monitoring program; compiling and summarizing existing data; developing conceptual models of relevant ecosystem components; selecting indicators and specific monitoring objectives for each; and determining the appropriate sampling design and sampling protocols. Once design phases have been completed (December 2005), monitoring programs will be implemented in each park.

Key Indicators for Measuring State of Conservation

6b) *At the time of inscription of the property on the World Heritage list, or while in the process of reviewing the status of the property at subsequent meetings, have the World Heritage Committee and the State Party identified and agreed upon key indicators for monitoring the state of conservation of the property's World Heritage values?*

NO

6b1) *If YES, please list and describe these key indicators, provide up-to-date data with respect to each of them, and also indicate actions taken by the State Party in response to each indicator.*

6b2) *If NO key indicators were identified by the World Heritage Committee and used so far, please indicate whether the World Heritage Site management authority is developing or plans to develop key indicators for monitoring the state of conservation of the property's World Heritage Values.*

Results of Previous Reporting Exercises

6c) Please describe briefly the current status of actions the State Party has taken in response to recommendations from the World Heritage Committee at the time of inscription or afterwards, through the process known as "reactive reporting." (Note: The answer to this question will be "not applicable" for many sites.)

At the time of inscription, the threat of invasive plants and animals--and the loss of biodiversity--was identified as a critical issue. As noted in this report, major management focus has been given to dealing with this threat--with measurable success. While the threat will not diminish, management has established tools and methodologies that are increasingly effective in dealing with these threats. A multi-agency science program is in place to validate management efforts, define nature of threats, and develop new tools in dealing with identified threats.

II.7 Conclusions

World Heritage Values

7a) Please summarize the main conclusions regarding the state of the World Heritage values of the property (see items II.2. and II.3. above).

The values that led to the designation of Hawai'i Volcanoes National Park as a World Heritage Site are still viable. Research, education, public involvement, and staff dedication have supported the site and have helped to improve many aspects of the myriad of values so important to the area.

Management and Factors Affecting Site

7b) Please summarize the main conclusions regarding the management of and factors affecting the property (see items II.4. and II.5. above).

Management will continue to participate in outside planning events that have the potential to affect resources of the site. Participation of outside groups in the planning of park activities will continue to be solicited. Support of research, inventory and monitoring, education, partnerships, and information-sharing will continue to provide a basis for sound, scientific management of Hawai'i Volcanoes National Park.

Proposed Future Action(s)

7c) Please describe briefly future actions that the State Party has approved to ensure the conservation of the World Heritage values of the property.

These sample headings can be used as a checklist.

*Modification of legal or administrative structure
Changes to financial arrangements
Increases to staffing level
Provision of training
Modification of visitor facilities
Preparation of a visitor management plan
Studies of public knowledge of the World Heritage Site
Emergency preparedness
Establishment or improvement of a monitoring program.*

Hawai'i Volcanoes National Park will:

- Complete the Kilauea Visitor Center improvement project and finalize plans for improved informational media.
- Follow procedures to develop and implement the NPS Inventory and Monitoring program.
- Explore new and innovative options to broaden educational opportunities.
- When appropriate, expand park boundaries through purchases and donations, to protect resources that meet values of the site.

And, develop an Environmental Assessment to amend the current Master Plan that addresses specific management topics related to the new addition to the Park.

Responsible Implementing Agency(ies)

7d) Please identify the agency(ies) responsible for implementation of these actions described in 7c, if different from those listed in Section II.4.

Responsible Implementing Agency #1

Entity National Park Service, Hawai'i Volcanoes National Park
First Name: Cynthia
Last Name: Orlando
Address: P.O. Box 52
City: Hawai'i National Park
State/Prov: HI
Postal Code: 96718
Telephone: 808-985-6025
Fax: 808-967-8186
Email: cindy_orlando@nps.gov

Timeframe for Implementation

7e) If known, or predictable, please provide a timeline for the implementation of the actions described in 7c.

Construction is scheduled to begin on the Kilauea Visitor Center rehabilitation project during the summer of 2004.

Staff is in place to develop the Inventory and Monitoring program for Hawai'i Volcanoes National Park.

The educational staff is working on new curriculum-based education programs; programs should be completed by mid 2005.

The Park purchased 116,000 acres in 2003. We are currently in the planning process for this new section of the Park. The environmental planning document should be completed by early 2005.

Needs for International Assistance

7f) Is it anticipated that International Assistance, through the World Heritage Fund, will be requested for any of the planned actions described above?

NO

7f1) If YES, please state the nature of the request and when it will be requested, if known.

Potential Decisions for the World Heritage Committee

7g) Please indicate if the World Heritage Site management authority has preliminarily identified, as a result of this reporting exercise, an apparent need to seek a World Heritage Committee decision to change any of the following:

(Note: Following completion of the Periodic Report exercise, the State Party, in consultation with appropriate authorities, will determine whether to proceed with seeking a Committee decision on these changes. To request such changes, the State Party will need to follow a separate, formal process, subsequent to submitting the report.)

- change to criteria for inscription
- change to Statement of Significance
- proposed new Statement of Significance, where previously missing
- change boundaries or buffer zone

II.8 Documentation

(See Section 7 of the current Nomination Form and Section 3 of the original Nomination Form)

8a) Please review the original nomination for the property to determine whether it is necessary or advisable to supply, update or amend any of the following documentation for the World Heritage Site. Indicate what documentation will be supplied to supplement the information found in this report. (This documentation should be supplied at the time the Periodic Report is submitted to the World Heritage Centre, in December 2004.)

- a) Photographs, slides and, where available, film. This material should be accompanied by a duly signed authorization granting, free of charge to UNESCO, the non-exclusive right for the legal term of copyright to reproduce and use it in accordance with the terms of the authorization attached.
- b) Topographic or other map or site plan which locates the WHS and its boundaries, showing scale, orientation, projection, datum, site name, date and graticule.
- c) A copy of the property management plan.
- d) A Bibliography consisting of references to all the main published sources on the World Heritage Site, compiled to international standards.

8b) Do you have a digital map of the WHS, showing its location and boundaries?

Select

8bi) If yes, in what format(s) is the map?

8bii) Is it published on a publicly-accessible website?

Select

8biii) If yes, please provide the URL of the site where the map can be found. Must be a valid URL.