Geotourism:

The Tourism of Geology and Landscape

9

Edited by

David Newsome, Murdoch University, Australia

and Ross K. Dowling, Edith Cowan University, Australia

Contents

Published by Goodfellow Publishers Limited, Woodeaton, Oxford, OX3 9TJ
http://www.goodfellowpublishers.com

Design and setting by P.K. McBride

9 Geotourism in the Hawaiian Islands

Lisa M. King, James Cook University, Cairns, Australia

Introduction

Situated almost in the middle of the Pacific Ocean, the Hawaiian Islands are not only one of the most isolated places in the world (Juvic and Juvic, 1998), but also one of the best known. Hawaii's acclaimed natural attractions stem from its volcanic origins – tall mountains deeply eroded by tropical rains and waterfalls into rugged gorges and valleys, a spectacular backdrop for world-class beaches, dramatic volcanic landscapes and forests. The state consists of six main islands: Kauai, Oahu, Molokai, Maui, Lanai and Hawaii Island, also known as the Big Island. Two lesser known islands, Niihau and Kahoolawe, are not open to conventional tourism. Tens of smaller, much older islands, northwest of the main island chain, are protected by-and-large within the Papahanaumokuakea Marine National Monument.

Many special interest tourists consider the Hawaiian Islands as an tropical paradise. Geotourists are especially drawn to the islands to witness their past volcanic history and experience the current eruption activity of Kilauea on Hawaii Island first hand.

This chapter is an introduction to how the Hawaiian Islands were formed and the importance of geotourism to the State's economy. The surprising diversity of geotourism-related activities available on the Hawaiian Islands is discussed along with investigating who is Hawaii's geotourist. Three case studies at the end of the chapter highlight different issues pertaining to geotourism on Hawaii Island. The first case study discusses how Hawaii Volcanoes National Park minimizes the risk to visitors in an active volcanic landscape while the second reports on how the Park rehabilitated the Sulphur Banks site from an unorganized congested visitor area to a managed natural volcanic area where visitors learn about the active volcanic processes being experienced. The last case study focuses on a small entrepreneurial business working within Kazumura lava tube, finding a balance that works for both the visitor and the resource. The chapter concludes that the Hawaiian Islands will continue to attract large numbers of geotourists in the foreseeable future.

The Hawaiian Islands – a hotspot

According to Hawaiian legend, the demi-god, Maui, raised the islands out of the ocean with his favorite fishing hook (Westervelt, 1977). Today, the theory of plate tectonics (Wegener, 1912, cited in Kious and Tilling, 1996) offers a different scenario. The theory suggests the Earth's crust is composed of huge tectonic plates slowly moving and rearranging themselves over geologic time. Volcanic activity usually occurs around the edges of these massive plates. Wilson (1963) developed the 'hotspot' theory to explain the formation of volcanic islands thousands of kilometers from the edges of tectonic plates. The hotspot theory proposes the Hawaiian Islands, and similar volcanic islands, form as

a slowly moving tectonic plate intercepts a narrow stream of hot magma rising upward from the Earth's interior (Wilson, 1963). The magma from this 'hotspot' erupts from the ocean floor, building a volcano that over geologic time emerges above the surface of the ocean as an island. As the tectonic plate continues to move, the hotspot occurs beneath a new portion of the plate and repeats the island building process. For example, Kure Atoll, approximately 2100 km northwest from Oahu (Juvic and Juvic, 1998), is the oldest Hawaiian island above sea level, while Lo'ihi seamount, the newest Hawaiian volcano, is still below the surface of the Pacific Ocean and presumed by scientists to be directly over the hotspot (Anderson and Schram, 2005). Recent research is calling into question aspects of the popular hotspot paradigm (see Foulger *et al*., 2005) and facets of the hotspot theory may undergo revision in the future.

Hawaii's economic lifeline: tourism

Hawaii's economy is based largely on tourism. Approximately 7.6 million visitors traveled to the Hawaiian Islands in 2007 with an average length of stay of slightly over nine days (Dept. of Business, Economic Development and Tourism [DBEDT] 2008a). Visitor expenditures totaled 12.8 billion US dollars in 2007 (DBEDT, 2008a).

Tourism and recreation are intimately linked to the islands' iconic volcanic features. Diamond Head, Haleakala, Molokini crater, Hanauma Bay, Mauna Kea, the Na Pali Coast and the volcanoes within Hawaii Volcanoes National Park – Mauna Loa and Kilauea, are all highly popular visitor attractions. These famous sites and landscapes help sell millions of dollars worth of tourist merchandise and memorabilia such as post cards, books and DVDs; sports equipment such as mountain bikes and hiking gear, clothing, art and real estate. Thus, geotourism is a tremendous contributor both directly and indirectly to the Hawaiian economy.

Who is Hawaii's geotourist?

Who is the geotourist in Hawaii? The simple answer is nearly everyone as almost every island visitor participates in at least one geotourism-related activity during their Hawaiian holiday. Some geotourism-related visitor statistics are collected by Hawaiian tourism agencies; others must be compiled or inferred from additional sources. See Table 9.1 for the number of people who visit some of Hawaii's most iconic geologic features.

Geotourism visitor characteristics can be identified, in part, by reviewing the State of Hawaii Department of Business, Economics and Tourism statistics through a geotourism lens. Table 9.2 shows the percentage of total visitors in various lifestyle/lifestages participating in particular Hawaiian geotourism-related activities and visitation status. For example, newlyweds and honeymooners provide a solid market for helicopter and plane tours (DBEDT, 2008b); these tours selling, in large part, Hawaii's iconic landscapes. Tour bus excursions, limousine and van tours stop, view and interpret Hawaii's famous landforms. Self-guided geotourists literally stop everywhere with their travel guidebook or with Hazlett and Hyndman's (1996) *Roadside Geology of Hawai'i* in hand. Hikers, campers and backpackers may conduct such activities to gain a more intimate connection with the land and its values, to take in less accessible views or spend a longer period of time immersed in the landscape and its contents. Public and commercial parks and gardens are often developed nestled against rugged mountains or with sea views as an additional enticement to pull visitors to the attraction.

Table 9.1: Visitation to some of Hawaii's iconic geologic features (2007).

Island	Total no. of visitors	Geosite	Description of geologic feature	Approx. no. of visitors to geosite
Oahu	4,694,750[a]	Hanauma Bay Nature Preserve	Flooded volcanic crater with one side open to the sea forming a curved beach with a protected coral reef and stunning views from the crater rim.	1,088,660[a]
		Diamond Head State Monument	Iconic volcanic crater adjacent to Waikiki.	584,909[a]
		Nuuanu Pali State Wayside Park	Deeply eroded cliffs with panoramic coastal views immediately off a major tourist route.	905,300[b]
Maui	2,463,594[a]	Haleakala National Park	Dormant volcano with colourful cinder cones and dramatic volcanic landscapes.	1,322,817[a]
		Iao Valley State Monument	Eroded caldera of the West Maui volcano covered with lush vegetation.	431,400[a]
Big Island of Hawaii	1,622,359[a]	Hawaii Volcanoes National Park	Mauna Loa and Kilauea volcanoes along with cinder cones, pit craters, active lava flows and other volcanic features.	1,467,779[a]
		Mauna Kea State Park	Mauna Kea, Hawai'i's tallest volcano at 4025m, partially protected within this park.	64,600[b]
		Akaka Falls State Park	Two large waterfalls, Akaka and Kahuna, along with several smaller waterfalls are easily viewed by visitors.	189,400[b]
		Lava Tree State Monument	Impressive lava tree molds standing where a forest once was before taken by lava.	44,400[b]
Kauai	1,200,045[a]	Na Pali Coast State Park	Deeply eroded sea cliffs resulting from of a catastrophic landslide from the north flank of the Wai'ale'ale volcano.	423,100[b]
		Waimea Canyon State Park	A gigantic volcanic erosional feature composed of thousands of lava flow layers oxidized from black to bright reds.	430,700[b]

[a] DBEDT (2008b); [b] OmniTrak Group Inc, 2007.

Table 9.2: Breakdown of the total number of Hawaii's visitors participating in some geotourism-related activities (%) (compiled from DBEDT, 2008c).

	Lifestyle/lifestage segments					Visitor status	
Activity	Wedding/ Honeymoon	Family	Young	Middle age	Seniors	First-timers	Repeat visitors
Helicopter or plane tour	19.5	10.7	10.6	13.8	13.1	14.0	11.4
Tour bus excursion	35.1	22.3	21.9	25.2	37.5	38.9	20.6
Private limousine/van tour	11.2	11.1	9.3	11.0	12.8	11.1	9.5
Self-drives	72.3	79.0	78.5	74.5	68.1	69.0	75.8
hiking/camping/backpacking	25.9	17.2	35.0	20.7	10.6	23.3	17.2
Parks/gardens	57.9	58.0	60.0	59.0	56.9	59.7	58.1

Diversity of volcanic-based geotourism activities in the Hawaiian Islands

The Hawaiian Islands offer a full range of volcanic-based formations and landscapes for the geotourist. Active volcanoes, steam vents, lava tubes, waterfalls, thermal tide pools, ocean blowholes and overlooks with panoramic cliff, sea, mountain or valley views are just a few of the features around the State for geotourists. Actually, spectacular scenery and scenic overlooks are not to be underrated. The 2007 Hawai'i State Parks Visitor Survey found scenery (61 percent) as the most important factor for the self-drive visitor in their level of park satisfaction, with scenic views (37 percent) rated second (Omni-Trak Group Inc., 2007). For example, the scenic views of Waimea Canyon are a 'must see' for geotourists on the island of Kauai (Figure 9.1).

Figure 9.1: The spectacular Waimea Canyon, often referred to as 'the Grand Canyon of the Pacific', is one of the most famous scenic views and geosites on Kauai. Photo credit: Leland Kim.

Helicopter and fixed-wing plane tours share the expansive landscapes with those who have more holiday dollars to spend. Bus and van tours provide geotourists the chance to view scenic landscapes and take pictures from overlook spots. Many geotourists choose to combine their special interests, during a holiday. For example, those geotourists hiking amongst the cinder cones within Haleakala National Park are combining their interest in geology with their affinity for multi-day backpacking trips (Figure 9.2).

Cavers can undertake tours through a limited number of lava tubes open to the public (King, forthcoming), to add them to their mental tally sheet of collected places (King and Prideaux, forthcoming). Others geotourists may opt for less strenuous options such as simply boarding a ship and cruising around the Islands, taking in the vast volcanic landscapes during the day and viewing the fiery ocean entry of Kilauea's lavas flows at night.

Figure 9.2: Geotourists hiking in the backcountry of Haleakala National Park on Maui. Photo credit: Sharon Ringsven.

Case studies

With the wide range of geologic features and ongoing geomorphological processes in the Hawaiian Islands there are also a number of geotourism management issues Statewide. The three case studies presented below focus on geotourism issues on Hawaii Island. The first two case studies highlight geotourist management issues inside Hawaii Volcanoes National Park. The first case study reports on the measures the Park has implemented to minimize risks to visitors in an active volcanic landscape. The second case study illustrates how the Park redesigned the Sulphur Banks site to reduce impacts on the fragile resource by visitors. The Kazumura lava tube cave case study highlights how a small tour operator carefully balances visitor numbers with a strong conservation ethic in order to conserve one of the most important lava tubes in the world.

Case study 1: Hawaii Volcanoes National Park

Hawai'i Volcanoes National Park is the most unique park in the U.S. National Park system (Bendure and Friary, 1997). The Park stretches from sea level to an elevation of 4169 m and encompasses the summits and rift zones of two of the world's most active volcanoes, Mauna Loa and Kilauea (U.S. National Park Service [NPS], 2008). The Park protects endemic and endangered flora and fauna including happy face spiders *(Theridion grallator)*, the Hawaiian goose *(Branta sandvicensis)* also known as the Nene, and the Mauna Loa silversword plant *(Argyroxiphium kauense)*. The Park's outstanding natural and biological resources led to its designation as an International Biosphere Reserve in 1980 and a UNESCO natural World Heritage Site in 1987 (U.S. NPS, 2008). However, the primary tourism attraction for the nearly 1.5 million annual visitors to Hawaii Volcanoes National Park (DBEDT, 2008b) is Kilauea's ongoing volcanic activity and the park's variety of dramatic volcanic landscapes.