

January 1978

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Gary A. Klee
San Jose State University, gary.klee@sjsu.edu

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Recommended Citation

Gary A. Klee. "Conserving Hawaiian Natural Resources: A Geography Field Trip Experience" *The California Geographer* (1978): 111-120.

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CONSERVING HAWAIIAN NATURAL RESOURCES:
A GEOGRAPHY FIELD TRIP EXPERIENCE

Gary A. Klee*

For several years San Diego State University's Geography Department has offered a three-unit field course to the island of Kauai, Hawaii (Figure 1). The course surveys the nature and extent of mineral, soil, water, grassland, forest, wildlife, and marine resources on the island, as well as Kauai's conservation management practices. Aside from studying island ecosystems, what is strikingly different about this trip is its strong reliance upon local talent for the actual field teaching and its alliance with an on-campus association for the non-academic portion of the field experience.

Local Specialists as Instructors

During the two-week session, students swim and analyze the coral reef ecosystem with local marine biologists; study soil and water conservation practices in the sugar cane fields and taro swamps with local soil conservationists; and experience and record types of birdlife at Kilauea Cliffs, the distant guano-covered islands, and the taro fields of Hanalei Valley, with local wildlife specialists. Several similar activities are crammed into this two-week session to clarify and amplify the general principles of resource appraisal and

*Dr. Klee developed this course while teaching at San Diego State University, 1974-76. He is now an Assistant Professor at San Jose State University, San Jose, California 95192.

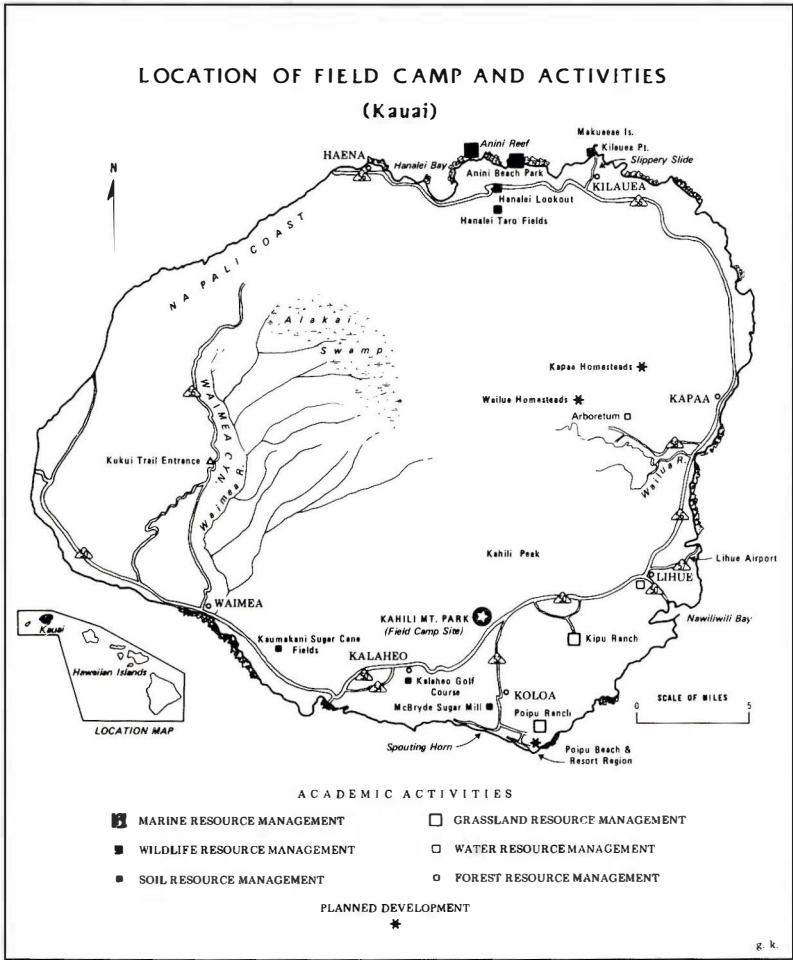
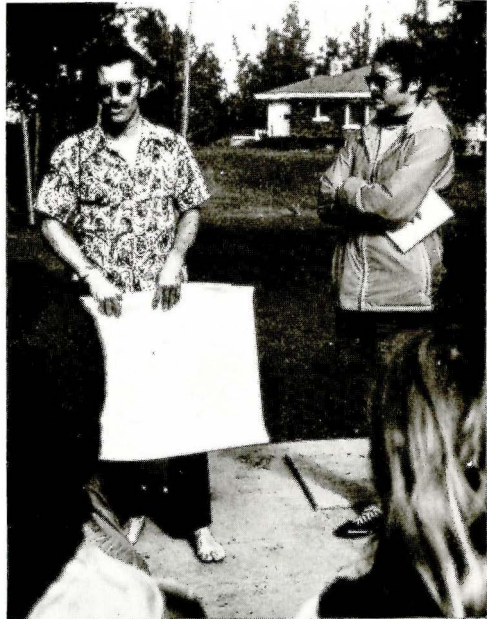


Figure 1. Location of field camp and activities (Kauai).

conservation management (Table 1).

The advantages of such an approach to instruction are threefold: First, students get firsthand information and differing viewpoints on the problems Hawaii faces. Contact with local informants is made through meetings with local citizens' groups, developers, naturalists, and government officials. Second, students are exposed to the individuals, offices, and operations that actually handle the management of natural resources on the island. The "developer" is no longer seen as that unknown force that lies behind the ruination of every natural landscape, but rather as a living, breathing human being with a role in society (even if it is a role that can dominate if it is not carefully guarded and balanced by environmental watchdogs). The wildlife biologist is no longer seen as a "birdwatching freak," but rather as a highly skilled individual that can read a landscape and explain the ecological intricacies among plants, animals, and man (Figure 2).

Figure 2. Fred Zeillemaker (left), wildlife biologist and assistant refuge manager for Kauai, instructs geography students about wildlife habitats at Kilauea Point. The author is at right.



TWO-WEEK FIELD COURSE SCHEDULE

I. Preliminary Activities

- A. Submission of a "Proposal for Extension Course" to the college or university Extension office.
- B. Establishing written contacts and confirming field tour dates and times with the field area's local officials, developers, naturalists, and governmental representatives. (A telephone book of the field area is a very helpful aid in establishing initial contacts—especially the section for county, state and federal offices.)
- C. The creation of a course outline and syllabus based on the above *confirmed* contacts.
- D. Advertising and course recruitment through (1) local and regional newspaper ads; (2) distribution of colorful airline brochures containing course description to the staff and faculty lounges of local elementary and high schools; (3) distribution of the same brochures to the university department offices of geography, geology, biology, recreation, and physical education; (4) strategically placed sandwich board advertisements on the primary campus; and (5) the showing within the Geography Department of an hour-long Super 8mm film that illustrates the field trip experience of past groups on Kauai.
- E. Personal in-office interviews with each student signed up for the geography course. Screen out students that planned on going solely for "fun and games in Hawaii." Make sure that each student is well aware that they are required to undertake initial interviews and a field project while on the island.
- F. Information packet (airline flight schedule, suggested clothing and camping gear, *required* gear such as binoculars for observing wildlife and mask, snorkel, fins and underwater flashlight for observing marine life, course syllabus and outline, and preliminary reading list) is prepared and mailed several weeks prior to takeoff.
- G. Class get-together for dinner, drinks and last minute questions prior to departure.

II. Daily Activities

DAY NO. 1	Flight to Kauai			
DAY NO. 2				
8:00- 9:00	Breakfast at field camp.			
9:00-12:00	General Orientation/Poipu Beach			
	(1) Relaxation after long flight	3:00- 5:00	(3)	Reef Walking
	(2) Discussion of the afternoon's activities and objectives.			a. Students walk the reef with the marine biologist.
12:00- 1:00	Lunch at Poipu Beach			b. Students are asked to inquire about the various things they see on the reef.
1:00- 5:00	<i>Marine Resource Management/Anini Reef</i>			c. Students witness the transition zones of a coral reef.
	(1) Meet with Kauai's marine advisory specialist			Return to field camp.
	(2) Students set Hawaiian gill nets and lobster nets on the reef with the marine biologist.	5:00- 6:00		Dinner at field camp.
5:00- 6:00	Return to field camp.	6:00- 7:00		(1) The marine biologist and his family are invited to dinner.
6:00- 7:00	Dinner at field camp.			(2) Student team studying marine resources and their management has a chance to interview the marine biologist.
7:00-?	Free time.			Free time for students not working with the marine biologist.
DAY NO. 3				
8:00- 9:00	Breakfast at field camp.	7:00-?		
9:00- 1:00	<i>Marine Resource Management/Anini Reef</i>			
	(1) Return to Anini Reef to work with Kauai's marine advisory specialist.			
	(2) Students help pull in the nets.			
	(3) Once ashore, students help the marine biologist separate the fish from the nets.			
	(4) While so doing, the marine biologist discusses the catch and explains each species role within the coral reef ecosystem.			
1:00- 2:00	Lunch with the marine biologist at Anini Beach Park.			
2:00- 3:00	<i>Marine Resource Management/Anini Reef</i>			
	(1) Students listen to the marine biologist as he discusses-			
	a. Various theories on the origin of islands			
	b. The fragility of coral reef ecosystems.			
	(2) Analysis of a Coral Head	11:30-12:00		Lunch with the wildlife biologist at his house.
	a. The marine biologist picks up a dead Coral Head off the reef and brings it ashore.			
	b. With an axe, he breaks it apart to illustrate the various animals living within the system.	12:00- 2:00		<i>Wildlife Resource Management/Hanalei Taro Fields</i>
				(1) Students listen to the wildlife biologist on the subject of artificial ecosystems as wildlife habitats.

- (2) With binoculars and cameras in hand we peer into the taro fields from Hanalei Point.
 - (3) Having discussed the role of artificial ecosystems and man's management (National Wildlife Refuge), students actually walk through the taro fields with the wildlife biologist.
 - (4) Students meet the Hawaiians in the field and observe the planting and harvesting of taro.
 - (5) Students have an opportunity to observe the working relationship between the local Hawaiian farmer and a National Wildlife Refuge Mgn.
- 2:00- 5:00 *Non-Academic Activity/Slippery Slides*
- (1) Free time for students to take the falls and swim in the pool created for the film *South Pacific*.
 - (2) Student team studying wildlife resources and their management has an opportunity to talk to the wildlife biologist in a relaxed informal setting.
- 6:00- 7:00 Dinner at field camp
- (1) The wildlife biologist and his family are invited to dinner.
- 7:00- 8:00 (2) A slide/tape presentation on Kauai's birdlife sums up the main concepts of the day's activities.
- 8:00-? (3) Student team researching wildlife resources and their management has a further opportunity to interview this wildlife biologist. Free time for students that are researching aspects other than Kauai's wildlife resources.

DAY NO. 5

- 8:00- 9:00 Breakfast at field camp.
- 9:00-10:00 *Soil Resource Management/McBryde Sugar Mill*
- (1) Students studying under Kauai's District Soil Conservationist.
 - (2) Students have an opportunity to see how McBryde Mill recycles its wastes to reclaim land for new sugar cane fields.
 - (3) The total process of planting, burning, harvesting, and milling of sugar cane is reviewed by the soil conservationist.
- 10:00-11:00 *Soil Resource Management/Kalaheo Lookout*
- (1) Students work with the soil conservationist in an open-air clubhouse building on Kalaheo Golf Course.
 - (2) First, the soil conservationist distributes colorful maps and pamphlets that are printed by the Soil Conservation Service. The students get to keep all the material.
 - (3) Secondly, the soil conservationist discusses the relationships between "soil associations" and "land use" on the island while the students analyze the soil maps and land use maps that he provided.
 - (4) We walk from the clubhouse to a nearby lookout point which oversees the Kalaheo sugar cane fields. The soil conservationist points out the various conservation measures such as contour plowing, terracing, the use of setting pits and drip irrigation that the plantations are practicing.
- 11:00-12:00 *Soil Resource Management/Kaumakani Sugar Cane Fields*
- (1) We travel from the lookout point to one of the sugar plantations in the southeast section of the island.
 - (2) The students witness the burning, mechanized harvesting, and mechanized planting of the sugar cane.

- 12:00- 1:00 Lunch with the soil conservationist.
- 1:00- 5:00 Non-Academic Activity/Poli Hale Beach
- 5:00- 6:00 Return to field camp.
- 6:00- 7:00 Dinner at field camp.
- 7:00-? Free time.

DAY NO. 6

- 8:00- 9:00 Breakfast at field camp.
- 9:00-11:00 *Grassland Resource Management/Kipu Ranch*
- (1) Students meet with the soil conservationist at Kipu Cattle Ranch.
 - (2) While gazing over the pasture land, the soil conservationist discusses-
 - a. Types and distribution of pasture grasslands.
 - b. The shrinkage of existing grasslands by urban expansion and the invasion of noxious plants.
 - c. Conservation measures already in practice and needed at Kipu Ranch.
- 11:00- 1:00 *Grassland Resource Management/Poipu Ranch*
- (1) Students meet one of the original ranchers on the island.
 - (2) The rancher gives the students a tour of Poipu Ranch and discusses the problems of grassland management.
- 1:00- 2:00 Lunch at a local restaurant.
- 2:00- 5:00 *Non-Academic Activities/Poipu Region*
- (1) Body surfing/sun bathing.
 - (2) Sightseeing/spouting horn.
- 5:00- 6:00 Return to field camp.
- 6:00- 8:00 Dinner at field camp.
- (1) The soil conservationist and the rancher are invited to dinner.
 - (2) Student team studying grassland resources and their management has an opportunity to interview these two men.
- 8:00-? Free time.

DAY NO. 7

- 8:00- 9:00 Breakfast at field camp.
- 9:00- 5:00 Field Trip/Waimea Canyon.
- (1) Group #1 Hikers
 - a. Those students that do not want to backpack and stay overnight in the canyon.
 - b. Hike down canyon for two miles, eat lunch, then hike back.
 - c. 1:00 p.m.—free time.
 - (2) Group #2 Backpackers
 - a. Those students that do want to backpack and stay overnight in the canyon.
 - b. Walk down Waimea River and are picked up the following day at the town of Waimea.
- 5:00- 6:00 Group #1 returns to field camp.
- 6:00- 7:00 Dinner at field camp.
- 7:00-? Free time.

DAY NO. 8

No Class.
Free time for waterskiing, sailing, surfing, biking, surf kayaking, etc.

DAY NO. 9

- 7:00- 8:00 Breakfast at field camp.
- 8:00-12:00 *Forest Resource Management*
- (1) Students meet with Kauai's District Forester in the state building in Lihue.
 - (2) The district forester gives a slide presentation on forest resources and their management on Kauai.

	(3) The district forester then gives the students a tour of Keahua Forestry Arboretum.	5:00- 6:00 6:00- 8:00	Return to field camp. Dinner at field camp.
12:00- 1:00	Lunch and swimming within the natural streams of the arboretum.		(1) Developer and county planner are invited to dinner.
1:00- 6:00	<i>Non-Academic Activities/Kahili Mt. Park.</i> (1) Horseback riding up Mt. Kahili. (2) Volleyball tournament (3) Japanese hot bath	8:00-?	(2) Student interviews are possible. Free time.
6:00- 8:00	Dinner at field camp. (1) The district forester is invited to dinner. (2) Student team studying forest resources and their management has an opportunity to interview this man.	DAY NO. 12 7:00- 8:00 8:00-10:00	Breakfast at field camp. <i>The Citizen's Response</i> (1) Students meet with local citizen groups that are involved in conserving Kauai's natural resources. (2) Representatives from the following groups are on hand for comment. a. Ohana'o Maha'ule pu b. Niumau Tenants Association c. Kilauea Agriculture Association
8:00-?	Free time.		
DAY NO. 10			
7:00- 8:00	Breakfast at field camp.		
8:00- 9:30	<i>Water Resource Management</i> (1) Students meet with Kauai's county water specialist in Lihue. (2) With maps and handout materials, the engineer takes the students through a general discussion of Kauai's water problems.	10:00-12:00	<i>The Professional's Response</i> (1) Students meet with Kauai Community Research Group—a nonpartisan research organization made up of doctors, lawyers, scientists, teachers, etc., that keep the public up to date on the pros and cons of various changes in land use. (2) Time is allowed for students to interview anyone he/she so chooses.
10:00-12:00	<i>Wildlife Resource Management.</i> (1) In addition to birds, the focus of the first wildlife discussions, students are exposed to the other types of wildlife on the island. (2) By means of a slide presentation, the state's wildlife biologist discusses the types, distribution and problems involved in wildlife management.	12:00- 1:00 1:00- 5:00	Lunch in Lihue. <i>Non-Academic Activities.</i> (water skiing, sailing, surfing, biking, surf kayaking, etc.) Return to field camp.
12:00- 1:00	Lunch in Lihue	5:00- 6:00 6:00- 8:00	Dinner at field camp. (1) Members of the citizen's groups and professional group are invited to dinner. (2) Student interviews are possible.
1:00- 5:00	<i>Non-Academic Activities.</i> (1) Waterskiing on the Wailua River. (2) Hobi cat sailing, surfing, surf kayaking at Nawiliwili Bay. (3) Biking at Poipu Resort Region.	8:00-?	Free time.
5:00- 6:00	Return to field camp.	DAY NO. 13 8:00- 9:00 9:00-12:00	Breakfast at field camp. <i>Interviews with Representatives of the Dept. of Natural Resources/State Building.</i> (1) Students conduct interviews of their choice. (2) Return to Lihue Public Library for write-up.
6:00- 8:00	Dinner at field camp. (1) The state's wildlife biologist is invited for dinner. (2) Student team researching wildlife resources and their management has an opportunity to interview this man.	12:00- 1:00 1:00- 5:00	Lunch at local restaurant. <i>Non-Academic Activities</i> (water skiing, sailing, surfing, biking, surf kayaking, etc.)
8:00-?	Free time.	5:00- 6:00 6:00- 7:00 7:00-?	Return to field camp. Dinner at field camp. Free time.
DAY NO. 11		DAY NO. 14 8:00- 9:00 9:00- 1:00	Breakfast at field camp. <i>Free Time for Library Research or Further Interviews.</i>
8:00- 9:00	Breakfast at field camp.	1:00- 2:00 2:00- 5:00 6:00- 8:00	Lunch at local restaurant. Return to field camp. Coco Palms/Dinner and Torch Lighting Ceremony.
9:00-11:00	<i>The Developer's Point of View.</i> (1) Students meet with a local developer in his office in Poipu. On hand is a county planner, who happens to be a geographer by training. (2) Students are briefed on the local areas planned for development.	8:00-?	Free time.
11:00- 1:00	<i>The Developer's Point of View (cont.)</i> (1) Tour of Poipu Resort Region. (2) Tour of Wailua and Kapaa Homesteads.	DAY NO. 15 Flight Home	
1:00- 2:00	Lunch in local restaurant.		
2:00- 5:00	<i>Non-Academic Activities.</i> (1) Small plane air ride around island. (2) Water skiing, sailing, surfing, biking, surf kayaking, etc.		

Third, and most important in terms of boosting student enrollment in geography, students are turned-on to the need and value of the geographic approach. Mid-way in the course, the students usually realize that each specialist on the island knows a great deal about his or her own particular sphere of knowledge, but is rather ignorant or apathetic about other specialties. For example, while studying soil and water conservation practices at McBryde Sugar Mill, the soil conservationist made the statement, "I don't know what happens to the mill's waste water when it gets to the sea, that's not my area of concern. My area of expertise is strictly land oriented." Prior to this outing, the students had been primed on the interplay of coral organisms, the formation of reefs, and the importance to marine resources of maintaining a healthy reef ecosystem. It became immediately obvious to the students that, together with the need for specialists, generalists are also needed to synthesize the material. Enter the geographer, for who else studies places in their entirety!

*Alliance with On-Campus
Associations*

Although the geography field course on Kauai sells itself, the program is made even more attractive by its alliance with San Diego State University's Campus YMCA/YWCA. The Campus Y offers instruction in such activities as water skiing, Hobie Cat sailing, skin diving, body surfing, surf kayaking, bicycling, and backpacking. Therefore, in addition to the field course in geography, students get free instruction and use of recreational equipment on the island.

This is how it works: To meet the University's standards for a three-unit field course, the geography program must run at least four hours per day for twelve days. Operating on a philosophy of business before pleasure, the geography course normally takes place in the morning. After lunch,

emphasis shifts to maximizing the intake of sights, scenes, sun and surf. Each student selects the recreational activity of his or her choice, from sailing a Hobie Cat on Nawiliwili Bay to backpacking the rugged Napali Coast. Instruction is provided by recreational specialists.

Students enrolling in the program have the option of taking Recreation X-99, *Recreation in Hawaii*, or Geography X-499, *Conserving Hawaiian Natural Resources*. What might be heartening to geographers in particular and academic types in general is that more students sign up for geography than they do for recreation. In fact, a number of students that are enrolled for Rec. X-99 often opt to skip their own morning activities to join the geography field excursions. Without question, both courses benefit from the other's presence in the program.

Conclusion

Despite the fact that Geography X-499 students are faced with such pressures as selecting a research topic, carrying out local interviews, conducting library research, and executing a final report, the attractiveness of a course that offers local specialists as instructors and an alliance with an on-campus association warrants all the battles and headaches that go along with writing a field report. There are times when the geography students find it hard to justify their work load while lying on the beach. But, the following activities seem to keep them interested in the geography program:

Swimming the coral reef ecosystem, reef-walking, and torchlight fishing at night with the marine biologist;

Photographing the burning of sugar cane fields;

Analyzing soil and water conservation practices in the sugar cane fields with a local soil conservationist;

Sharing evening meals with the same local representatives that provided us the tours;

Hiking in Kauai's Forestry Arboretum with the district forester;

Struggling through waist-high mud of Alkalai Swamp;

Backpacking into Waimea Canyon, the so-called "Grand Canyon of the Pacific";

Listening to Sierra Club representatives and local citizens' groups concerned with environmental affairs;

Studying Kauai's water resources with a county engineer;

Conducting interviews with representatives of the Department of Natural Resources;

Questioning the statements of a local developer;

Meeting with a local urban planner who received his training in geography at the University of Hawaii;

Gathering research data in the public library in Lihue;

Horseback riding on the slopes of Mt. Kahili;

Sailing Hobie Cats on the swells of Nawiliwili Bay;

Water skiing on the Wailue River;

Biking in the Poipu Resort region;

Body surfing at Poipu Beach, surf kayaking at Nawiliwili Bay, and surfing at Hanalei Bay;

Sliding and swimming at Slippery Slide, scene of the filming of *South Pacific*;

Dancing at the Club Jetty; and

Bathing in an outdoor Japanese hot bath.

All the above activities, plus three units credit, air fare, meals, lodging, ground transportation and recreation equipment rental, are included in a price tag of approximately six hundred dollars.

A further indication of the success of this course in pointing out the value of the geographic approach is the high ratio of students that come back for more geography. Even

though the majority of students that take the field trip to Kauai are nongeographers, at least one-third of each class has returned for more environmental courses in the department.

To be a California geographer and not take advantage of nearby islands is to neglect a valuable teaching resource. Most California students are ocean-oriented and have a natural interest in ocean phenomena. Instructors who may want to consider such a course should keep an ear open for on-campus associations leading existing programs out in Oceania, and sell the benefits of running a geography course along with their program. Then attractive local talent can be sought out for the actual field teaching. If the threads of information from local specialists are tightly woven, and the course is highly organized, all will go smoothly.

