MT. SAN ANTONIO COLLEGE

SABBATICAL LEAVE REPORT OF J. DOUGLAS DANCER

FALL SEMESTER 1979-80

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INTRODUCTION

This sabbatical leave was undertaken for the purpose of enrichening and expanding necessary understandings for teaching the course Man and the Environment (Bio. 6). Although the academic and practical background of this instructor has helped him to adequately present the topics and problems discussed in the course, it was important to actually tour this country in order to become updated on many of our environmental concerns.

To do this, I travelled by Volkswagon Camper throughout the United States and parts of Canada. Touring the country in this manner, I was able to intimately remain within the areas I was studying so that I could more completely experience the environment and interview those people in the areas I studied.

If there was a particular theme to this environmental odyssey, it was that America's environment is uniquely versatile, beautiful, and as such it remains a significant part of our American heritage. To protect and maintain the stability, beauty and integrity of this environment should be part of our national goal. Through education at all levels Americans should be made aware of this obligation, for this and future generations.

Although much of the study on this sabbatical was directed toward rather esthetically unpleasant ecological problems, much of it was spent in beautiful surroundings, studying wildlife resources, wilderness, wild rivers, and important national recreation areas.

Throughout the more than six months of travel and study I travelled through 37 states, four Canadian provinces, a total of more than 20,000 miles. Over a thousand 35 millimeter slides were taken, these to be used in lectures and labs for Man and the Environment.

A detailed log of the sabbatical was maintained. This report will not be an attempt to articulate on all of this, only the more significant of the environmental studies and observations.

On the sixteenth of June, 1979, I began my sabbatical. My first destination was Sequoia- Kings Canyon National Park. Having served as a ranger in this area back in the 1940's, I was anxious to observe the changes that had occurred through time as a result of the impact of increasing population pressure on the area and too, to see what changes had taken place in park management philosophy and procedure.

The one problem that overshadowed all others within the park was the ecological impact of the hundreds of thousands of visitors on the plant and animal communities.

Trails and roads adjacent to the giant Sequoia trees have resulted in compacting of the soil. This has caused water retention problems in the soil and the problem of insufficient oxygen for the roots of the giant trees. The National Park Service has attempted to deal with the problem by re-routing trails, but thus far few measures have been taken to re-route automobile traffic away from the root zones of the trees. Steps to do this will be forthcoming, it is understood, as funds are made available.

It is this matter of necessary financing to do what is essential to maintain and preserve the natural setting that continues to frustrate the efforts of the National Park Service. In the last few years this country has nearly doubled the land set aside in national parks, but the funding to maintain and preserve the parks has actually decreased in the last two years.

Throughout my travels this problem of lack of funds to do what must be done to adequately maintain our parks was shockingly evident. It is discouraging to note that understandings and philosophies have evolved to preserve these most beautiful parts of our natural heritage, yet Congress fails to provide funds that would permit a modest effort.

Another problem within this National Park that was studied in depth was the dilemma of protection of the forest from fire. Some areas have been protected so well that the Park Service has been confronted with the new problem of ecological disturbance as a result of too heavy a forest growth. Essentially the problem is twofold: over protection from fire favors some shade loving trees at the expense of others that must germinate and grow in sunlight. The other problem is that some areas have been protected so well that if a fire should strike now, it would be much hotter and much more devastating.

The National Park Service is trying to rectify this problem in fire ecology by actually conducting controlled burns within the National Park. I spent some time observing these burns in progress in Kings Canyon. The park management maintains that these experiments work well. The big problem is trying to explain the fires to the general public who are camping in the area.

From Sequoia-Kings Canyon, I made my way north through the national forests, observing forestry practices both within the National Forests and on private holdings. Within the National Forests sustained yield logging was consistently practiced with negligible impact on the natural environment. But on private holdings, in spite of state logging regulations, the ecological impact of clear cutting was obvious. This points out the need for more stringent enforcement of the State Forest Practices Act and the need for ammendments to the act.

I entered Yosemite National Park. My purpose was to study and observe the following: the esthetic and ecological impact of over a million visitors per year in Yosemite Valley; the problems of wildlife management (especially bears) within the park; and the current problem in the park of the lodgepole needle miner moth.

The problem of too many people in Yosemite during the summer months was painfully obvious. Trails were crowded, roads were replete with traffic jams, and smog would often lay thick in the valley from the thousands of campfires and the large number of automobiles. The litter alongside the roads and trails added to the esthetic insult to this beautiful natural environment.

The only viable solution to this problem is to minimize auto travel within the valley, remove many of the concessions in the area that are not necessary to the essential needs of people, and to remove from the valley many of the overnight camping facilities. These recommendations have recently been made and their implementation seems a certainty.

Wildlife management within the park was the best that I was to observe in any of the national parks we visited. Bear proof garbage cans were provided in all campgrounds. In those campgrounds most frequented by bears, bear-proof lockers for storing food were provided. The Park Service posted signs warning of the dangers of bears. Further, they made it clear that anyone leaving food out or openly feeding bears would be fined. The result was that there have been very few dangerous incidents involving people and bears within Yosemite.

The problem of the lodgepole needle miner moth was studied in the Tuolumne Meadows area of Yosemite. The larvae of these moths periodically undergo a population explosion and then devastate thousands of acres of lodgepole pine forests in the high country. Initially the park service attempted to deal with the problem by using biocides. Many ecologists thought this unwise. First, it was not consistent with National Park Service philosophy. In a national park man is not to interfere with the forces of nature. Secondly, it has been observed that these needle miner outbreaks historically have been responsible for opening up the forests in the high country and creating beautiful open meadows.

So ecologists for the National Park Service have given the go ahead for nature to take its course. This gave me the opportunity to observe this force of checks and balances in nature and the concomitant stages of ecological succession.

East of Tioga Pass and down into the Mono Basin, adjacent to the eastern escarpment of the Sierra Nevada lies Mono Lake, the third largest natural lake in California. This was the next subject of my sabbatical study.

Mono Lake is perhaps a million years old. John Muir was so captured by its beauty that he hoped it would become a national park. The lake and its surroundings display a mystic, austere desert beauty: contorted rocks, hot springs, tufa towers and volcanic craters rising from the level valley floor in startling colors.

Some of those craters are islands in the lake. On one of them, Negit, nests a large proportion of the gulls that we see the rest of the year along the California coast. After the Great Salt Lake, Mono is the largest breeding area of the California gull. It is also a home base or major stopover for millions of other birds: one third of the world's Wilson phalaropes, 800,000 eared grebes, tens of thousands of avocets and other shorebirds.

Los Angeles is now legally taking 100,000 acre feet a year from streams flowing into Mono Lake, and the surface is dropping about two feet per year, leaving thousands of acres of dry lake bed. The alkali flats are beginning to resemble the dessicated bed of Owens Lake, drained by Los Angeles many years ago.

Several days were spent studying the area, observing the impact of this rapid and unnatural change of nature. As an environmental issue, perhaps Mono Lake, more so than any other single problem, tells us that California has a definite carrying capacity. To go beyond it we pay a price in the destruction of the natural world.

From Mono Lake I drove to Lake Tahoe to study the problem of uncontrolled growth and development on this lake and its environs. Lake Tahoe, one of the three clearest lakes in all the world (Only Crater Lake in Oregon and Lake Baikal in Russia are as clear) faces the real prospect of undergoing eutrophication and turning pea green in a lifetime. Further, its shoreline suffers the indignities of excessive development.

I spent several days photographing the lake and its over developed shoreline, especially on the Nevada side. The main threat of eutrophication did not seem to come from direct pollution, but rather from soil run off, rich in nitrates and phosphates. This source of pollution comes from clearing of the land for further development. Little can be done to control it other than to restrict development. Because the bi-state commission, established to control excessive development at Tahoe, has not been effective, it seems that federal intervention will be the only answer. As of this moment, plans seem to be moving along those lines.

From Tahoe I next visited several of the California Redwood State Parks. Heavy visitor use was observed within the parks. Although the beauty of the Redwood environment was visually rewarding, these state parks have the disadvantage of being small. As a result the noise from the interstate highway invades the otherwise pristine setting, and the adjacent redwoods that are being clearcut result in problems of erosion and sometimes flooding within the state parks.

It was gratifying, therefore, to visit the new Redwood National Park. Because of its larger size it represents an ecosystem more completely protected and certainly more free from the intrusions of the surrounding commerce.

Because Redwood National Park is a new park, the National Park Service was able to implement in its development the new philosophy of the Park Service. All commercial development is outside the park. Visitors to the interior of the park are able to enjoy this unique ecosystem without any of the esthetic

Another problem that was called to my attention was that clearcutting is cheaper and that it allows more rapid regeneration, the even-age stand is much more susceptible to insects, disease, and wind.

From the Washington mainland I travelled to the San Juan Islands of Washington, observing problems of growth and development in the area. Because of the prosperity of the Seattle area and the demand for resort and recreation property, there has been considerable pressure for extensive development, especially on Orcas Island. From my observations, if the beauty of these islands is to be preserved, there will have to be planned and controlled, indeed restricted development.

From the San Juans I journeyed to Vancouver Island, British Columbia. A day was spent studying the Indian heritage and influence at the Victoria Museum of Natural History.

From there I drove to the western side of Vancouver Island and camped for several days at Pacific Rim National Park. Here I enjoyed a national park that in the U.S. would be a model of the way a national park should be managed. There was no commercial development within the park. The entire emphasis was on the natural values of the park itself. This park, though to some may appear wet, gloomy, and isolated, provided for a lover of nature a wealth of wildlife: bald eagles, ospreys, a variety of sea life, and a virgin coniferous forest with all of its unique ferns, wildflowers, and small animal life.

Going from the seaward side of the island to the east side, I visited the Crown Zellerbach Paper mill on the Elk River. Of interest here was the plan of the company to utilize all the waste wood to provide an alternate source of power to run the machinery of the mill. Very modern techniques were used in processing the paper. Pollution controls were so good that little visible water pollution could be seen. Quite a contrast to many of the paper mills I was to see later in the sabbatical in the eastern and southern United States.

disturbances encountered in most other national parks.

Upon leaving this newest of our national parks I moved north, spending several days observing recreational development and accoomodations in the cities of Oregon. Because of the leadership the state of Oregon has taken environmentally, I was anxious to observe the contrasts between this state and California.

These contrasts were perhaps most visible in the city of Corvalis. This town had a number of attractions which, environmentally, made it a beautiful place to visit. Very little litter is seen on the highways. This is attributable to their laws against the use of no-deposit, no-return beverage containers, and also to the direct attention and concern they give to the maintenance of their roadsides.

Another impressive feature in Corvalis is the number of bike-ways. These are not along side the highway as in most cities, but rather the bike-ways are completely independent in their location from the other roads. Most are lined with trees. All this is very conducive to using bicycles instead of cars.

From Oregon I continued north along the coast of Washington. Most of my studies here concerned forestry practices and the clear cutting controversy. Recognizing that clear cutting is condoned by the Forest Service, and that today over 60 percent of the annual U.S. timber production comes from clear cutting, I was anxious to observe the process and any noticable ecological consequences.

From my observations it seemed clear that this process is ecologically sound only when very small, widely spaced patches are cut. Otherwise, erosion of the watershed occurs, especially on steep slopes. I also observed that forests managed by selective cutting have a lower fire hazard, because the canopy of older trees keeps the ground material cooler and more moist. In contrast, young tree plantations tend to be hot, dry, and highly combustible.

From the Elk River I moved north to Port Hardy. Here I talked with the commerical fishermen, learning of their problems in dealing with the fishing fleets of both Japan and the Soviet Union. From Port Hardy I drove to Coal Harbor on the west coast. This was environmentally interesting, because it was the last active whaling village in Canada.

At Port Hardy I boarded the ferry with my camper for the voyage to Prince Rupert, British Columbia. I was impressed by the vast wilderness in the island chain in route north. Most of these islands are completely uninhabited and unexploited.

I visited the island port of Bella Bella. The Indians here are very prosperous, having made fortunes on salmon and herring which they are selling to the Japanese. At Bella Bella I was amazed at the large numbers of bald eagles, as common as crows. Fortunately their presence is not accepted casually. The natives as well as tourists enjoy their majestic manner.

After disembarking at Prince Rupert, I drove east toward Prince George, observing forestry practices. This area in British Columbia practices clearcutting extensively, with little regard for slope, size of area cut, or for that matter any ecological considerations.

At Prince George I observed the effects of extensive lumber and pulp industry activity. Here in this remote region, because of a nearly complete lack of environmental restrictions, the effects of industrial pollution were severe.

From Prince George I continued east to the Canadian Rockies where several days were spent within Jasper National Park. It was impressive to see the extent within Jasper that they have tried to instill the proper wilderness attitudes in their visitors. I spent some time observing and studying management techniques regarding wildlife.

From the Canadian Rockies I visited Lethbridge in Alberta and then moved to the village of Standoff, on the Blood Indian Reservation (part of the Blackfoot nation). It had been an important part of my sabbatical plan to visit Indian reservations in an effort to learn more about their attitudes toward nature and to the land, especially to learn the nature of their land ethic.

I attended their summer celebration on the reservation. I observed the tribal opening ceremonies complete with chants, drums, and dancing.

Moving south to the Canadian border, I camped and spent a few days on the Blackfoot Indian reservation.

I next focused my attention on Glacier National Park where I studied the following: the serious bear problem that has resulted from heavy intrusion into the backcountry, the problems of ecological disturbance to the delicate alpine environment by heavy visitor use.

Many hours were spent talking with rangers and other park personnel about the bear problem in Glacier. In addition, I asked for and was given Park Service documents to help in gathering information.

Since in the late '60s two girls were killed by grizzlys in the park, the Park Service has become quite sensitive about the problem. Apparently their strategy has been to discourage any publicity about the grizzly in Glacier, and to discourage camping in some areas and hiking on some trails. All hikers in the back country are encouraged to wear "bear bells" so that grizzlys on the trails will not be taken by surprise.

Because of the increasing visitor use in the park it became obvious to me that there would be further dangerous encounters and that others would be killed. (At this writing, news has come from Glacier that near Lake St. Mary two campers were killed by a grizzly last week). Of course,

Glacier has nearly a million visitors a year. Every year some are killed on the highways in the park. This poses a greater danger than the bear problem. However, it is feared that if there are further bear-people confrontations in Glacier, many will demand that the bears be killed off in the park.

From Glacier National Park I continued my way south and east to Fort Benton, Montana. From this small, historic town the Missouri River flows wild and free, unobstructed for over 150 miles. In 1976 this part of the Missouri was added by Congress to the Wild and Scenic Rivers System. It was my intention to canoe this stretch of the river to gain an appreciation and understanding of the values and pleasures of this type of scenic resource.

On July 24 I met with Ken Brewer of the Bureau of Land Management. He gave my a permit to be on the river for a week, and be briefed me on problems of navigation and camping along the river.

The next day I put my canoe in the water and began drifting south and east on the river. The next several days were especially rewarding in two major respects. First, I found the river to be a true wilderness experience. I saw no one, just the solutude of the river experience, replete with a vast assemblage of wildlife: deer, beaver, muskrat, herons, gulls, white pelicans, golden eagles, Canadian geese, avocets, many species of ducks, cliff swallows, terns, flycatchers, flickers, and more. Secondly, I was given the opportunity to relive some of the exciting history of the old west, for this stretc h of the river was travelled by the Lewis and Clark expedition in the early 1800s. The events that occurred here involved not only adventures of the early explorers, mountain men, trappers, fur traders, soldiers, wolfers, buffalo hunters, and river pilots, but the rich history of the Blackfoot Indians as well.

It impressed me as truly remarkable, a paradox, that in the late twentieth century, in a nation of over 220 million people, that this section of Montana remained remote, primitive, little changed since the West was first settled.

Regarding man's environmental impact on the land, it is obvious to anyone going down the river that there is a need for improving soil conservation in America. Here in the Missouri I watched our top soil carried away in suspension, along with nitrates from farming. Evidence of overgrazing by cattle in the Missouri River basin is conspicuous: gully formation, banks slipping, vegetation changing from the typical grasses and herbs of the upper prarie to prickly pear cactus and Artemesia of the more arid southwest.

After a week on the Missouri and my portage back to my camper in Fort Benton, I drove eastward to the Fort Peck reservoir, created by the construction of the massive Fort Peck Dam. The reservoir was provided with many elaborate camp sites along its banks. The federal government had spent a lot of money here, providing for extensive recreation. However, I was the only person using the area. Not another party camped within miles, not a single boat out on the lake.

After camping at the reservoir, I continued on, visiting the Fort Peck Dam. I toured the dam and visited the museum, gathering information on the justification of this huge government project, one of the first large dams built during the Roosevelt administration.

I continued on into North Dakota, visiting Theodore Roosevelt National Park, gathering data on visitor use and wildlife management problems within the park.

Because the topics of population dynamics, life styles, and the quality of life are considerations for study in Man and the Environment, I was particularly interested in visiting cities and towns in North Dakota. This

state is one of just two that have been consistently losing population in recent years. In an effort to gather insight into possible reasons I spent a few days visiting the capitol of the state and the city of Fargo.

I was impressed with the progressive, esthetically pleasing development in Fargo. The main business center was well designed, the shopping areas were modern and spacious. The environment generally appeared conducive to a quality of life that in many respects was an improvement over that of much of Southern California.

Through contacts at the University of North Dakota I visited residents of Fargo. One family took me to their summer cottage on a nearby lake. In discussing life styles and quality of living with these people (who had formerly lived in the Los Angeles area) they felt that living in this area where nature provided much in natural beauty, aquatic recreation, and a rural environment free from pollution and stress, the quality of life was, as a result, much richer than that of Southern California or other crowded metropolitan areas.

From North Dakota I drove north into Minnesota to visit the new Boundary Waters Canoe area and the headquarters of the new Voyagers National Park. Both of these areas, just recently set aside by Congress represent a significant addition to the wilderness system of America.

I next toured the Voyagers Highway along the Canadian border in route to Grand Portage National Monument. I spent the day at Grand Portage, observing the visitor program and talking with the park personnel. Through them I arranged to visit Isle Royale National Park. Isle Royale is an island of about 40 miles in length, on Lake Superior, about 20 miles from the mainland of Minnesota.

Essentially, the island is a wilderness national park. There are no roads. The only way to explore the park is by trail or canoe. Visitor conveniences are minimal. About 1500 Moose are on the island. Their numbers are kept within the carrying capacity of the environment by three packs of wolves, totaling about 40 in number. The wolves manage to control their own population size through self-imposed breeding restrictions. In addition to the interesting mammal population on the island, there are about 200 species of birds, and a rich variety of plant life.

Here in this unique setting one can enjoy a true wilderness experience, hiking the 160 miles of trails on the island and camping in a primitive, pristine environment. I was surprised at the large number of people, both young and old, who took the launch out to the island for a backpacking vacation.

From the beautiful, unspoiled natural environment of Isle Royale I turned my attention to the environmental problems of the Great Lakes. Over a period of ten days I travelled the shores of Lake Superior, Lake Michigan, and Lake Erie. My visit included touring the harbor of Duluth, visiting the Taconite mining operations that have caused much environmental concern, and especially I visited the shores and major harbors along the south shore of Lake Erie.

These Great Lakes are truly among the natural wonders of the world. Containing 95% of the supply of fresh water in the United States, their shores provided the home for one third of Canada's population and for 29 million Americans. Unfortunately, the lakes have,over the years, been receiving ever increasing amounts of the effluent from our affluent society. Although it is easy to place the blame for the pollution problems of the Great Lakes on the people, the municipalities, and the industries of the area, in a sense we are all to blame, for we are all participants in the society that has directly and indirectly caused the problem.

The specific sources of pollution of the Great Lakes are sewage from municipalities, the effluent from industry, the oil and sewage pollutants from large ships involved in commerce on the lakes, and agriculture run off, rich in nitrates, from surrounding farmland that drains into the Great Lakes.

Although the pollution problems in Lake Michigan and Lake Superior should not be minimized, Lake Erie has by far suffered the worst. This is due to the heaviest concentration of both industry and municipalities along its shores, and to its more shallow depth. During the last two decades, the process of eutrophication progressed to the point where Lake Erie was being referred to as a dead lake. Indeed the pollution was so bad that near Toledo, on the Cuyohoga River the river, on two occasions actually caught fire. The fishing industry declined and most of the beaches became unsafe for swimming.

It was not that there were inadequate laws. They simply were not being enforced. Toledo, for example, has a law prohibiting pollution of Lake Erie. The greatest violator of that law has been the City of Toledo.

My observations of the lake showed many major problems of pollution, but the lake was far from dead. Because of a massive cooperative effort between industry and the public sector, and because of the determined enforcement of the clean water act passed by congress, the improvement of Lake Erie and the other Great Lakes has been remarkabe.

Today 600 of the 864 major dischargers into the Great Lakes meet the new, tough water quality regulations. Five billion dollars has been spent to upgrade sewage treatment both in the U.S. and Canada. To help control eutrophication, every Great Lake state except Ohio now has strict laws regulating the use of phosphorus in detergents. Detroit alone remains the only city that continues to dump excessive amounts of phosphorus.

In talking with public officials I found a refreshing air of optimism on the future of the Great Lakes. Rangers at one of the state parks on the shores of Lake Erie happily told me that now you can eat the fish you catch from the lake, providing that it is no more than one fish per week. The general consensus (and this was borne out through additional studies and research) is that the lakes are definitely improving, although they will never be the pure sources of fresh water that they once were.

From the Great Lakes region I continued my travels, going into the state of New York to visit Niagra Falls. In observing this impressive splendor of nature, I was appalled to see the over commercialization of this scenic attraction. It was in direct contrast to comparable natural attractions that one finds in the western U.S. Although the falls are exciting to view and present an almost overpowering display of the forces of nature, it is discouraging to see the whiskey brown color of portions of the Niagra River, replete with massive amounts of foam. This of course is the effluent from sewage treatment from the adjacent municipalities. Many visitors to the area may not notice or question it, but as a student of the environment I found it to denigrate the beauty of the attraction.

I continued north and east into the New England states, spending several days visiting the many state parks in Vermont, New Hampshire and Maine. The natural beauty of the hardwood forests was impressive. The roadsides, the parks, the trails were remarkably free from litter and commercialism.

It is interesting to note a parallel between Vermont and Oregon. Both of these states have passed a beverage container bill, requiring deposits on all beverage cans and bottles. The effect on the appearance of the road and trailsides is obvious.

Within the New England states I was also interested in visiting towns and cities to observe planning, development, and life styles. Of course it remains as subjective evaluation, but the beauty of New England towns (there were some exceptions) was striking. Most had a large central commons. These with their many plantings of trees, the adjacent uncrowded streets, the many old and historic homes and buildings, give a charm to the area and a connotation of an easier, less hurried and stressful life style.

I got this same feeling as I travelled the Maine coast, visiting the many fishing towns and villages. Especially rewarding, was my stay in Acadia National Park. Of all the national parks I visited, I found here to be the greatest emphasis on ecology in their interpretive program. Nearly all of the roadside informational signs had a message relating man to his environment.

An area of special interest to me in the state of Maine was the small seaport of Machiasport. Here the petroleum industry wanted to use this deep water port for supertankers and refinery installation. The town turned down this opportunity, in spite of the financial benefits they would receive. The people simply did not want to compromise their life styles or the beauty of their environment. Upon seeing this community of Machiasport, I realized that the decision the people made required courage and a demonstration of a deep commitment to their environment. The town of Machiasport is a poor community, with limited resources, yet its beauty is striking. Apparently the people in the community, through their town meeting, weighed the benefits of industry against the trade offs and then decided in favor of maintaining their present way of life and keeping the purity of the environment.

I spent several days in a state park adjacent to Camden, Maine. From there I visited many seaports to observe the lobster and fishing industries.

While in Connecticut I visited the historic town of Essex. Here people have added to their quality of life by providing a proud and beautiful local environment, ideal for walking, bicycling, or sailing. The commons provides for enjoyment of the shade and restful beauty of the environment.

I drove from Essex along the coast to New Haven. More than any town in New England that I visited, New Haven contains the extreme in quality of life: Poverty, crime, ugly surroundings in the poor section of town, and then the beauty and impressive historical heritage of Yale University.

While in the New England states, I spent many days hiking several sections of the famous Appalachian Trail. Lovers of wilderness and outdoor recreation view the Appalachian Trail as one of America's great recreational assets. The trail traverses 14 states. Many of the outstanding natural features of the East are along the way: Great Smoky Mountains, Virginia's Shenandoah National Park, Massachusetts' Berkshires, Vermont's Green Mountains, New Hampshire's majestic Presidential Range, and finally Katahdin, the Trail's northern terminus in the Maine wilderness.

The trail is especially valuable as part of our natural heritage and as a recreational resource because it is actually available to half the nation's population. As the late Benton MacKaye, who was instrumental in establishing the trail, has said, "With pollution and overpopulation spawning a sprawling urban desert, I am encouraged by the knowledge that there are millions in America who care about wilderness and mountains; who go forth for strength to Mother Earth: who defend her domain and seek her secrets. I am proud of the generations of hikers who have made my dream become a reality."

On all segements of the trail that I hiked, from Maine to West Virginia and into Georgia, I found the environment remarkably pure, unspoiled

by exploitation and intrusions of development. I actually had the feeling that I was able to experience a little of the eastern half of the continent as it was when first visited by the early explorers and mountain men.

The Appalachian Trail is however, not without its problems. In Maine for example, about 200 miles of the trail, most of its distance in the state, crosses the lands of a dozen timber or paper companies. Continuing efforts, I learned, are under way with the cooperating companies to preserve in its natural state the trail corredor.

Other problems include the ever encroaching urban growth. This has meant that some stretches of the trail must necessarily lead along busy highways.

Much of the trail crosses private property. In the early days this posed few problems, but now, because of the extensive use of the trail, property owners are objecting. Not that this problem can't be resolved, but it is not going to be easy. It may mean re-routing part of the trail or perhaps, through Congress, the purchasing of some strips of the land. This points out that in our crowding nation, wilderness is not a possession easy for us to keep. But with the Appalachian Trail land acquisition program, we are doing our best to perfect and perpetuate a public asset as an integral part of our wilderness heritage.

From the New England area I drove to the New Jersey Coast so that I could visit the New Jersey dunes. This attractive stretch of the Atlantic coast has attracted developers, who in the past, have had little knowledge or concern for ecological principles. The result has been extensive building on the primary and secondary coastal dunes. Severe Atlantic storms have periodically devestated homes and other buildings located in this fragile, unprotected environment.

I was surprised to find that extensive development still persists on the dunes. It is difficult to understand how rather obvious hazards could be ignored in pursuing such projects. It is not too much unlike the building that has been permitted along the Malibu coast of California.

I visited Long Beach State Park in New Jersey to see the coastal environment with its dunes in the natural state. Viewing this area I saw how easy it would be to indulge in intelligent planning so that people could live near the edge of the sea without danger and ecological disruption.

From New Jersey I went to Pennsylvania to visit the Amish country in Lancaster County. I was particularly interested in observing their unique life style, and their relative independence from much of modern technology. I found Amish farms to be beautifully maintained and ingeniously managed to get the maximum from the soil while practicing intelligent husbandry.

I next drove across to Harrisburg and Middletown, Pennsylvania specifically to visit Three Mile Island nuclear power facility. At the visitor center for Three Mile Island I was greeted with cordiality and was given a lecture and shown a film explaining the recent nuclear accident there. At that time one of the biggest problems at the reactor site was that of hundreds of gallons of radioactive water waste. It was interesting to observe that this topic was not discussed.

I visited the area surrounding Three Mile Island. I noticed how the immensity of the power plant and the huge cooling towers dominated the landscape for miles around. I imagine that people living in the shadow of this problem have a hard time putting concerns aside as they try to lead normal lives.

Adjacent to the reactors, there is extensive housing development. I drove through the neighborhoods noting the many for sale signs on the lawns.

From Middletown I travelled south and west to Shenandoah National Park. I was anxious to see this park because of its unique origin. Most National Parks have been set aside to protect and preserve the natural environment, but Shenandoah is different. A little over 50 years ago, when legislation was enacted to create the park, this portion of Virginia's Blue Ridge was peopled with mountain folk. Many of the ridge tops and hollows had been cleared, most had been logged and burned, and all had been heavily grazed by livestock. Clearly, the rich hardwood forest that had beautifully adorned these ridges and valleys was gone. With the acquisition of the park, the awful process of degredation was slowly reversed. Nature was being recycled. Today, the park visitor sees what obviously appears to be a beautiful hardwood forest, replete with all the associated herbs and grasses and the abundance of wildlife.

Only through an intimate examination obtained by hiking into the back country and along the Appalachian Trail does one discover the abandoned cabins of the mountain folk and the stumps of the magnificant trees that had been logged.

From the Shenandoah experience I have learned that in certain forgiving environments we can reclaim and recreate wilderness. As a matter of fact, in late 1976, the Congress officially designated two-fifths of the Park, (nearly 80,000 acres) for management and public use as wilderness.

Another remarkable feature of Shenandoah is its proximity to our nation's capitol and to huge population centers. This results in very heavy recreational use of this national park. Hiking the trails and enjoying the solitude and beauty of this portion of the Blue Ridge Mountains, it is hard to realize that this is the case.

From Shenandoah I continued through Virginia, stopping to visit Thomas Jefferson's Montecello estate near Charlottesville. From there I again turned to the Blue Ridge Mountains and toured the famous Blue Ridge Parkway, observing the natural environment and the life styles of the mountain people.

This route led me into the Appalachian region of western Virginia and eastern Kentucky. The environmental exploitation of this Appalachian region was worse than I had anticipated. Extensive strip mining, erosion of the natural terrain, and the general disregard for the natural beauty of the region has left Appalachia as a region impoverished socially, economically, and ecologically. As I travelled Highway 80 between Pikerville and London, Kentucky, I observed dozens of coal mine operations, photographed the unsightly and depressing houses in the region, and viewed the polluted and littered rivers and streams.

I continued through the Appalachian region into Tennessee. It appeared much the same as Kentucky in regards to the social and physical environment.

Driving further south, I entered the Great Smoky Mountains National Park. This park, similar to Shenendoah National Park, represents land that had been reclaimed after extensive logging. Remarkably, it has returned to a hardwood forest. I found the park to be very popular, even in the fall of the year. While in the park, I spent some time studying the problem of wildlife management, especially bears.

Before leaving Tennessee, I visited the Oakridge Laboratories for atomic research and energy use. Oakridge is the headquarters for the research being done for the Department of Energy. I visited the demonstration and display areas and then drove to the site where this country's first commercial breeder reactor will be built on the Clinch River.

Going deeper into the South, I visited coastal Georgia. My primary interest here was to visit a number of coastal islands that are, for the most part undeveloped. Some are being considered as potential additions to the nation's wilderness system, or possibly potential national parks. Parts of the islands visited still remained pristine: thousands of acres of massive oaks, palmettos, vines, Spanish moss, saw grass, and an abundance of varied bird life. I was able to walk miles of beaches that were undeveloped and disturbed but by few visitors.

Inland from the beautiful Georgia coast, I visited the famous Okefenokee Swamp. Consisting of 628 square miles, the swamp is a unique wilderness. As such it has been incorporated into America's wilderness system by act of congress. I ventured deep into the swamp by boat. With the help of my guide I saw a great variety of plant and animal life, including a number of alligators.

My next area for study and observation was the coastal area from Florida to New Orleans. First I visited St. Augustine, Florida. I found that historic city beautifully preserved, esthetically pleasing and free from gaudy tourist attractions so common to many cities visited by tourists. Some time was spent in the St. Augustine area observing the effluent from paper mills and its impact on the coast.

From St. Augustine I drove south observing the coast, visiting beaches, dune areas and tidal marshes. Eventually, I reached the famous Datona Beach. Here, for about 100 miles along the coast, the beach sand packs hard. Cars are permitted access. The result is that the seascape is marred by cars, motorcycles, mobile lunch and soft drink stands. Added to this I found the beach lined with high rise hotels, condominiums and restaurants.

I continued south to Miami. I experienced heavy traffic, and dense commercial development along the entire coast from Fort Lauderdale south. Without stopping in Miami, I drove down into the Florida Keys where I spent several days.

While in Key Largo I discussed with local people the proposed development of Rodriguez Island by the Army Corps of Engineers. The development will be a project for raising Rhesus monkeys. One of the greatest environmental concerns is that these animals, in the event of a hurricane, could be accidentally transported to many of the other keys.

In the lower keys I found extensive development which has obliterated many estuaries and marshes. This is a problem ecologists are extremely concerned with, for these areas are the nurseries - the breeding grounds - for many fishes.

Other problems observed and studied in the keys included the impact of extensive fishing and shell collecting, and the problem of domestic water supply in the keys. All the water is piped in from Miami, adding to the strain on the water resources of the Everglades.

At the tip of the keys, I visited Key West, a prime example of the uglification of beautiful tropical coast through uncoordinated and unrestricted development. I experienced the impact of mosquito control in the keys. While I was on the highway, aircraft sprayed the area on both sides of me, effectively killing the insects while inundating with insecticide all the motorists on the highway.

From the Florida Keys, I headed north toward the Everglades. The mosquito problem there was so severe that the northern entrance to the national park was closed. This part of Florida, while I was there, was verging on having an epidemic of encephilitis, birds being the intermediate

host for this mosquito transmitted disease.

From the Everglades, I made my way up the Gulf coast through St. Petersburg and eventually Pensacola. This section of the Florida coast I found to be more planned and restricted in its development. Beaches were clean and well maintained. Everywhere, however, I found signs of erupting growth with the concomitant pressure on estuaries and tidal marshes. Agriculture too is having its impact. Many areas, rich as wildlife habitat, are being drained and given over to agriculture.

From Pensacola across to Mobile, Alabama, I viewed the extensive damage done by the hurricane that hit the area shortly before I arrived. I saw docks destroyed, forests flattened, and many buildings completely leveled. It was interesting to note that where the natural environment was undisturbed by man immediately adjacent to the coast, the damage behind it was substantially reduced.

From New Orleans I entered the cotton belt of the south as I drove north into Mississippi. I spent considerable time in this area observing agriculture and social conditions. I visited a number of small towns in the agricultural areas, noting the poverty and the depressing environmental conditions in which the blacks lived.

As I continued north I observed agricultural lands and towns through Mississippi and into Tennessee and Arkansas. In Memphis I spent some time viewing the Mississippi River and discussing pollution control efforts with the city sanitation and health departments.

From Missouri I drove west into Kansas, where in Lawrence, I visited the University of Kansas library. There considerable time was spent researching environmental problems related to farming. One of the most severe environmental problems facing our nation, of course, is the erosion of our top soil. This problem is especially severe in the Mid-west.

This topic then was observed and studied in detail in Kansas. Related directly to the problem of soil conservation has been the disappearance of the family farm as a way of life in America. Throughout Kansas, and for that matter, throughout all of the midwest I visited, I saw abandoned farm houses which gave mute testimony to the disappearance of the family farm as an American institution.

Another environmental topic of special concern that I pursued in Kansas was the American prarie which has played such an important role in the cultural history of our country. So little of the prarie as an eco-system, with its native grasses and herbs, with its rich abundance of animal life, is left that many concerned individuals have mounted efforts to preserve what little remains. Originally a half million square miles of the midwest was prarie. Today only a small vestage is left, mostly in the Flint Hills of Kansas. Legislation is now pending in Congress that would preserve about 300,000 acres of this as a Tall Grass Prarie National Park.

I spent several days in the Flint Hills, observing the native grasses and many of the unique and endangered prarie wildflowers.

Leaving Kansas, I headed back to California, stopping several times in route to visit Indian Reservations in New Mexico, Utah, and Arizona. An important topic for this sabbatical was the Indian and his attitudes toward nature, his land ethic in contrast to that of the western Europeans who settled this nation. I observed demonstrations of Indian culture at the various tribal centers and museums. Further I talked with officials of the Bureau of Indian Affairs regarding the Indian and his problem of adapting to the continual encroachment of civilization into his land and way of life.

Back in California, my last topic of study was that of environmental problems resulting from extensive coastal development between Long Beach and Oceanside. A number of days were spent in local libraries researching this topic.

I spent many hours studying the effects of development on Upper Newport Bay. This bay is one of the few remaining estuaries in southern California. Currently it is protected by the state and is under the jurisdiction of the State Department of Fish and Game. Given this protection however, it is still not free of problems. Extensive development adjacent to the bay is causing two severe ecological consequences: siltation which has aged the estuary a thousand years, and secondly, extensive runoff of biocides, having a toxic effect on the wildlife.

With this last study of our local California coast I ended my sabbatical. The value of all this travel and study to me as an instructor in biology, specializing in environmental issues has been greatly rewarding. The academic and personal enrichment resulting from all of my experiences and observations will make me a better teacher and will, I am confident, justify the district's investment in this sabbatical leave.