

U.S. Parks and Refuges **-Through my experience-**

(English Summary)

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Acknowledgements

I would like to express my sincere gratitude to every person who supported me to accomplish my goal of the training program. This wonderful opportunity would not have become a reality without the great effort, courage and patience of many people.

Mr. Dave Krewson of the National Park Service International Affairs Office has played a main role in realizing my training schedule. We have exchanged hundreds of e-mails with each other in discussing the details of my training plan in the United States. Throughout this process, I have learned various things about the Volunteer-in-Parks (VIP) program of the National Park System.

Mr. Rudy D'Alessandro is the person who helped me connect with many important people throughout my stay in this country, including Mr. Dave Krewson and Mr. Shintaro Ishihara, who is one of the most popular and influential politicians and most prominent advocates for the Japanese park system.

Mrs. Mary Anne Davis was the volunteer coordinator at Mammoth Cave National Park when I was having difficulties finding a volunteer post. She was among a few people who were courageous enough to accept a strange volunteer from Japan. She also encouraged my wife, Momoko, to join the volunteer program as well, and it changed her entire life in the United States, and turned out to be a very fruitful and exciting experience for her.

Mr. Lee Davis, then Senior Contracting Supervisor at Mammoth Cave and spouse of Mary Anne, was the autonomous caretaker of the problematic volunteers from Japan. The highest hurdle in our life was buying a vehicle. No one was willing to risk a deal with the notorious American used car dealers, but Lee was different. It was a 1999 Pontiac Montana, which took us to Redwood and all the way back to Washington, DC, that we bought at a very reasonable price, thanks to his experienced negotiation skills. Nevertheless we still had to go to car repair shops, such as Coates Transmission, which is owned and operated by Mr. Cliff Coates, a Lee's friend from his childhood, several times and listen to the "Car Talk" show on Saturday mornings. But overall the Pontiac has proven its dependency.

Mr. Ronald Switzer, the Superintendent of Mammoth Cave gave me broader perspective on park management and career development. His unusual but successful career and strong leadership amazed me.

Mr. Mark Depoy was the person who actually took charge of us. His calm and thoughtful decision sent us to Mr. Leech, one of the most beloved and popular staff members at the park.

Mr. Brice Leech Jr. has taken us to almost everywhere on the surface of Mammoth Cave National Park by truck, by boat, and of course, on foot. He even took us to the house of his parents, Pete and Lenell Leech, for Christmas dinner. It became one of the most heartwarming experiences for us in this country.

I would like to thank all other staff at the Science and Resource Management Division of Mammoth Cave National Park for supporting me in my learning experience and helping Momoko and me get used to American life.

Ms. Sharon Ganci, and Ms. Sheryl Messenger took us to various educational programs both on the ground and in the caves. They also let us participate in a great educational workshop coordinated by Prof. Terry Wilson, a director of the Center for Math, Science and Environmental Education, Western Kentucky University at Bowlinggreen.

The friendly staff of the maintenance division always encouraged us to go to work by waving hands or showing the finger in the Kentucky way when we saw them on the way to the office. Mr. Jesse Craine took us for trail and campground maintenance. He explained facility based management issues from his point of view, which never appears on written reports, and it helped me to understand how the facilities should be managed at protected areas. Mr. Herbert Mires and his wife Carolyn taught us how to fish, flay and fry bluegill to eat. Because bluegill is one of the most harmful exotic fish species in Japan, it was a surprising experience for me that it is fun to fish and the meat is tasty. I think the key issue

now is how to get corn meal in Japan. We also learned from them the importance of being in the right place at the right time to live a happy and comfortable life.

Ms. Kalia Vincent, the Midwest Regional Manager of the Eastern National, which is one of the major cooperative organizations for national parks, helped us send our packed boxes to California. I wish I could have had time to learn more about the role of the organization in the national park system from her.

Mr. Jonathan Jernigan has the best sofa and home AV system I have ever seen. He invited us to his "Friday Movie programs" many times. Honestly, they were among the very limited occasions where we could really feel comfortable before Momoko and I could start basic communication in English.

Kimiko and Ian Woodman taught us very funny American songs. They even spared some of their Halloween candies for us. The candies are surprisingly colorful and sweet!

Ms. Stassia Samuels and Ms. Cathy Morris saved us from losing our way in the middle of the training program. They provided us volunteer posts for resource management and also a wonderful volunteer house.

Mr. Leonel Arguero, Mr. Jason Teraoka and Mr. Scott Powell were our "slave drivers" at Redwood. I learned various forestry related survey methods and GIS operations from them.

Ms. Risa Fisher, Mr. Tim Tanno and other staffs at the South Operations Center helped Momoko and me have the best experience possible during our limited stay at Redwood National and State Parks.

Mr. Terry Hofstra, Chief of the Resource Management and Science, was a walking dictionary of recent resource management challenges in the National Park Service. We learned the key role that the expansion of Redwood National Park played in the policy shift of NPS in the field of its natural resource management.

Ms. Ruth Rhodes, Ms. Pam Sanderson, and other staff at the Wolf Creek Outdoor School offered a variety of educational programs and gatherings, including a formal luncheon for Gov. Shintaro Ishihara, for us.

Two superintendents of Redwood National and State Parks, Mr. Bill Pierce from the National Park Service, and Mr. Rick Sermon from the California Department of Parks and Recreation, have demonstrated how the cooperative management should be between a federal agency and a state government, including a special pie ceremony.

I could not include all the staff from Mammoth Cave National Park and Redwood National and State Parks. We also thank all the residents at the volunteer house who had to deal with the strange smell of Japanese food, and the residents of seasonal quarters. We were taught a variety of things including how to make "s'more" and hot apple cider with rum.

Mr. Joe Van Horn is a Biologist at the Resource Management Division of Denali National Park and Preserve in Alaska. Although I met him to learn about the resource management issues at the park, his explanation was far beyond what I have expected, and it answered almost every questions I had at that time. It also helped me understand what the American general public really expects for the national parks.

Mr. Michael Watson is the Superintendent of the Stephen T. Mather Training Center in Harpers Ferry, West Virginia. I learned far more than what the "competencies" of the National Park Service mean for maintaining the quality of visitor services at every national park units.

Mr. David Guiney, the Director for the Interpretive Media Institute of the Harpers Ferry Center, explained me how the National Park Service maintain its identity, and why it is important. The functions of the center are very unique and interesting for me.

Mr. John Rick Lemon, the Director of the National Conservation Training Center gave us a broad and historical perspective of the conservation efforts and struggles in the United States. It greatly helped me unite the history of the protected area management and the wildlife conservation in this country.

Mr. Steven Kohl and Mr. Peter Ward of the U.S. Fish and Wildlife Service, Russia/East Asia Program generously went without their usual winter volunteer from Russia and instead hosted me. They were amazingly punctual and polite. Steve even carried and

stored twenty boxes of our postal parcels, which had been delivered by mistake to the volunteer apartment two weeks earlier than we arrived. Some boxes weighed almost seventy pounds. Peter encouraged me to write this English summary and helped me with proofreading the drafts.

Mr. David Ferguson, Ms. Karen Shepherd, and other staff of the Division of International Conservation help Momoko and me enjoy and accomplish our internships at the division.

Dr. Herbert Raffaele, Chief of the Division of International Conservation gave me a series of lectures on the broader perspective of wildlife and protected area management, which dropped the scales from my eyes.

Ms. Teiko Saito encouraged me to tackle the "Green Book" of FWS. It was my first experience looking into the budget process and details of each program with figures and legal status.

Mr. Don Barry, the spouse of Teiko, is an ex-Assistant Secretary of the Department of the Interior under the Clinton administration. As he was in charge of both NPS and FWS, the comparison of the two organizations was very interesting to me. I got a lot of hints from him on how to summarize and present my experience.

I also would like to thank all other staff of the National Park Service and the Fish and Wildlife Service for supporting and encouraging me during my entire training period.

Japan International Cooperation Agency (JICA) has given generous support through its JICA Overseas Training Program, and enabled me to pursue these internships.

Mr. Yutaka Nakao of the Embassy of Japan in Washington, D.C. suggested that I take internships with the National Park Service and the Fish and Wildlife Service instead of enrolling in a graduate course to study the Natural Resource management system in the United States. Yutaka introduced me to NPS and FWS, and helped guide the process.

Mr. Haruhiko Nishimura, the successor to Mr. Nakao, and his family supported Momoko and me to complete this training program both officially and privately.

I feel that I have owed a lot of things to my colleagues who worked hard from morning to midnight everyday in Japan while I have been participating in this program. I hope the report, which I am working on, will be of help in the management of parks and refuges in the future.

Lastly, I have to tell Momoko who followed me to the bottom of the sinkholes and the steep slopes of the Redwood forest that I never could have packed my things and left for the U.S. without her.

I couldn't include all of the people by enumeration, but I will never forget everyone who supported and helped me out.

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1. Overview of the training program

(1) JICA Overseas Training Program

Japan International Cooperation Agency (JICA) is a governmental organization that administers technical development assistance for developing countries on behalf of the Japanese Government. The JICA Overseas Training Program Scholarship is to help experts acquire enough skills and experience to assist developing countries. The trainees can either enroll in professional educational institutes or take internships with appropriate organizations up to two years.

(2) The schedule of my two-year training program

The schedule of my training program in the United States consists of two major parts. The first part is an internship with the National Park Service stationed mainly at national parks for eighteen months. The latter part is to work for the International Affairs Division of the U.S. Fish and Wildlife Service for six months as a volunteer. During my internship with the National Park Service, I made a study trip to Costa Rica to see a firsthand successful example of “eco-tourism”, and the role of the United States to assist the country.

Two-year training program:

March 29, 2003: (Arrival)
March 31, 2003: Internship at Mammoth Cave National Park begins.
January 19, 2004: Internship at Redwood National and State Parks begins.
February 2004: Study trip to Costa Rica.
November 12, 2004: Internship at Russia/East Asia Program, Fish & Wildlife Service begins.
March 27, 2005: (Departure)

Locations of training sites:

I have driven over 34,000 miles and made almost a round trip from the East Coast to the West Coast.

Locations of Training Sites



(3) The goal of the training program

The United States is considered one of the most advanced countries in the field of resource management. The goal of my training program is to learn the natural resource

management policy and issues of the United States through hands-on experiences.

(4) Profile

I joined the Ministry of the Environment (then Environment Agency) in 1994. I have worked for the Ministry for almost eleven years. I served in seven different offices and divisions, including the Wildlife Division and the Park Facility Division. Occasionally, you may notice that this report puts more emphasis on facility management because of that.

4/03-Present: Trainee, JICA Overseas Training Program
4/02-3/03: Wildlife Division
7/00-3/02: Division of Park Facilities
4/98-6/00: Park and Green Space Division, Ministry of Construction of Japan
7/97-3/98: Global Environment Division
4/96-6/97: Global Research Office
4/94-3/96: Chubu-area National Parks and Wildlife Office

2. Parks and Refuges in the United States

Parks and Refuges in the United States are so popular that they have attracted a great deal of public attention all over the world. I tried to obtain a close look at the management of these protected areas during the internships.

(1) National Parks

I spent nine months at Mammoth Cave National Park in Kentucky and eight months at Redwood National and State Parks in California. I also visited several other parks while I was working for these parks. The National Park Service is a huge organization, which administers the entire national park system in the United States.

National Park Service:

- Mission: "...to promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."
- Manages 388 National Park Units (NPS Overview)
- National Park System extends to 84 million acres, which is a little smaller than the total land area of Japan (93.4 million acres).

Overall impressions of national parks:

- Great scenery with easy access by autos
- High quality visitor use facilities
- Rather High fees and accommodation costs
- Uni-formatted Brochures full of pictures and maps.
- Excellent interpretation programs, law enforcement and resource management

(2) National Wildlife Refuges

I had the chance to visit several National Wildlife Refuges during my stay in the United State The National Wildlife Refuge System is a huge network of conservation areas for wildlife.

U.S. Fish and Wildlife Service:

- Mission:
Working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people
- Manage 544 National Wildlife Refuges (As of March 2005)
- Refuge system encompasses over 95 million acres, which is equivalent to 3.9% of US total land area, and slightly larger than the land area of Japan.

Overall Impressions of Refuges:

- Inexpensive or no entrance fee
- Moderate level of visitor facility
- Exhibit with accurate and detailed scientific explanations
- Excellent science, field based management
- Fewer numbers of staff
- Strong support from friends groups and hunters

(3) Comparison of protected areas in the United States

The Fish and Wildlife Service is managing a slightly larger area than the National Park Service does; the Fish and Wildlife Service manages 95 million acres and the National Park manages 84 million acres, and they are equal to 3.9% and 3.5% of total land area of the United States respectively. As the total land area of Japan is 93.4 million acres, each agency manages the area almost as large as Japan.

On the other hand, the Forest Service of U.S. Department of Agriculture and the Bureau of Land Management, typical multipurpose land managers, are in charge of much larger areas. The Forest Service manages 191 million acres, and the Bureau of Land Management manages 261 million acres, 7.9% and 10.7% of total land area respectively. It seems, as a nation, the United States has a policy of resource management that it preserves a smaller portion of resources compared to the larger areas, in which allows multiple use of the resources for the current generation.

Refuges and Parks

	Total land area%	Acres	Numbers of protected areas	Remarks
National Park System	3.5	84,000,000	388 units	FY2005 Green Book
National Wildlife Refuge System	3.9	95,000,000	544 NWR, 37 wetland management districts	FY2005 Green Book
Forest Service	7.9	191,000,000		BLM web site
Bureau of Land Management	10.7	261,000,000		BLM web site
Dept.of Defence/Corps of Eng.	0.5	12,000,000		BLM web site
U.S. Total Land Area	100.0	2,428,213,158		2000
National Parks, Japan	5.4	5,083,800	28 parks	March 2003
Japan	100.0	93,410,088.84		2003

The number of staff of the National Park Service serving for the operation of the National Park System is around 20,000. Compared to it, only 3,000 staff are assigned for the National Wildlife Refuge System.

Compared to the National Park Service, the Fish and Wildlife Service has a much smaller budget, even though the agency manages a larger area in size.

Parks & Refuges

	Staff		Budget		Area	Visitation	
	Number	Remarks	million\$	Remarks	(acres)	(million)	Remarks
National Park System (ONPS*1, Current)	20,574	FY 2005 ONPS, FTEs	1,683	FY 2005 enacted	84,000,000	263.3	FY2004
National Wildlife Refuge System (Refuge O&M*2, Current)	2,963	FY 2005, FTEs (FTEs of Maintenance not included)	391	FY 2005 enacted	95,000,000	39	FY2005 Green Book
Nature Conservation Bureau, MOEJ*3	250	FY2005 Request	279	FY2005 Request, personnel expenses not included	5,083,800	366	FY2001

*1: Operation of the National Park System

*2: Refuge Operation and Maintenance

*3: Ministry of the Environment of Japan

The area of parks and refuges managed by one staff person is 4,082 acres and 32,062 respectively. The budget of parks and refuges per acre is 20 dollars and 4 dollars respectively. The number of visitors divided by the number of staff is almost the same level, and it is thirteen thousand people per one staff person. It seems the amount of budget and number of staff in protected areas is not decided by acreage but based on visitation of the protected areas.

Rates per staff and visitation

	Area	Staff		Budget		Visitation	
	(million acres)	Number	acres per staff	million\$	Dollars per acre	(million)	Visitors per staff
National Park System (ONPS, Current)	84	20,574	4,082	1,683	20.0	263.3	12,798
National Wildlife Refuge System (Refuge O&M, Current)	95	2,963	32,062	391	4.1	39	13,162
Nature Conservation Bureau, MOEJ	5	250	20,335	279	54.8	366	1,464,000

Even though the budget is larger for the National Park Service, the permanent

appropriation is much larger for the Fish and Wildlife Service. Most of the permanent appropriation of the Fish and Wildlife Service is generated from Hunting and Fishing related activities. It suggests that the Fish and Wildlife Service is largely supported by groups of hunters and fishermen in the United States rather than the general public from the viewpoint of budget sources.

Budget (Total) in thousand dollars	FY2004 Current Appropriation	FY2004 Permanent Appropriation	FY2004 Total Appropriations	FY2004 % of Permanent Appropriation	Remarks
National Park Service (NPS)	2,258,580	281,712	2,540,292	11.1%	
Fish and Wildlife Service (FWS)	1,326,721	668,103	1,994,824	33.4%	Including fire repayment
Ministry of the Environment of Japan (MOEJ)	2,702,039	0	2,702,039	0%	

According to the 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 77 million U.S. residents, about 40 percent of the population 16 years old and older, participated in wildlife related recreation activities. It is interesting that the number of participants of wildlife watching in the United States is much larger than those of fishing and hunting participants according to the survey. The wildlife watching related expenditures is smaller than that of fishing, but still larger than that of hunting. It seems that the groups of people who participate in wildlife watching are not organized, and have not had effective means to support or influence the non-game conservation efforts of the Fish and Wildlife Service, yet.

Wildlife-Related Recreations: 1996

Types of Recreation	Number of Participants (in million)	Expenditures (Dollars in billion)
Fishing	35	38
Hunting	14	21
Wildlife Watching	63	29

(Source: The 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation)

However, the amount of permanent appropriations of the National Park Service is also increasing in these ten years. In 1997, the Recreational Fee Demonstration Program was established by Congress, which is one of the major sources of permanent (mandatory) appropriations of the agency. The percentage of the mandatory appropriation jumped from 5% in 1996 to 10% in 1998 because of the introduction of the fee program. Even for the popular National Parks, the ratio of permanent revenue keeps growing. It implies that the support for the parks is shifting gradually from the general public to a specific group of people who visit national parks more frequently.

History of NPS Appropriations and Visitation

(\$000)

Fiscal Year	Appropriations				Recreational Visits (millions) *3
	Discretionary Appropriations *1	Mandatory Appropriations*2	Total Appropriation	% of Mandatory Appropriation to Total Budget	
1995	1,373,153	67,036	1,440,189	4.7	
1996	1,361,050	71,073	1,432,123	5.0	261.8
1997	1,593,337	123,264	1,716,601	7.2	273.3
1998	1,794,539	198,552	1,993,091	10.0	288.3
1999	1,761,756	219,454	1,981,210	11.1	284.1
2000	1,884,189	232,390	2,116,579	11.0	287.0
2001	2,193,491	249,307	2,442,798	10.2	285.2
2002	2,379,472	249,395	2,628,867	9.5	280.9
2003	2,239,426	256,705	2,496,131	10.3	265.4

*1: Including; Operation of the National Park System (ONPS), United States Park Police, National Recreation and Preservation, Urban Park and Recreation Fund, Historic Preservation Fund, Construction, Land Acquisition and State Assistance, LWCF contract Rescission.

*2: Including; Recreation Fee Demonstration Appropriations, Other Permanent Appropriations, Miscellaneous Trust Funds (includes donations), LWCF Contract Authority.

*3: Please note that recreational visits, rather than recorded visits, are displayed.

3. Mammoth Cave National Park

Mammoth Cave National Park is located in central Kentucky, about 90 miles southwest of Louisville, Kentucky. The 350 miles of passageway make it the longest cave in the world. Mammoth Cave National Park achieved official national park status from Congress on July 1, 1941. It was designated as a World Heritage Site in 1981, and became an International Biosphere Reserve in 1990. The park protects not only the world famous cave system, but also a variety of woodland habitats, the scenic Green and Nolin river valleys, and offers outdoor recreation opportunities in the woods, on rivers and more.

(1) Volunteer program

My wife and I arrived at Mammoth Cave National Park on March 31, 2003. We started working as volunteers for the Science and Resource Management Division from the day after our arrival.

I was very impressed by the organized and established volunteer program of the park. The paperwork to join the program was effective, but still not so complicated even for foreign visitors. The volunteer house was clean and comfortable. We were provided with one room of the three-bedroom volunteer house, uniforms, caps, and IDs. The volunteer

house was equipped with a washer and a dryer, microwave and ordinary ovens, a coffee maker, a toaster, a charcoal grill, a refrigerator, a picnic table, a radio, satellite TV and it was fully air-conditioned. The house was surrounded by oak trees and very quiet. In return for such nice accommodations, volunteers are responsible for their duty as “park employees” by contributing a certain numbers of volunteer hours per week.

(2) Science and Resource Management

The second thing that surprised me was the scale and systematic operations of the Science and Resource Management Division. I participated mainly in the vegetation management projects, such as American Chestnut reintroduction projects. I could not think of any division equivalent to this one in Japanese National Parks. This division’s role looks similar to that of maintenance, but also has scientific aspects. It is filling gaps among park managers, law enforcement, maintenance, interpreters and researchers.

(3) Maintenance

I had an impression that the maintenance division was one of the most valuable sections of park management. To maintain the higher level of visitor service, National Park Service seems to spend a considerable amount of money to have enough staff for the purpose. For example, the Mammoth Cave National Park has one of the best recycling programs among National Park Units, and it even has educational value for visitors. The latent power of the National Park Service would lie in its ability to keep enough maintenance employees for each park units.

(4) Recreation Fee Demonstration Program

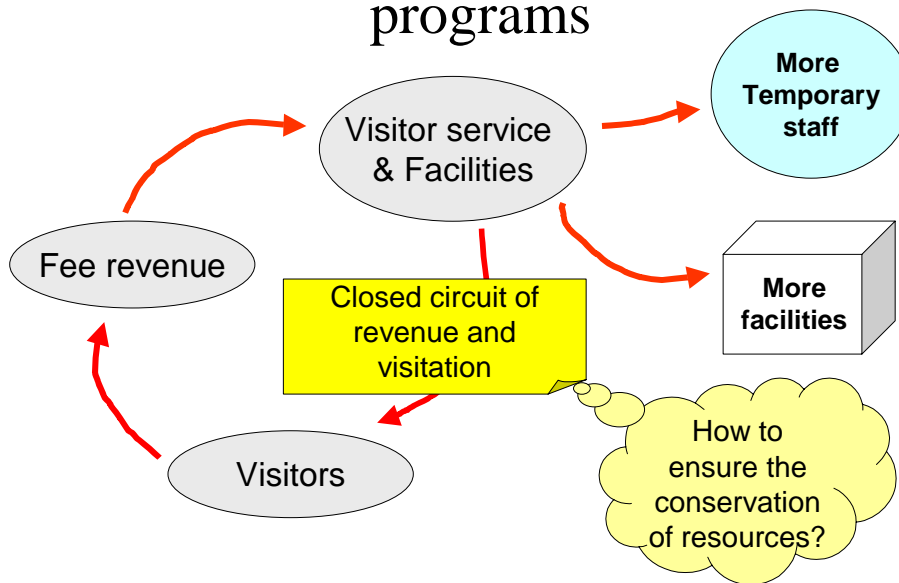
The National Park Service was beset by financial difficulties brought about by increasing levels of visitation, unfunded infrastructure repairs, and rising operating costs in the early 1990s. In 1996, Congress authorized the Recreational Fee Demonstration Program, addressing funding shortfalls for federal agencies. Until January 1997, only 133 national park areas charged admission fees. The parks were limited by the Land and Water Conservation Fund Act (LWCF) of 1965, which capped fees in law at \$5 per vehicle and \$3 per person for admission. Even the exceptional Yellowstone, Grand Teton, and Grand Canyon National Parks could charge only \$10 per vehicle or \$4 per person.

Prior to the Fee Demonstration Program, fees, such as entrance or campground fees, collected at sites in the National Park System were returned to the U.S. Treasury and were not directly available to support park projects. Under the Fee Demonstration Program, about 80% of the revenue stays in the park that collects them. This revenue is earmarked for important park projects, such as backlogged maintenance, and improved visitor services. The remaining 20% is shared with parks that do not collect fees, as well as with National Park Service program nationwide.

I made a trip to Shenandoah National Park, which has huge fee revenue generated from admission fees because the park is very close to the capital area, and has a large visitation. The Operation National Park System (ONPS) budget for the park is 10.4 million dollars in FY2004. Comparing to the ONPS budget, 3 million dollars of fee revenue is not small. Mammoth Cave National Park had fee revenue of 1.1 million dollars in FY 2002. The ONPS budget of the park was 6.5 million dollars in FY2002. The fee revenue is generated from the famous “Cave tours”, which once caused a cave “War” and led to the establishment of the national park.

Japanese park managers are very interested in this program, because we have a huge backlog in facility maintenance and leave countless facilities in undesirable conditions. However, I noticed that there is something we should be cautious about in introducing this program to Japan. I am afraid that this program could have potential incentives for a higher level of development and visitation, and increased fees.

Implications of Fee demo programs



When we consider the introduction of a similar type of fee program to Japan or developing countries, we have to establish a strict environmental compliance process with science-based feedback to prevent causing any damage to resources. There are some strong incentives for promoting visitation, facility development, and higher fees. The system is similar to a commission system in a sense, which has resulted in the notorious practices at car dealers in the United States. Perhaps, redistribution of fee revenue at the regional level, or an adjustment of percentage of fee revenue that remains at the place of collection, would be worth considering.

There is also another concern for fee collection. Fee collection is an effective and relatively easy way to control visitation without regulatory measures. However, it could have a potential sorting effect against the poor. In Costa Rica, I hardly saw any native people visiting the remote, pristine national parks.

Even in the United States, I could see some tendency at some famous and remote parks with higher fees where the majority of visitors are wealthy retired people or foreign visitors. In comparison, I have hardly seen minorities visiting those parks. This experience gave me a good opportunity to think of the relationship between fees and its implications for sustainable resource management.

4. On the way to the West Coast

I drove a southern route of the United States to move from Mammoth Cave to Redwood National and State Parks in California. On the way to the West Coast, I visited several parks and refuges to learn resource management on site.

(1) Hunting and Wildlife Refuges

St. Catherine Creek National Wildlife Refuge was the first refuge I visited in the United States. The refuge is located by the Mississippi River in the state of Mississippi. The refuge was established in 1990 to preserve, improve and create habitat for waterfowl. Habitat on the refuge offers diverse ecological niches for wildlife. Cypress swamps and hardwood forests vegetated with oak, gum, elm, ash, cottonwood and pine comprise thirty percent of the 24,442 acre refuge. Ten percent of the acreage is open water.

The Lower Mississippi Valley still abounded with bottomland hardwood forests as late as the early 1960's. The early 1970's saw a sharp increase in demand for soybeans and a booming farm economy, which led to massive clear-cutting of bottomland forests. Over

80 % of the forests along the Mississippi River have been lost to agricultural interests. The refuge has reforested over 11,000 acres of farmland within the alluvial flood plain since 1992. This reforestation effort has greatly increased habitat diversity for wildlife.

However, a portion of the refuge is managed for agricultural crop production through a cooperative farming program. The farmer is required to leave a portion of each crop in the field to provide food for wildlife. This crop share serves in lieu of cash rent for the farm ground.

I learned that hunting is permitted within refuges. There are even hunting hides for disabled people in this refuge. Because major predators have been extirpated in most area of the lower 48 states, hunters are substituting for them and help keep the wildlife population healthy. As long as hunting activities are managed based on field based monitoring, it will work that way. Refuges can also get support from hunters, and some revenue from hunting permits. Refuge hunting seasons are provided for deer, waterfowl and small game. Fishermen, age 16 and over, and all hunters are required to possess an annual public use permit, which costs \$12.50.

Another interesting thing for me was the administration building of the refuge. Compared with the larger visitor centers of national parks, the visitor contact station of the refuge was much smaller and located inside the administration building. I assume it will reduce utility costs, but yet maintain sufficient visitor service provided by stationed staff.

If the protected area management organization doesn't have enough money for maintenance, this kind of smaller facility would be helpful and an alternative way to making up the deficit by collecting fees. Japan and other countries tend to learn facility planning from well-known, wealthy American parks, and will have difficulties to maintain them later. Perhaps, we should also learn from various types of parks and refuges depending on the purpose, funding and level of visitation of each protected area.

(2) Big Bend National Park

Big Bend National Park is an extensive park, bordering Mexico. The park is known as one of the most scenic places in the United States. It includes majestic mountains towering above rugged badlands, the ribbon like Rio Grande, and panoramic vistas spanning across endless miles of Chihuahuan Deserts as far as eyes can see, in theory.

When I visited the Resource Management and Science Division, I learned the reason why the scenery is not so clear even though the weather conditions are almost perfect. The answer was "haze" caused by smoke discharged from power plants and factories. The vast scenery was almost ruined.

There was another threat to the park resources from outside beyond the boundary. Intensive water use reduces river flow, and so the Rio Grande became almost a linear shallow pool between the U.S. and Mexico. It was surprising that even this huge, remote national park is suffering from background environmental degradation, and there is nothing the staff can do. Park managers are obviously helpless to address these kind of issues, which extend beyond park boundaries.

International cooperation with Mexican protected areas adjacent to the park (Santa Elena Canyon Protected Area and Maderas Del Carmen Protected Area) is active, even after the border check points were closed and people from both sides have to drive for eleven hours to get to the other's office.

I met several park volunteers, who have retired and were traveling by their own RVs. National Parks are supported by these experienced, mature and devoted volunteers. They seem to have found fulfillment in their volunteer work, too.

(3) Cabeza Prieta National Wildlife Refuge

Cabeza Prieta National Wildlife Refuge is the third largest national wildlife refuge in the lower 48 states. "Cabeza prieta" is Spanish for "dark head", refers to a lava-topped, granite peak in a remote mountain range in the western corner of the refuge. Far from a barren desert, this refuge harbors as many as 391 plant species and more than 300 kinds of wildlife, including endangered Sonoran Pronghorn.

Over 90% of the refuge was designated as wilderness by the 1990 Arizona Wilderness Act. To help maintain the wilderness character of the refuge, no vehicle traffic is allowed except on designated public use roads. Vehicles can be parked up to 50 feet from the center of the roads, but limited to the areas previously used by other vehicles. 4-wheel drive vehicles are required on most of the routes.

The refuge offers plentiful hiking, photography, wildlife observation, and primitive camping, for those who are well prepared. Before entering the refuge, every visitor must obtain a valid refuge entry permit and sign a military hold harmless agreement because most of the refuge falls within the air space of the Barry M. Goldwater Air Force Range. There are no facilities for gasoline, sanitation, or potable water on the refuge.

This refuge has very unique resource management issues compared to the refuges established for waterfowl population conservation and enhancement. The refuge allows only limited numbers of Desert Bighorn sheep to be sport hunted. Although the refuge office is trying to stop providing water for big horn sheep, local political pressures prevent them from doing so. It seems that most of the issues parks and refuges have are caused by local communities, or a handful of "stake holders" living next to them. Even though the designations of parks and refuges have national status, the management has to be "local" in order to solve the confrontation with their surrounding local communities.

Cabeza Prieta NWR doesn't have good public use facilities because most of the refuge area is designated as wilderness. The exception is a small visitor contact station, which is an annex to the administration building. Their policy is simple and easy to understand; "Wildlife comes first". It is not necessary to make a paved road into the refuge, because the area is basically set aside for wildlife. I realized that the simpler mission made the management of natural resources more effective.

Although public use is not easy at the refuge, the refuge has alternative ways to experience nature. The refuge has an AV library for visitors. The library enables visitors to observe rare and nocturnal wildlife with scientific explanation. And, of course, there is the Organ Pipe Cactus National Monument, which has similar resources, and recommend visitors to visit.

The receptionists were all volunteers, and that was also true at St. Catherine Creek NWR. It seems that volunteers play more important roles at national wildlife refuges than national park units. Volunteers are part of the administrative staff without federal employee status. They are provided with free housing if they contribute 32 hours or more hours a week to support refuge operations.

5. Redwood National and State Parks

Redwood National Park was created in 1968, and expanded in 1978, to preserve the world's tallest trees and the natural setting in the Coast Range and the associated plants and animals. The coast redwood is one of the remaining huge ancient species of the "*Sequoias*". A redwood tree grows from a seed the size of a tomato seed, yet it may weigh 500 tons and stand taller than the Statue of Liberty in New York.

Three North Coast redwoods state parks, Prairie Creek, Del Norte, and Jedediah Smith, were established in 1923, 1925, and 1929 respectively, prior to the establishment of the national park. The three state parks are encircled by the boundary of the national park to give increased protection for the ancient redwood forests. These four parks manage the park areas as a cooperative park unit of "Redwood National and State Parks". The parks include little less than 40,000 acres of ancient forest, nearly half of all that remain.

I arrived at Redwood National and State Parks in January 2004. The park has awesome old growth coastal redwood forest and also pristine coastline. The weather is wet but very mild. Dense fog decorates the forest creating an indescribably calm and quiet world.

The volunteer house is equipped with everything except a TV set, because this remote location don't have good TV reception, and that is all fine with us. Only two radio stations, a country music and an oldies station, can be received, but that is good enough for us to live in this amazing redwood forest. This area was known as one of the last frontiers in

the lower contiguous 48 states. Nearly 95% of old growth Redwood trees have been logged, and it appears the frontier has vanished and become a long-gone story.

I could easily tell how rude the logging practices have been when I saw the second growth forest for the first time. The destructive and consumptive activities have been repeated all over the country.

The logged forest also reminded me of Tokyo, sometimes. The flood plain was surely once covered with thick old growth hardwood forest. Our ancestors kept clearing the forest for settlement, and built the national capital. Thinking of this, I can't simply blame the people who logged this forest. However, the difference is also obvious. People completely removed the forest in only one hundred years, and there is nothing left. The local communities stay being not wealthy even after they lost such a precious resource. Human life was even threatened by several dreadful floods caused by reckless logging activities. The role of protected lands might become clear at this point. Direct resource use might give the local communities a "one time" payment, but not a second one or any benefit to the generations to follow. Protected resource would give only a fraction of its value to them, but it will be continuous and sustainable even for future generations.

Understanding this fact is maybe too hard for the current generation facing hardships and difficulties. The education program at Redwood National and State Parks is focusing mainly on the students of local schools. I hope this program will help to gain more support when the next generation grows up and become leaders of the communities.

(2) Resource management division as a central hub of the park

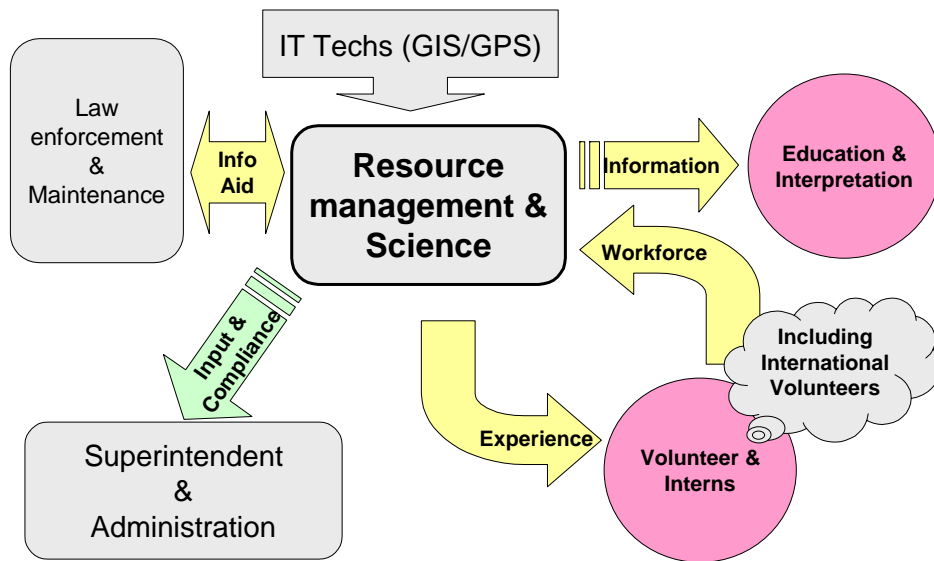
The Resource Management and Science Division of the Redwood National Park is one of the three largest resource management divisions in the whole national park system. The level of the post of the division chief is higher than some of the superintendents in the region. This branch has a huge independent building called the "South Operations Center" at the Southern gate city of Orick, California. No one was ever able to tell me the exact number of park staff working here, but there are almost hundred people around in summer season.

I worked at this division as a volunteer mainly for vegetation management. The amazing part of resource management is the role of GIS. The park has another office in Arcata a specialized in GIS functions. Every group conducting the secondary forest survey carries a GPS unit so they can know exactly where they are. At the same time, it is easy to get a geographical location of a sampling site, and also to map it. Although some of the staff was not so good at organizing data, the automatic recording function of GPS coordinates help to eliminate some possible errors due to bad handwriting or other simple mistakes.

Resource management appears to play an important role in bring together different divisions. It provides scientific and updated information about park resources to education and interpretation divisions. Resource management can host different types of volunteers and provide opportunities to have all sorts of experience in the park. Even for someone who can't communicate well with visitors, especially foreign volunteers, it is possible to participate because there are only basic requirements of language ability. It also helps the superintendent and park administration to comply with the environmental impact assessment process and secure consistent management. Law enforcement, maintenance and resource management have very close relationship each other because they have the same goal to protect and maintain park resources.

However, the science division seems to be changing its role, and gradually "evolving" to a "compliance division", in some meanings. It is important that the scientific information is fed back to the public through the compliance process, but it should be independent and neutral. I am very interested in the future of the role of science and resource management in the park system. This idea and function of resource management/science division would be an essential part of protected area management.

Resource management & science



6. Study trips from Redwood

I made several study trips from Redwood National and State Parks.

Study Trips from Redwood



(1) Mt. Rainier National Park

Mt. Rainier National Park was established in 1899 after the enthusiastic and persistent advocacy by American citizens, European dignitaries, and national and local scientific and business groups. In 1988, about 96% of the park was designated as the Mount Rainier Wilderness. There are more than two million visitors annually. The huge amount of precipitation shapes everything from the glaciers that cap the mountain to the old growth forest at its base. Mt. Rainier formed about 500,000 years ago and is still volcanically active.

The visitor center of Mt. Rainier National Park is going to be replaced. The Henry M. Jackson Memorial Visitor Center located in the "Paradise" area was built in 1965. It consumes three hundred to five hundred gallons of diesel oil per day. Large facilities in a place of extreme weather have a significant burden of not only energy related expenses, but also of the environment.

In contrast to this visitor center, which is going to be demolished in forty years, there are numerous old structures remaining in the park. They might have been constructed in the age of CCC or earlier. I found an old wooden "comfort station", which has restrooms and a plain and simple lounge for visitors. I was impressed by the policy of the park that it preserves these old structures and still makes use of them. The comfort station is not so large, but still functional and comfortable. It does not consume much energy, and has a much longer life cycle.

This experience gave me a sense of how facility management and planning should be in Japan or in developing countries, where the funding for management is limited. We had better get rid of the "easy going" way of just copying the designs of famous American park facilities for our own parks. The park facilities should be just large enough to fulfill its purpose. A larger and better facility will further attract more visitors regardless of the desirable level of visitation.

(2) Alaska

I visited Denali National Park to learn about successful access control. Denali uses a shuttle bus service as the only vehicle access to the central part of the park. I wanted to know the key to the success of Denali National Park's regulations, because it is not easy in most cases to impose a new regulation that limits public access.

In 1917, Mt. McKinley National Park was established as a game refuge. The park and the massif including North America's highest peak were named for former Senator, later president, William McKinley.

In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) enlarged the boundary by 4 million acres and redesignated it as Denali National Park and Preserve. At 6 million acres, the park is larger than Massachusetts. It exemplifies interior Alaska's character.

Denali National Park and Preserve is managed as three distinct units. Denali Wilderness, most of the former Mt. McKinley National Park, is managed to maintain the undeveloped wilderness parkland character. Backcountry use is regulated and most traditional national park regulations apply here. Denali Wilderness is closed to sport and subsistence hunting and trapping activities. Denali National Park additions, established by ANILCA in 1980, allow customary traditional subsistence uses by local rural residents. This recognizes the longstanding dependence on wildlife, fish and plant materials for subsistence in rural Alaska. Denali National Preserve allows subsistence uses and also sport hunting, trapping and fishing under Alaska Fish and Game regulations.

One reason the park could introduce the regulation was the timing. The park management started access control just after the completion of the George Parks Highway, which serves as the only paved road access from Anchorage and Fairbanks.

When I asked the question to an experienced park biologist, the answer was not what I expected. I assumed that would be an adequate estimation of the acceptable number of visitors, planning and monitoring. The staff person told me that the resource should be protected, and nevertheless the resource should remain accessible to get support from visitors and local communities. Throughout the history of park management by the National Park Service, U.S. citizens as a society, have believed in National Parks. People accept a regulation because as long as the Park Service is managing a park, it will be kept open to the public. So, the public access control is not just a matter of planning, but rather building trust between people and the land managers. It seems that the National Park Service has done a great job in this matter.

However, some of the people in Alaska still believe the frontier and the abundant natural resources are there to exploit and last forever. I could feel brutal political pressures

on public lands in Alaska, too. Alaska is a very special place even in this country.

7. Crossing the continent again

On the way to Washington, D.C., I visited federal offices relating to resource management. It was also an exciting drive over the Rockies.

(1) Conservation Easement (U.S. Fish and Wildlife Service Region 6 Office in Denver)

Region 6 office of the U.S. Fish and Wildlife Service oversees Colorado, Montana, Nebraska, Utah, Wyoming, Kansas, North Dakota and South Dakota. I visited the office to learn about conservation easements. The office actively uses easements to conserve the “pothole region” for waterfowl production.

Japan is a small country with a large population. Some of the critical habitats are privately owned and it is too expensive to obtain the titles to the land. People can practice agriculture and sustainable timber harvesting without degrading wildlife habitat. The enforcement of easement contracts would be critical to introducing this idea to Japan or developing countries.

(2) Training programs of National Park Service

I spent almost one week at Martinsburg, West Virginia to visit several important federal centers located in the area.

Stephen T. Mather Training Center occupies the historic Storer College Campus. The college was one of the first institutions of higher education in the United States offered for freed African-Americans following the Civil War. Mather Training Center was officially dedicated in 1964 as an interpretive research and training institute for Rangers and Park Managers. An expanded concept of the National Park Service training needs has led the training center to its current curriculum, which ranges from historic building maintenance to interpretive operations for supervisors. About 1,500 trainees take the training courses at the center annually.

The most basic and important concept of the training program for newly employed staff is “the Universal Competencies”. This concept is really difficult for me to grasp. It seems the training of National Park Service staff is to encourage employees to be stewards of parks, which represent the values of the organization. So, even if a person visits a small minor historic park, the manner and quality of the employee is the same level as famous much larger national parks, such as Yellowstone or Yosemite National Park.

The most impressive contents of the “Fundamentals” course for new employees were in the “Taking Charge of Your Future” part. This part includes retirement planning. I think it is a great idea that all employees have to plan their career and even plan for the retirement at the time of employment.

(3) National Conservation Training Center

The Fish and Wildlife Service’s National Conservation Training Center (NCTC) is located in Shepherdstown, West Virginia. It provides training and education services to the natural resource management community to better accomplish the common goal of conservation. The NCTC is an amazing facility. It has functions of training, education, media center and museum related to conservation. NCTC is open to all possible stakeholders of conservation. It extends from federal employees including army and naval cadets to private corporate sectors. The main focus seems to be communication, cooperation and conflict solving. I got the impression that a large part of each training course is saved for discussions and communication among participants. The ceiling of the huge dining room is designed to absorb and insulate unnecessary noise so that the participants can enjoy their conversation over their meal. There is even a bar for trainees. To supplement some of the courses, the center provides a wide variety of on demand training materials.

It attracted my interest that the center is trying to make use of new IT technology for training and education to promote wildlife conservation. It is sometimes hard for the general public to observe or come across wildlife. Wildlife observation can’t be guaranteed even at

wildlife refuges because animals are alive and have their own habits. So AV media is a very attractive way to ensure a wildlife experience for the public. The production of AV materials has become much easier and cheaper because filming, editing, and duplicating are automated by recent IT technologies. Employing the DVD format has helped the center reduce postage cost and spaces for storage. Furthermore, compared to personnel expenses, which are getting higher, the cost of IT equipment is getting cheaper as technology develops. NCTC is producing all sorts of AV materials and distributing them all over the country. Those AV materials provide alternative opportunities for the public to learn more about fish and wildlife. It seems the Fish and Wildlife Service is following another path, which is slightly different from that of the National Park Service, to have people understand about the importance of conservation and refuge management.

(4) Harpers Ferry Center

The Harpers Ferry Center of the National Park Service is located at Harpers Ferry, West Virginia, and is adjacent to the Mather Training Center. The two facilities make this tiny historic town world famous among those who are engaged in park management. Since 1970, the Harpers Ferry Center has created a variety of interpretive tools, such as park brochures, wayside exhibits, audiovisual programs, museum exhibits, and historic furnishings. The National Park Service is well known for its user-friendly designed and standardized interpretive media because of the high quality and professional products of this center. The most prominent example is the park brochures, known as “Black Band Folders”, which employ the “Uni-grid” design. The Design method has given a black horizontal line at the top of every park brochure to convey an identical image to visitors. The basic format of the park brochure consists of a detailed full-colored map and explanations of park resources. After visiting several park units, you will have a good collection of brochures that remind you of your experiences at the parks.

I am sure that this center fulfills one of the most critical functions of the National Park Service to keep the quality of service. However, I assume this amazing media center needs an unbelievable amount of funding to operate. For example, the park brochure of Mammoth Cave National Park, which is given to visitors for free, costs fifty cents per copy. Although establishing this kind of center would not be very applicable to neither Japan nor developing countries, I have to bear in mind that the design and production of media is one of the core concepts of quality visitor service.

In fact, some aspects of the media production methods can be introduced. The wayside exhibits produced by the Harpers Ferry Center are very good examples. These types of signs are always at risk of vandalism and expensive to replace. The Harpers Ferry Center has devised a replaceable signboard and a solid aluminum base to support it. The signboard is basically a resin-laminated paper printed with a conventional color printer. In case the signboard is damaged or faded as years pass, park facility managers just have to ask the center to reprint and make a replacement. It also makes it easier to make changes of the contents of the signboards.

8. Washington, D.C.; the Fish and Wildlife Service

Washington, D.C. is the last location of my training program. I took an internship with the Fish and Wildlife Service as a volunteer for the Russia/East Asia Program. The volunteer program is primarily for Russian interns. The Russia/East Asia program rents an apartment for the volunteers and hosts volunteers all year round. The volunteer program was established in 1992, and has been very successful. The Russian volunteers are provided with a roundtrip air ticket and per diem. This program is a good example of an effective way of capacity building. Japan should consider this type of internship program at national level offices.

The warm welcome notes from staff were “Welcome aboard!” It gave me a sense of taking part in the conservation community. The Division of International Conservation supports the conservation of shared migratory species, threatened and endangered species, and species of global importance through its “Wildlife Without Borders” initiatives and

Multinational Species Conservation Funds.

For more than 20 years, the Wildlife Without Borders initiatives have developed projects for training wildlife managers and conserving species of international concern. The aim of the initiatives is to manage populations to self-sustaining levels for specific species and create habitat conditions for biological communities to flourish. These goals are achieved through projects that provide for habitat management training, education, information and technology exchange, and networks and partnerships. There are four regional programs for the Wildlife Without Borders initiatives; Latin America and the Caribbean, Mexico, Russia and East Asia, and Near East, South Asia and Africa.

The Multinational Species Conservation Funds provide technical and cost-sharing grant assistance to range countries for conserving elephants, rhinoceros, tigers, great apes, neotropical migratory birds and their habitats. The funds play a vital role in providing successful, on-the-ground support to range countries involved in above mentioned species conservation. Since the first grant was awarded under the African Elephant Conservation Act in 1990, more than 500 partners have worked with the Fish and Wildlife Service on over 500 projects in 46 countries to protect and conserve these species. Since 1989, this program has leveraged more than \$151,882,500 in matching and in-kind support.

The Neotropical Migratory Bird Conservation Act program is designed to deliver conservation through matching grants to partners in the U.S., Latin America and the Caribbean. This program was first funded in FY 2002, as a separate appropriation, and the program is consolidated within the Multinational Species Conservation Funds from FY 2005.

Dr. Herbert Raffaele, Chief of the Division of International Conservation, has written, "We often hear that science is the backbone of conservation, and perhaps it is. But then where do people fit in? Well, people are its heart, a rather crucial element indeed". The Fish and Wildlife Service has been trying to establish an international web of cooperation that has no boundary to conserve wildlife.

9. The international programs of the National Park Service

The National Park Service coordinates a number of international assistance and support functions that meaningfully complement and support the National Park Service's domestic role. The Office of International Affairs supports Regional Offices and Park Units so that they can collaborate effectively with neighboring countries to protect and manage resources shared across international boundaries. The office also develops and supports technical assistance projects for other nations to aid in the protection and management of their national parks and protected areas.

The International Volunteer in Park (IVIP) program places over 100 international students and park management professionals annually at the national park units where they receive training in all aspects of park management.

In FY 2003, 139 international volunteers were placed at 50 different park units. The volunteers worked an average of 13 weeks or 520 hours for a total of 1,817 weeks or 72,280 hours. The value of their volunteer hours was \$1,195,511.

The "Park Flight " program is derived from the IVIP program, and is supported by multiple non-governmental partners, especially American Airlines and the National Park Foundation. American Airlines provides air tickets, and the park foundation pays for the lodging and per diem for the volunteers. The IVIP program is one of the most successful examples of international cooperation of the National Park Service that provides additional resources to the park service at considerable cost saving to the taxpayers.

10. Conclusions

I am still working on my experiences to have an organized and structural view of parks and refuges of the United States. As "interim" outcomes from the two-year training program, I like to list some of the key factors to improve management of protected areas in Japan and developing countries, which I learned.

- ✓ Simple missions
- ✓ Volunteer and partnership programs

- ✓ Science and resource management programs
- ✓ Adequate visitor services and information materials
- ✓ Easy to maintain facilities

Your comments and suggestions are most welcome to better organize my experiences in the United States.

Thank you again for providing this great opportunity for me.

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