AN ADVOCACY ROLE FOR PUBLIC GARDENS:

TROPICAL RAIN FOREST CONSERVATION

by

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DEDICATION

This thesis is dedicated to Francisco "Chico" Mendes Filho, the leader of a rubber tappers union in Brazil, who gave his life to save the Amazon from deforestation.

Francisco "Chico" Mendes Filho

1944 - 1988

"Nobody made a greater mistake than he who did nothing because he could do only a little."

- Edmond Burke (1929 - 1979),
British statesman and orator

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ABSTRACT

In the increasingly competitive not-for-profit world, public gardens need to justify their contribution to society. Public gardens need to become more active in current socio-environmental issues to both demonstrate a sense of social responsibility and fulfill a need in contemporary society. The public will look increasingly toward public gardens for information and guidance concerning plant-related issues.

This thesis examines advocacy in public gardens, focusing on the issue of tropical rain forest conservation. It argues the need for more widespread advocacy and explores the potential role public gardens can play.

The first chapter addresses the trend toward advocacy in public gardens. It discusses the concept of advocacy, noting the increase in advocacy at related institutions. Advocacy is not a traditional role for public gardens. The reasons that more public gardens have yet to assume a leadership role in advocating tropical

rain forest conservation can be grouped into the following categories: traditional values/mission, leadership, individuals' attitudes, questions of responsibility, conflicting priorities, need for global perspective, isolation, controversy/partisanship.

The few public gardens with leading advocacy roles in tropical rain forest conservation share three common traits: 1) determined, focused leadership; 2) a well-defined mission communicated throughout the organization; 3) involvement in collaborative efforts.

To effectively achieve an advocacy role, public gardens must formulate a clear, common message. In an advocacy role, the audience becomes constituencies. Visitors, non-visitors in the community, staff, volunteers including board members all should be targeted audience segments.

To be most effective, all aspects of the organization should communicate the same message, using a variety of methods. Plant displays, interpretation, educational programming, music and theater, exhibits, special events, travel programs, visitor services, publications, garden policies and procedures all can communicate an advocacy stance. Recommendations are made

on how a public garden can begin developing an advocacy role.

The environmental problems facing today's world can only be solved through multi-disciplinary, international efforts with each individual and organization making a contribution. Public gardens can play a valuable role through advocacy.

INTRODUCTION

Competition among not-for-profit organizations is becoming increasingly fierce as we enter the 1990s. The future support of not-for-profits, including gardens, rests for the greater part in the hands of the public. More and more, public gardens must articulate and justify their contribution to society. They, like other public institutions, hold the people's trust. They are charged to do so explicitly in their articles of incorporation, and implicitly through service to society. This social role needs to be articulated more clearly, so gardens may address it more effectively (Roberts 1989).

This thesis examines the role of advocacy in public gardens, focusing on a current crucial issue: tropical rain forest conservation. It argues the need for widespread advocacy, and suggests how public gardens can demonstrate active support concerning this issue.

Chapter I discusses the trend toward advocacy in public gardens. It draws from interviews with public garden leaders, literature research, and personal

observation made during site visits. It outlines the potential for public gardens to take on advocacy roles, and discusses the reasons why more gardens have not chosen to do so. It then highlights five gardens which have assumed leading advocacy roles in tropical rain forest conservation, and identifies the common traits which lead to this success.

Chapter II explains how advocacy can be achieved, drawing on examples from public gardens, zoos, conservation organizations and museums. It discusses the need to identify a common advocacy message. It re-defines the traditional concept of a garden's audience, and suggests numerous methods to communicate an advocacy message throughout the many facets of a garden's operations. The chapter includes recommendations on how a public garden might get started developing an advocacy role.

CHAPTER I

TREND TOWARD ADVOCACY IN PUBLIC GARDENS

Meaning of Advocacy

The American Heritage Dictionary defines advocacy as "active support, as of a cause, idea, or policy." To "advocate" implies giving verbal support, usually in the sense of pleading or arguing (1986, 82). Advocacy in a broader sense can be conveyed through demonstrating active support in many ways. Verbal support remains a cornerstone, but actions are equally important.

Traditional Perspective

Public gardens have played many roles throughout history. The first gardens served as botanical storehouses for students of medicine. By the late 17th century, gardens became pleasure gardens for the aristocracy, and showplaces for their extensive plant collections. Only in the last 150 to 200 years have gardens been open to the public (Frandson 1986). Today, public gardens function in multi-faceted and diverse ways.

Smith (1990) categorizes the major purposes of public gardens as follows:

1) Environmental Aesthetics
2) Information and Education
3) Research
4) Conservation and Preservation
5) Public Service and Community Pride

Advocacy roles in public gardens traditionally have meant advocating the value and importance of the garden itself to gain support or raise needed funds. Other aspects of public gardens' missions border on advocacy, although gardens fail to recognize them as such. Through an educational role, public gardens provide horticultural and botanical information. Gardens may teach the concepts of conservation and help the public become more aware of the importance of plants. Garden staff address their responsibility to serve the public by offering a range of services for their communities.

Although the traditional role of education in gardens may be described as relatively passive, many of the problems facing the world today demand a more active role. These problems can be complex. People need organizations like public gardens to present the facts on

plant-related issues in a responsible manner and raise questions about where those facts lead us (Bridal 1989).

Some of these complex topics may be provocative. Garden staff should not avoid these topics simply because they fear taking a controversial stand. They have a role as public institutions to not only reflect social views, but to help individuals form opinions. Gardens have "the authority to select, interpret, and present that which they decide has value or significance." They might consider their role as public gardens to "give voice to the collections with which society has entrusted them" (Roberts 1989, 9).

Trend Toward Advocacy in Other Professions

Professionals in related fields recognize the potential power of advocacy. In 1989, the Journal of Museum Education recently devoted an issue to the discussion of the museum's role in reflecting and molding public opinion. Interpreters at parks, nature centers, zoos, and aquaria address their involvement in politics in the May 1989 issue of the Journal of Interpretation. The editors and contributing authors all take strong stands in favor of advocacy.

In 1978, the American Association of Zoological Parks and Aquaria (AAZPA) voted to make conservation the primary goal of its member institutions. It developed a captive wildlife preservation program, now called the Species Survival Plan, to identify the most needy endangered species and to coordinate preservation activities (Luoma 1987). Leading zoos throughout the country are re-orienting their public programming to increase public awareness of the need for conservation. This re-orientation stresses habitat preservation and the connection between animals and plants (Meyers 1989).

In the horticulture field, the nursery and garden center industry discuss the impact of environmentalism on consumer attitudes in a recent issue on environmental preservation in American Nurseryman (Higginbotham 1989). Garden Design magazine devoted an issue to environmental issues and their impact on gardens and gardeners (Spring 1990).

Trends indicate an increased interest among the public concerning environmental issues. Project WILD surveys indicate a majority of Americans sense a commitment to the environment as a deeply-held value, not just a fad. Recent research indicates several important value shifts in our society toward proactive planning,

concern for the future rather than present gratification, cooperation, a sense of interdependence, "enoughness" consumption, and equitable distribution of resources (Hood 1990).

Another recent survey of 500 college students conducted by the National Wildlife Federation indicates a sharply increased level of concern about the environment. Eighty percent of those polled think each individual has the primary responsibility for environmental protection. Although such surveys indicate an increasing awareness and concern, environmental groups still see a lack of real understanding concerning environmental issues. Also, they see the need to encourage people to act on their convictions (The Review 1990).

Issue: Tropical Rain Forest Conservation

In recent years the situation of the world's tropical rain forests has reached an ecological crisis unlike any ever before experienced. Although tropical rain forests make up only six percent of the world's land masses, they include at least 90,000 identified species of higher plants, or 36% of all known higher plant species. Scientists estimate at least another 30,000 or more have yet to be discovered in these extremely diverse habitats. Between 76,000 and 92,000 square kilometers of rain forest

were cut annually in the late 1970's, and another 100,000 square kilometers were grossly disrupted annually during the late 1970's (Myers 1984) (Denslow and Padoch 1988).

A conservative estimate places the current rate of destruction at almost one hundred acres every minute. According to Norman Myers, one of the world's authorities on tropical forests, if present deforestation rates continue, very little primary rain forest will be left at the end of this century (1984).

Tropical rain forest deforestation has been linked to the political and economic instability accompanying a rapidly escalating population and declining living standards in tropical countries. The intense pressure of land speculation and the poor landless peasants' fight for survival has led to destructive, short-term timbering practices, intensive slash-and-burn agriculture, and cattle ranching. Hundreds of thousands of indigenous people who live in the rain forest depend on it for their cultural survival. The conflict between development and preservation is exacerbated by the pressures and demands made by outside nations (Denslow and Padoch 1988).

A lack of awareness and real understanding at all levels of society concerning the scope and severity of environmental degradation aggravates the problems facing

tropical countries (Ham, Sutherland, Barborak 1990). Most people fail to understand how the fate of the rain forests can affect their lives. They also do not comprehend how their own actions contribute to the destruction. Public gardens can play a major role in providing factual information about the issues involved and making a case for the need for tropical rain forest conservation.

Potential for Public Gardens Involvement

Public gardens have a great opportunity to assume a leadership role by demonstrating active support of environmental issues, like tropical rain forest conservation. Over 150 million people visit public gardens annually. The mixed audience includes policy makers, voters, consumers, visiting officials, VIP's, technical experts and conservationists. Gardens possess the trained staff, facilities and activities necessary to effectively and efficiently persuade the public of the aims and needs for conservation (Botanic Gardens Conservation Strategy 1989). Myers describes this potentially powerful constituency:

> If the flower lovers of America were to be made aware of how much is threatened in tropical forests, and how relatively little is needed to save it, they might show themselves ready to support the cause (1984, 327).

Although institutions like public gardens prefer to think of themselves as neutral parties, they approach issues with a particular point of view. Their very choice of plants, displays, and interpretion all make a statement (Gimble 1989).

The real danger lies in not recognizing the existence of biases. Gardens may present as fact that which is only one interpretation. "Knowledge is...a matter of the context of its producers, of their interests, values, and point of view." In fact, we cannot avoid advocacy in our daily work, nor should we. Brewer addresses the inevitability of advocacy in a discussion on alternative methods to analyze, interpret and synthesize major issues:

> [Advocacy] is pervasive and probably inevitable. If so, rather than futilely stemming the tide, it may be more sensible to move with its flow, so to take advantage of the powerful forces advocacy represents (Brewer 1986, 471).

Nothing is intrinsically or morally wrong with taking a particular position on an issue, provided that this can be done in an "intellectually honest way." Moreover, opportunities should be provided to discuss other points of view (Brewer 1986, 471).

Public gardens can play a valuable advocacy role by providing up-to-date information about the issues based

on scientific fact to evoke feelings and opinions from visitors in a constructive way, helping people to learn, compare and judge for themselves. They can provide forums for public discussion and debate about current issues, and assist them in finding ways to take action. To do so effectively, public gardens cannot afford to take a passive role. The Botanic Garden Conservation Strategy states:

> Every garden should have a written education and awareness plan, identifying audiences, the core messages to target to each, and the facilities and activities involved in putting those messages across (1989, 41).

Reasons for Public Gardens Not Taking An Advocacy Role

Taking into account the above mentioned exceptions, public gardens in general have not taken leading advocacy roles in tropical rain forest conservation. Claffey describes this phenomenon:

> "The gardens, of course, are concerned with the environment and the education, broadly conceived, of the public. They have staff members whose knowledge is deep. However, when you search for the most vigorous voices in dealing with these issues, the gardens or arboreta tend not to be represented at a level consistent with their potential. The strongest and most effective actions come from organizations like the Sierra Club, the Audubon Society and the Friends of the Earth. What attention the gardens give is fragmented. As a professional group, botanical gardens and arboreta make little effort to act in concert, either to help themselves or to represent ideas" (Claffey 1986, 28-29).

Why have the majority of botanical gardens not taken a stronger advocacy role concerning rain forest conservation? My research uncovered many reasons, which I grouped into the following categories:

* Traditional Values/Mission
* Leadership
* Individuals' Attitudes
* Questions of Responsibility
* Conflicting Priorities
* Need for Global Perspective
* Isolation
* Controversy/Partisanship

REASON: Traditional Values/Mission

Public gardens can be reluctant, or unwilling to change. They may view taking an advocacy role as straying from the gardens' traditional functions of display, education, research, and more recently, conservation. Taking such a role involves venturing into relatively uncharted territory. Many gardens' missions may still be based on the philosophies of their founders. Often, these original charters do not include conservation. Few, if any, list advocacy as one of their primary roles.

Discussion. Many gardens embody a strong sense of tradition dating back to their founders. In fact, their

very existence is due to the genorosity and industry of these individuals. This heritage should not be dismissed lightly. Gardens should preserve their past, but must continue to respond to the needs of today and tomorrow. In his 1942 book titled, The Museum as a Social Instrument, Theodore Low warns of the dangers of remaining rooted in the past:

> The liberalism of our forefathers is more than likely to be the conservatism of today and that a living institution must constantly reinterpret that philosophy in terms of the changing social conditions of the present....the only real justification for the existence of a museum lies in its degree of usefulness to society as a whole (Low 1942, 8).

Although Low speaks of museums in the traditional sense some forty-eight years ago, the same could be applied to public gardens today. The world of our founders was a different place than the world today. They had different priorities, different values, different concerns. They knew much less about the need to preserve plant and animal species. World populations were not escalating at their current exponential rates. Mass communications had not yet brought news of the world to our doorsteps.

Some garden professionals see a real need to respond to a changing world. Examining the future directions of botanical gardens and arboreta, Claffey

states: "Attitudes must change. The old ways should be put aside. Everything should be examined and tested so that some new standards are developed" (Claffey 1980, 29). Cultural change involves a gradual process where society's values shift to respond to changing conditions. Those ideas which may have been considered radical in the past become the norm as values change.

Such change may be starting to take place. Ghillean Prance, Director of Royal Botanic Gardens--Kew (1989), and Ward (1986) indicate public gardens have begun to focus more of their energies on current issues. Ward lists two reasons for this trend: 1) a need to attract greater financial and political support from the general public, 2) a need to address the urgent global issue of habitat destruction and loss of genetic diversity.

Public gardens must continue to reinterpret their usefulness to today's society, and respond to changing needs. Robert Bowden, Director of Horticulture at Missouri Botanical Garden, feels that the urgency of the crisis of tropical rain forest destruction dictates the need to respond:

> Right now, on this planet there is nothing that supercedes in importance efforts to define appropriate actions on a global basis for the tropical rain forest, deforestation, and mass species extinction (interview 1989).

REASON: Leadership

There is a need for strong, focused leadership throughout the public horticulture field. The decision to take a significant role in conservation advocacy must come from the top and work through an organization. Leadership is needed at the executive level, governing board level, and an organizational level:

> Now, more than ever, the world needs [people] who can inspire their fellow citizens with a fiery sense of mission, not a nationalistic or military campaign but a universal crusade to save the planet. Unless mankind embraces the cause totally, and without delay, it may have no alternative to the bang of nuclear holocaust or the whimper of slow extinction (Seaton 1989, 3).

Discussion. Effective leadership in advocacy begins at the top of an organization. Members of the governing board establish and articulate the purposes of an organization and set priorities. They hold the ultimate responsibility for stewardship of the garden. Assuming an advocacy role is a major policy decision, and must be sanctioned by a garden's governing board. Claffey stresses the importance of their involvement:

> Board members should be vigorous advocates, acting as a bridge to the various constituencies...They should not be reluctant assenters to decisions about which they understand little (1986, 32).

While the governing board sets the overall policy of an organization, its members may not initially have the background necessary to effectively formulate a detailed position concerning an issue. The executive director must work closely with the board to establish a garden's particular advocacy stance. He or she, together with other staff members, has the responsibility to provide on-going education for board members to keep them abreast of current issues. Ghillean Prance, describes the extent of his efforts while serving as Vice President for Science and Director of the Institute of Economic Botany at New York Botanical Garden:

> I took a group of board members to the Amazon, which gave me a chance to show them the problems, discuss the problems and convince them that this was an important message of the New York Botanical Garden (1989).

Leaders in tropical rain forest advocacy tend to come from outside the public garden community: Norman Myers, E.O. Wilson, Lester Brown, Russell Mittermeier, Barry Commoner, Thomas Lovejoy, Mark Plotkin. Few leaders have emerged to inspire the public garden community to take action. Many do not have the education or experience necessary to "successfully formulate a consistent, persuasive, informed and authoritative point of view" concerning an issue like tropical rain forest

conservation. Moreover, they may lack the skills to serve as effective spokespersons on the subject (Weil 1987, 11).

Notable exceptions within the public garden field include Peter Raven, Ghillean Prance, Peter Ashton, and Keith Woolliams. Of these individuals, Peter Raven is often singled out as the "Champion of the Rain Forest". Highly respected for his scientific knowledge, Dr. Raven represents exceptional leadership. His staff describe him as a "front-line advocate", citing his dynamic speaking skills, and his ability to inspire staff and volunteers (Crosby, Dresler, Bowden, McGilligan 1989).

Our national and international professional organizations have not yet taken a leading role in advocacy. Peter Raven describes this lack of leadership:

> the International Association of Botanical Gardens (IABG) has not yet taken a role of leadership in the coordination of programs throughout the world, but perhaps has the potential of doing so...Ast the 1978 Kew Conference, the delegates called on the IABG to clarify its role and enlarge its activities with respect to all aspects of botanical garden activities, including the coordination of collections, training programs, interchange of plants and of personnel, and other matters. It remains to be seen whether the IABG will accept this challenge, or some other group will assume the role of international coordination (1986, 47).

Raven also states in an interview for The Public Garden: "I think organizations like the AABGA [American

Association of Botanical Gardens and Arboreta] have got to play a stronger role in coordinating activities" (1986, 7). Presently, the public receives a series of fragmented messages coming from numerous organizations not working in concert. Organizations such as the International Association of Botanic Gardens, the American Association of Botanical Gardens and Arboreta, and the Botanic Garden Secretariat of the World Conservation Union may exacerbate this fragmentation by working in isolation. If they collaborate with other conservation organizations such as the World Wildlife Fund and Conservation International, they can develop a common message which will be more effective than one developed in isolation. Organizations can serve an important networking function by helping individual gardens determine how best they can contribute through collaboration with other organizations to avoid duplication of efforts (Rudyj 1988).

REASON: Individuals' Attitudes

The direction of an organization is influenced, indeed determined, by the individuals within it. Each individual brings his or her own attitudes to a discussion concerning current issues and the appropriate role of a public garden. Some individuals may feel apathetic concerning the fate of the tropical rain forests. Others

may try to deny the extent of the problems. Some may feel a sense of despair, which in effect paralyzes them from taking action. The more power an individual possesses in an organization, the more influence his or her attitudes may have on the position taken by the organization.

Discussion. The issues facing proponents of tropical rain forest conservation can be complex and potentially overwhelming. They involve social, political, economic aspects outside the normal experiences of public horticulturists. As with many environmental problems, they do not lend themselves to quick and easy solutions, especially at the international level. Wood, Demko and Motson describe some of the difficulties in their article on "Ecopolitics":

> "The scientific debate over many current transboundary environmental problems is often heated and frustrating because the problems are very complicated and do not lend themselves to obvious solutions....comprehensive and reliable data [is] not available....and constructing realistic models is still at a relatively crude stage" (1989, 12).

When faced with such difficulties, many individuals choose to debate the details concerning a particular issue. In the case of rain forest conservation, these may include: definition of a rain forest, percentages of destruction, causes and effects of global warming, preservation vs. development (Gimble

1989). While such debate is not negative in itself, some individuals use controversy to deny the extent of the problems and to justify remaining uninvolved.

Others prefer to avoid such issues altogether. They may wish to continue their present roles in public horticulture, regardless of the changing environment. They do not think the fate of the tropical rain forests will affect their lives. Such a pervading sense of apathy stands in the way of them taking an advocacy role. A survey exploring the use of horticulture for developing environmental awareness and conservation behavior identifies one category of individuals' responses as "horticulture is the antithesis of conservation" (Peck 1977, 56). A typical respondent writes:

> A horticulturist may or may not be interested in conservation or environmental awareness. The higher level of specialization a horticulturist achieves, he or she likely has less time for the natural environment (Peck 1977, 58).

Even individuals dedicated to the cause of tropical forest conservation occasionally question their own resolve. Such introspection can prove valuable in reaffirming convictions. Norman Myers, world respected authority on tropical forest destruction, writes:

> Do I really care...? But as an individual, as a human being, how do I react? Do I identify with those remote forests and all they stand for?...How can I, a developed-world citizen of the temperate zone, talk about those forests with colleagues in the developing tropics unless I am rock-solid certain of my conviction? (Myers 1984, 353).

Even if public garden professionals do feel concerned about the environment, change can only begin when these concerns and hopes are acted upon (Simonds 1974). Effecting change in the attitudes of individuals and society as a whole can be difficult. Effecting change in the behavior of those individuals can pose even greater challenges, while attempting to change the behavior of society at large may seem impossible.

Gro Harlem Brundtland, Norway's prime minister and chairman of the World Commission on Environment and Development which produced Our Common Future, states her convictions:

> I would not have been able to use so much of my time and energy if I did not believe that it was possible to change things, including people's attitudes. One person can certainly make a difference. Many can make an even greater difference. Changes are the sum of individual actions, and lack of change is the result of apathy gaining the upper hand. In the face of this, inaction is not an option we can choose. This appeal goes to all of us: to increase our total potential and ability to meet the challenges of the future (Brundtland 1989, 15).

In 1989, researchers noted an increasing number of people "exhibiting a generally hopeless view of the state of the world's environment." They coined a term for this attitude: "environmental despair" (Utter, Valen, Cantu 1989, 12). Environmental despair can be debilitating to individuals or organizations who might otherwise be able to make significant contributions. The researchers describe how they respond to these individuals:

> We have begun to tell those who share with us their E.D. [environmental despair] that, although the situation is dire, there is still a possibility of recovery; but valiant action by millions, worldwide, is mandatory if success is to be achieved. We also state that people with deep feelings like theirs are essential to the cause, as they care enough to have despaired (Utter, Valen, Cantu 1989, 12).

Norman Myers believes that the tropical rain forests of the world can be saved, if everyone works together. He offers these words of hope in his book, The Primary Source:

> Fortunately we still have time to slow and stem, if not halt, this extinction episode, through a global collaborative effort--an enterprise that will call upon professional contributions from the botanists' community worldwide (1984, 291).

REASON: Questions of Responsibility

Some garden professionals feel a reluctance to accept responsibility concerning environmental issues like tropical rain forest conservation. They feel that other

organizations, like the Nature Conservancy and World Wildlife Fund, are more appropriate to take advocacy roles concerning these issues. Others see gardens such as Missouri Botanical Garden and New York Botanical Garden as better suited to address tropical rain forest conservation advocacy because of their research focus.

Discussion. Public gardens have a responsibility as stewards of their collections. They also have a responsibility to the native environment from which their collections originate. This can be argued on a practical, as well as an ethical, basis. Fundamental principles of genetics require a sufficient gene pool to maintain a given species. Gardens possessing tropical plant collections in developed nations ultimately depend on a continued supply of exotic plant materials to preserve their collections (Rudyj 1988).

Those gardens not possessing tropical plant collections might consider their own involvement with the destruction of the rain forests. Each individual contributes to the destruction. The consequences of this destruction will effect every person, and every public garden in some way. This requires all gardens to act, not just certain institutions. The problems facing the

tropical rain forests will be solved only through the combined efforts of each individual and each organization.

It can be argued that as public entities, gardens have a responsibility to inform society concerning issues relating to plants and people. Those who visit public gardens all depend on products from tropical forests in their daily lives: various pharmaceuticals, rubber, woods, canes and fibers, gums, oils, resins, foods, spices, houseplants (Naturescope 1989). Garden visitors also contribute to the destruction. Public gardens with their ability to reach millions of people must not fail to recognize their responsibility.

Professionals in public gardens might consider their responsibility to support their colleagues throughout the world. These include the indigenous peoples in tropical countries, whose vast botanical knowledge has been accumulated over centuries. They hold many of the keys to sustainable development of the forests. Disturbance of their culture not only violates their way of life, but jeopardizes the chance of their knowledge being shared with the rest of the world (Hamu 1990).

Public gardens also have an ethical responsibility to the environment. Ghillean Prance, Director of Royal

Botanic Gardens--Kew, hopes to "instill a sense of duty in us all to protect our environment, using the resources we have in our botanical gardens" (Prance 1989, 32). Kristiansen asks those who fail to see their role: "Do you not believe in the environment enough to realize that you have an obligation to do something to save it?" He sees such views as short-sighted, and suggests that the future existence of these organizations is dependent on the fate of the environment (interview 1989).

Mark Plotkin, from the World Wildlife Fund, stresses the need for everyone's involvement:

> This is such a critical situation that we can't afford to sit back on our haunches and let other people do the job. We have to save the world, and it is a collaborative effort. Conservation organizations do not have sufficient financial resources or the trained manpower to make it happen by themselves. Everyone needs to work together (Plotkin 1990, 59).

REASON: Conflicting Priorities

Administrators at many public gardens struggle to balance conflicting priorities among their staff. Some individuals devoted to research view the public as a nuisance interfering in their conservation efforts. Public educators would like to see visitor services increase, even if the money must come from the research

budget. The visitors themselves may not understand the overall mission of these gardens.

Discussion. A perception exists among many public garden professionals that the visiting public finds conservation boring. They come to gardens for entertainment and relaxation during their leisure hours, not to hear "doomsday" reports on the state of the environment. Teri Dresler, Director of Marketing at Missouri Botanical Garden, describes the need "to trick the public into learning something about our mission when they come to the garden or special events" (interview 1989). She and other staff members at Missouri Botanical Garden describe the need to "candy-coat" educational messages, to "force-feed a certain amount of it" (Bowden, Dresler, Kopp 1989).

As gardens vie for funding and increased visitation, they tend to emphasize the crowd-pleasing elements--usually colorful floral displays and entertainment. Gary Koller at the Arnold Arboretum thinks this marketing as "pretty gardens" may bring more people through the gate, but "may harm our image as instruments of science, conservation and preservation. Gardens are not valued as resources but as amusement parks" (Koller 1989, 38).

Robert Bowden, Director of Horticulture at Missouri Botanical Garden, sees the cultivation of such an image as the means to an end: "It's the glitzy displays...the show which allows the public face to gather funds to do research behind the scene" (interview 1989).

Kristiansen, at the Honolulu Botanic Gardens, feels that the "man on the street" can, and must, be reached. As a consumer in the developed world, the everyday person plays a major role in the destruction of the rain forests in developing nations. Kristiansen feels that most people like to learn if they can approach it in an entertaining way. "We must explain the significance of plants directly to man. If it doesn't have a relationship, it's boring" (interview 1989).

Several of the public gardens in Hawaii face a dilemma of conflicting priorities. Located in one of the few tropical regions of the United States, these gardens offer ideal settings to teach the public about tropical ecology and to advocate the need to conserve it. Several million visitors flock to the Hawaiian islands annually.

The National Tropical Botanical Garden (NTBG) faces the quandry of maintaining its present focus on research and allowing only limited visitation, or allowing more visitors into the grounds. An increase in visitation

would require major construction in upgrading roads, building a new visitor center closer to the site, and hiring guides. The director, William Theobald, views NTBG as "probably more important for research." He does not want general group tours to visit the garden, only "really interested people." On the other hand, he recognizes the importance of visitor education in conservation efforts (interview 1989).

The Lyon Arboretum of the University of Hawaii also faces major renovation costs if visitation is increased. Bus tours come literally to its back door, stopping at "Paradise Park," a tourist attraction down the road from the arboretum. Established in 1953 for the purposes of "research, instruction, and service," the Lyon Arboretum struggles to maintain its 124 acres with one full-time groundsperson and ten full-time staff. The director explains that the University's priorities lie with research in marine biology, not the arboretum. Annual visitation currently rests at between 10,000-15,000 people. Increased visitation would require trails to be upgraded, larger facilities built, and more guides hired. Besides, as the director points out, "we're not here for the tourists" (Sagawa 1989).

At the other extreme, Waimea Botanical Gardens and Arboretum on the windward shore attracts over one million visitors annually. The conflict there lies between the for-profit Waimea Falls Park and its not-for-profit arm, the Botanical Gardens and Arboretum. The money-making priorities of the Park sometimes clash with the Arboretum's conservation aims. This leaves the Arboretum staff wondering "if we'll be contacted should they want to dig up a collection to put in a new concessions area" (Garnett 1989).

REASON: Need for Global Perspective

Many of today's environmental problems cross numerous national boundaries. Some issues, such as global warming and depletion of the ozone layer, affect the entire world. Without a global perspective, public garden professionals fail to understand their own involvement with seemingly remote issues such as tropical rain forest conservation. They need to examine their garden's contribution to society not only on a local or national level, but also on an international level. Moreover, they need to develop a global perspective within the broader context of world affairs.

Discussion. Most of the cooperative conservation efforts currently undertaken in United States public

gardens, with a few exceptions, focus on species conservation at the regional or national levels. International cooperation is still in its infancy (Rudyj 1988).

The Center for Plant Conservation (CPC) and its member gardens have played a valuable leadership role in coordinating conservation activities at the national level. Their particular strength lies in ex situ plant conservation at the species level. Although part of the mission of the CPC involves advocacy, staff member Kerry Walter admits this area remains relatively undeveloped (1989).

Donald Falk, executive director of the CPC, highlights in a recent newsletter the need to take a global perspective toward conservation of biological diversity. He feels that tropical areas in the United States, particularly in Hawaii, Puerto Rico, and the U.S. Virgin Islands should receive priority treatment by the CPC (Falk 1989).

I suggest global efforts should go beyond national borders to encompass tropical regions throughout the world. A great imbalance exists between where most plants grow and where botanical gardens exist. Two-thirds of the world's plants come from the tropics, while most of the

botanic gardens are situated in the temperate regions--nearly 400 in Europe alone.

When considering plant conservation from a global perspective, can gardens in developed countries truly justify devoting all their resources to a relatively small number of species? With limited facilities to grow and maintain tropical species, gardens in temperate regions can nonetheless contribute by promoting greater awareness among people in developed countries, and providing much needed resources and training to their counterparts in tropical regions (Botanic Gardens Conservation Strategy 1989).

Some leaders in public gardens see the need for a more global perspective toward tropical deforestation. Raven states:

> All nations are tied together as to their common fate. We are all facing a common problem: How are we going to keep this single resource we have, namely the world, viable? (1989, 7).

Rudyj also argues the need for botanical gardens and related institutions to cooperate at the regional, national and international levels. He advocates the use of written agreements to formalize relationships between parties (1988).

The Botanic Gardens Conservation Strategy, published in 1989 for the IUCN and World Wildlife Fund, provides a global perspective on conservation. It states: "Work on the regional and national levels must continue, while collaboration at an international level should be expanded." It says that "all gardens have a part to play in conservation." It also outlines the priority regions where botanic gardens and related organizations can have the most impact, and identifies the priority species that most need conservation (1989).

The report from the World Commission on Environment and Development, titled Our Common Future, helps to place today's environmental issues within the broader context of world affairs. The report, described as "a global agenda for change," was mandated by the General Assembly of the United Nations. It represents four year's work by the 23-member Commission, made up of representatives from throughout the world including over half from developing nations.

Our Common Future encompasses data gathered from open public hearings in over a dozen sites, deliberative meetings, written testimonies, and site visits. It looks beyond the symptoms of deforestation and species loss to examine the causes and possible solutions. The report

maintains a broader view, considering other aspects besides environmental issues, stating:

> [Narrowing to environmental issues only] would have been a grave mistake. The environment does not exist as a sphere separate from human actions, ambitions, and needs, and attempts to defend it in isolation from human concerns have given the very word 'environment' a connotation of naivety in some political circles (The World Commission on Environment and Development 1987, xi).

REASON: Isolation

Public gardens of today, especially smaller gardens, tend to work more or less in isolation from one another. Moreover, many gardens work in isolation from other related organizations (Rudyj 1988). Often stretching both staff and dollars, these gardens get caught up in the day-to-day survival of their institution and fail to respond to changing conditions. Although networking organizations such as the American Association of Botanical Gardens and Arboreta help to establish ties between public gardens, little effort has been made to forge ties with organizations outside public horticulture (Robertson 1989).

Discussion. Dr. Roy Taylor, Director of Chicago Botanic Garden, feels professionals in public gardens have developed "an extremely narrow and introspective point of view" about their worth to the public (Taylor 1986, 13).

They spend all their time talking to one another, and not enough time talking to individuals or organizations representing other disciplines. Taylor also suggests that the field's professional organizations, both on a national and an international level, contribute to this "closed-shop, club concept" (Taylor 1986, 22).

This isolation makes gardens slow to respond to changing world conditions. Claffey questions the wisdom of this isolation:

> Is there nothing to be learned from the world outside the walls, where change is always churning up new structures and new tests?...Watched over by a closed establishment, did [gardens] become passive in the face of challenge and demand for change? (Claffey 1986, 29).

Public gardens cannot afford to ignore the problems facing the environment. Their very survival depends on their ability to respond to change. They must look at the broader picture, and consider how they can contribute (Robertson 1989). Zadik suggests professionals in public gardens focus so intently on plants, that "we lose sight of the larger world around us." She advocates public gardens should widen their focus to address the social perspectives of their missions:

> If horticulture is to continue to be relevant in today's world, it cannot remain a separate discipline. Environmental concerns, species extinction, deforestation, urbanization, and world hunger problems require immediate attention (Zadik 1985, 38).

It would be foolhardy to suggest that one garden, acting in isolation, could make significant improvements to the situation in the rain forests. Brenan states that the tasks facing public gardens are so great, and so urgent, that no one garden can hope to deal with more than a small part. Cooperation between public gardens is essential if overlap and waste of resources are to be avoided (Brenan 1986). Smaller gardens can team up with bigger gardens, or work with zoos, museums, and conservation organizations in their region.

Peter Raven, director of the Missouri Botanical Garden, emphasizes the need to establish a broad basis of cooperation among gardens, and between gardens and other organizations. He sees the issues facing the rain forests "are multi-dimensional problems that have horticultural, agricultural, and forestry implications as well as social implications" (Raven 1986, 6).

<u>REASON: Controversy/Partisanship</u>

Most public garden professionals still shy away from taking stands on issues which may be controversial.

They do not want to risk alienating or offending segments of their audience (Roberts 1989). Some feel their institutions should not address, let alone take an advocacy role in, any potentially controversial social issues. Others worry if, in taking sides on social or political topics, not-for-profit organizations will lose their tax-exempt status (Sagawa 1989).

Discussion. In recent years, politics has increasingly intruded into the public garden world. National legislation limits trade of certain plant materials. So called "right-to-know" laws require detailed record-keeping and safety procedures for pesticide use. Examination of contaminated water supplies affects gardens both as users and contributers to the contamination. Visitors want to know garden professionals' views on issues ranging from tropical rain forest degradation to mass composting.

Colleagues in related fields face similar dilemmas. As Paul Frandson, President of the National Association of Interpreters, relates: "Repeatedly we find ourselves promoting, defending or clarifying some action that impacts our professional life" (Frandson 1990, 1). Although garden professionals might not consider themselves experts on many environmental topics, they may

be the most knowledgeable individuals with whom some people come in contact. How they respond may influence others' opinions and actions (Wood, Demko and Mofson 1989).

Many of the issues involving the destruction of the tropical rain forests deal with political and economic policies. They must be addressed if the public is to understand its own involvement. Environmental issues such as global warming, pollution, and the loss of species diversity cannot be fully understood without considering such political and socio-economic issues as an unequal distribution of wealth and overpopulation. Public gardens can make a valuable contribution through presenting these issues and possible solutions.

> By popularizing concepts such as sustainable development, biosphere reserves and biodiversity, environmental education may make its longest-term contributions to global conservation" (Ham, Sutherland, Barborak 1990, 5R).

Many countries with tropical rain forests resent developed nations attempting to dictate what they should or should not do with their natural resources. Ghillean Prance sees this national protectionism as understandable, if one looks at it from an historical perspective. In the past, foreigners have repeatedly taken from these countries while giving little or nothing in return.

People in "developed" nations can ill afford to continue fostering a colonialistic attitude toward these countries, and must respect their sovereignty. At the same time, the fate of the tropical rain forests will have global impact. We cannot afford to stand by. As Myers puts it:

> ...the future of these tropical forests will impinge upon the future of the Illinois corn farmer, the Florida orange grower, the Swedish furniture maker, the British plastics manufacturer, the Caribbean banana grower, the Japanese gasoline grower, the Australian pharmaceuticals industrialist, the Soviet wheat growers, and the Arab leukemia sufferer. We are all in it together (Myers 1984, 334).

Public garden professionals may need additional training and practice to hone skills in public speaking, debate, political science, public policy, and the effective use of mass media. Frandson urges that we "must be [willing and] ready to educate those within and without the organization, make allies where possible, take an active stance to improve the situation and remain consistent." And "we should see this as a normal part of our professional life" (Frandson 1989, 1).

Public Gardens "Leading" in Rain Forest Conservation Advocacy

A few public gardens have overcome many of the stumbling blocks, and are perceived as leaders in the

advocacy of tropical rain forest conservation: Missouri Botanical Garden, New York Botanical Garden, Royal Botanic Gardens at Kew, and to a lesser extent, the National Tropical Botanical Garden and Waimea Arboretum and Botanical Garden in Hawaii. Although other gardens may be involved in tropical rain forest conservation, the names of these five gardens kept coming up in conversations with other professionals.

What characteristics do these organizations share which lead to their success? From visiting the sites, talking to key staff members, and researching the organizations, I identified these common traits which I feel have led to their success:

* Determined, focused leadership
* Well-defined mission communicated throughout organization
* Involvement in collaborative efforts

TRAIT: Determined, Focused Leadership

Effective advocacy requires strong leadership, especially at the executive and board levels. The director, working with the board, establishes the particular stance of an organization toward a particular issue. He or she must successfully formulate a consistent, persuasive, and informed position, and have

the skills to clearly articulate that position to board, staff and public alike. The board has the responsibility to hire such a director, and to support the chosen position for the organization through informed policy decisions.

Discussion. Each of the five gardens boasts strong leadership at the executive level: Peter Raven at Missouri Botanical Garden, John Hester (Gregory Long, as of June 1989) at New York Botanical Garden, Ghillean Prance at Royal Botanic Gardens-Kew, Bill Theobald at National Tropical Botanical Garden, and Keith Woolliams at Waimea Arboretum and Botanical Garden.

The individuals at the first three gardens "inherited" established institutions and are credited with revitalizing these gardens and giving them a new sense of purpose. Theobald and Woolliams work with younger gardens in Hawaii, helping to establish these gardens during their formative stages. These individuals, supported by a committed staff and board, demonstrate a sense of responsibility and commitment. They show courage in facing potentially controversial issues. Typical quotes illustrate how these individuals operate from deep convictions in their work:

Peter Raven, Director, Missouri Botanical Garden:

> We at Missouri Botanical Garden have a chance each day to use our training and experience in an institution that is trying to address some of the most difficult problems facing our planet (1988 Annual Report).

John Hester, President, New York Botanical Garden:

> This conviction is reflected in the intense devotion to the Garden, by the members of the staff, the Board of Managers, and the Garden's countless friends. The importance of plants to our very survival and the urgency of many issues concerning the plant world account in part for this unusual commitment (1984 Annual Report).

Ghillean Prance, Director, Royal Botanic Gardens, Kew:

> As the world's environmental crisis deepens, it becomes increasingly more important that those institutions that can help to address the problems should organise their conservation activities more clearly...The Royal Botanic Gardens, Kew has been a leader in the promotion of conservation in botanic gardens, and I am anxious that this leadership role should continue (letter 1989).

TRAIT: Well-Defined Mission Communicated Throughout Organization

To fully utilize the potential of a public garden as advocate, each individual must understand his or her particular contribution to the overall purpose of the organization. A carefully defined, yet easily understood, mission statement facilitates communication of a garden's purpose both within, and outside of, an organization. It provides a strong sense of purpose for those working toward a common vision.

Discussion. Each garden is guided by a well-defined mission, which acts to focus efforts and provide a strong sense of purpose. The three older establishments continue to embody strong traditions, while re-directing their missions to address today's current environmental issues. The two younger gardens in Hawaii were founded with careful consideration given to global, as well as national and local, needs. While some conflict still occurs within these organizations over the priorities of function, they manage to provide a solid public face concerning their mission.

Missouri's mission is three-fold: Tropical Botany, Horticultural Display, and Environmental Education. New York targets three areas of research with the formation of institutes based on its 1980 master plan: 1) Solutions to food and energy shortages (Institute of Economic Botany); 2) Problem of an increasingly degraded environment (Institute of Ecosystem Studies); 3) Enhancement of the urban setting (Institute of Urban Horticulture) (Annual Report 1980). Kew determined its present focus on conservation in the 1960s, emphasizing plants from the dry tropics.

The National Tropical Botanical Garden mission was established by a congressional charter in 1964. The

garden serves as: 1) Scientific research center for tropical botany and horticulture; 2) Comprehensive collection of tropical plants; 3) Education center in tropical botany and horticulture. Waimea's mission focuses on the cultivation and conservation of rare and endangered plant species, especially those from threatened tropical island ecosystems.

TRAIT: Involvement in Collaborative Efforts

The strongest advocacy message will come from many organizations working together with a common voice. No one garden working in isolation will halt or significantly slow the destruction, or bring about the cultural change which is needed to make a difference. Today's environmental problems will only be solved through international, multi-disciplinary efforts with each individual and each organization making a contribution. Collaboration with other organizations, especially on an international level, helps provide a global perspective and prevent the narrowed vision caused by isolation.

Time is short. Budgets are limited. To address problems, such as rain forest conservation, that have a limited window of opportunity and limited resources, gardens can save valuable time and resources by not

duplicating efforts. Each has its niche to fill and a different audience to address with the common message.

Discussion. Missouri Botanical Garden, Kew, and New York Botanical Garden are established institutions which work with botanical gardens throughout the world. They maintain researchers in many countries, including South America, tropical Africa and tropical Asia. They undertake numerous collaborative efforts with different organizations at local, national and international levels.

National Tropical Botanical Garden works closely with the Center for Plant Conservation, University of Hawaii and other universities, international plant societies such as the Palm Society, World Wildlife Fund and Nature Conservancy, and other botanical gardens.

Waimea exchanges plants on a world-wide basis, working with the International Union for the Conservation of Nature and Natural Resources (IUCN), Center for Plant Conservation, World Wildlife Fund, U.S. Fish and Wildlife Service, Hawaii State Department of Forestry and Wildlife and other groups.

Apart from the similarities mentioned above, these five gardens represent a diverse range. Missouri, Kew, and New York are large, established institutions with extensive research activities. National Tropical

Botanical Garden also conducts research, but it is a relatively young institution, having been established in 1964. Both it and Waimea are located in tropical regions, while the first three gardens grow tropical plants indoors in temperate climates.

Waimea represents the youngest garden, established in 1977. It operates on a modest budget and scope of operations, with a staff of twenty eight. Although Waimea employs no researchers, it acts as a resource center by providing plants for researchers from other institutions. The Arboretum also maintains living displays of endangered Hawaiian waterfowl, and Madagascar lemurs to further its conservation advocacy message. Waimea demonstrates the real contribution that can be made by smaller gardens interested in taking an advocacy role.

These five gardens still struggle with many of the same problems facing their sister institutions. Individuals' attitudes within the organizations run the full gambit: apathy to despair, denial to strong convictions and hope. Many are concerned with taking too strong a stance on controversial topics. The difference lies in their actions. These individuals and gardens demonstrate the potential for many more gardens to become involved. The next chapter outlines how more gardens can achieve an effective advocacy role.

CHAPTER II

HOW ADVOCACY CAN BE ACHIEVED

The previous chapter highlights five public gardens which have overcome many obstacles to assume leadership roles concerning tropical rain forest conservation advocacy. The potential remains for many more public gardens to take on advocacy roles. This chapter describes how public gardens can achieve advocacy. Three main components of advocacy are discussed: message, audience, and methods. These are followed by recommendations on how a garden can get started. Although the examples cited draw on the issue of rain forest conservation, the basic elements can apply to any advocacy issue.

The Message

The decision to take on an advocacy role requires commitment of a garden's governing board, director and staff. It is a major policy decision concerning the future direction of a garden, and may involve a re-

thinking of the garden's traditional values and mission. Individuals may have reasons for not wanting to become involved. These need to be identified and discussed. A more global perspective of the garden's purpose in society may resolve questions of responsibility and help to prioritize potentially conflicting facets of an organization.

The garden's director may work with key staff members and outside experts to formulate a particular advocacy position for the garden. The particular advocacy position of a garden can be addressed through all of its operations. To be most effective, the message should: 1) be clear and concise, demonstrating an informed and authoritative position, 2) capture the interest of the audience, 3) address the relevance to their lives, 4) involve and empower the audience, and 5) be consistently repeated throughout the organization.

"To be an effective trumpet blower, you have to have a concise tune to play. What shall this consist of?" (Myers 1984, 307). The basic advocacy message concerning tropical rain forest conservation might be stated as follows:

* Tropical rain forests are important to our lives
* They should be saved
* We all contribute in some way to their destruction
* Each of us can make a difference
* We must act now

The issues involving tropical rain forests are complex and potentially overwhelming. Organizing the issues into themes will help people break them down into manageable components. An exhibit on tropical rain forests, prepared by the Smithsonian Institution Traveling Exhibition Service (SITES), uses such an approach by dividing the subject into five major themes: 1) Ecology and interdependence in the rain forest, 2) Human Ecology in the rain forest, 3) Relevance of rain forests to the United States, 4) Conservation issues - causes and consequences, 5) Possible solutions to deforestation.

The World Wildlife Fund uses a similar approach in its booklet, "Vanishing Rainforests." It organizes the contents as follows: 1) What Is the Rain Forest? 2) Let Us Take You Into the Rain Forest, 3) Why Should You Care about Rain Forests? 4) What Are the Problems? 5) What is World Wildlife Fund Doing to Save the Rain Forest? 6) What Can You Do?

No advocacy message can be effective if no one is there to hear it. Here, the public garden professional may learn a few lessons from the nation's zoos. With over 110 million visitors flocking through their gates each year, zoos have become one of the most popular cultural attractions (Hahn 1989). They attract the public through entertainment, then teach them about conservation in an entertaining way.

The most effective exhibits immerse visitors in the landscape, then combine colorful and interactive signage to get across their message (Stieg 1988). The master plan for the San Diego Zoo requires a gradual change-over of all exhibits to "biosphere zones," to reinforce the importance of habitat preservation for animals (Meyers 1989).

By explaining the significance of plants directly to man, people understand how they will be affected by rain forest destruction. The plight of the rain forests seems remote to most people's everyday lives. Public gardens can establish a relationship between individuals and their environment (Kristiansen 1989).

An article in International Wildlife emphasizes man's links to the environment through bold headings: "Does Your Cup of Coffee Cause Forest Fires?" "Does

Heating Your House Lead to Flooding?" "Does Exhaust From Your Car Produce Drought?" (Moore 1989, 39). A similar technique could be applied to rain forest destruction. Gardens might relate the importance of rain forests to new medicines - "A Cure for Aids?" - or consumer products such as foodstuffs and teak furniture (Piper 1989).

Explain to the public ways they can help to stem the destruction. Let them know what is currently being done in tropical countries, and the role the garden plays (Prance 1989). Leaving people with a "doomsday" message makes them feel guilty and powerless. Such messages only help spread the paralyzing effects of "environmental despair." Joan Piper, Interpretive Specialist at the San Diego Zoo, prefers to emphasize the positive ways each individual can contribute, while still providing a realistic picture (Piper 1989). The Tiger River and Sun Bear Forest exhibits at the San Diego Zoo describe work currently being done by the zoo and other organizations, and suggest ideas for individual action.

Exhibits and handouts from environmental groups often provide lists of suggested ways individuals can help, which can be provided for the audience (Appendix A includes a list of suggested reading and available resources). The following is a composite of several such

lists taken from the SITES exhibit, a World Wildlife Fund flier, and a handout from the Pennsylvania chapter of the Rain Forest Action Network:

*Become Better Informed By Reading and Taking Classes

*Make Your Views Known/Write Letters

*Support Conservation Organizations/Donate Money

*Volunteer

*Think Globally, Act Locally

*Buy Carefully/Don't buy illegally collected plants/Don't Buy Products Made From Tropical Hardwoods

*Support Recycling/Recycle, Reuse, Be Happy With Less

*Vacation in the Tropics

*Share the Rainforest/Pass It On!

People can only get involved when they know how to proceed. Gardens can give them the tools. Although the actions of the organization may be restricted to maintain a tax-exempt status, individuals can act more freely. The Missouri Botanical Garden uses an education session called "Where's the Beef From?" to involve children in a letter-writing campaign. Laminated copies of a typical letter and the reply from Burger King are included in a learning kit on deforestation sent out to schools (Finke 1989).

To have the greatest impact, a message must be consistent and repeated in as many forms as possible (Kristiansen 1989). In a "ripple effect," a message gathers strength each time it is repeated. One voice or one sign in a garden can have only a limited impact, but joined with other voices in a common theme, they make a bigger impact. Individual gardens can join with other gardens and add their voices to those from zoos, parks, environmental organizations, community action groups and others. Only through the contributions of many individuals and organizations working together throughout the world will today's environmental problems stand a chance of being solved.

The Audience

When gardens take an advocacy role, their audience becomes constituencies: those who can make a difference through changing their attitudes and actions, ie. voters, consumers, policy makers, politicians, society leaders, civic leaders, public officials, other professionals, economists, lawyers, leaders in industry, environmentalists, teachers, parents, young citizens.

Each individual may belong to several constituencies. The corporate executive also votes, makes

consumer decisions, may be a parent or hold an influential seat on a board. Children might be regarded also as consumers, and future voters (Politicians often regard children as their future constituency). In order to effectively reach the greatest number of these individuals, public gardens must understand the needs and inter-relationships of each group.

Visitors and Non-Visitors

Gardens tend to think only of the visiting public as their audience. Visitors make up only a segment, though a significant one, of a prospective audience. In a new approach to audience evaluation called "psychographics," Marilyn Hood divides the public into three audiences: 1) frequent visitors to the garden, 2) infrequent visitors, and 3) non-visitors (those who choose not to visit the garden). Hood explains that each of these audiences has a different set of priorities which organizations must address in order to best meet their needs (1983). The following section on "methods" discusses many ways to reach the visitor and the non-visitor.

Staff, Volunteers and Board Members

A garden's staff and volunteers represent important constituencies whose support must not be taken for granted. Each individual may be considered a spokesperson for the organization and a potential advocate. A garden should provide forums for discussion concerning issues of advocacy, and encourage staff members and volunteers to keep informed, by providing information in their libraries and in-house newsletters on related topics, and holding regular meetings to keep everyone up-to-date.

Members of the governing board are particularly important individuals to reach, since they set the policies of an institution. A member of the board may be a lawyer, an accountant, or a business leader. That person may move in social circles which other members of the organization may not, interacting with politicians, policy makers, civic leaders.

The staff gardeners, horticulturists, and researchers may belong to professional plant societies, or write articles for popular or scientific horticulture publications. Public relations coordinators may exchange ideas with their colleagues from related institutions, and cultivate valuable contacts with the media. All of these individuals can vote, buy consumer goods, and may be

active in their local schools, churches and civic organizations. If they can be inspired to act as advocates, either on the garden's behalf, or as individuals, they will greatly increase the number of people who can be reached and improve the effectiveness of the garden's message.

The Methods

The key for effective advocacy is consistency. The staff, plant displays, educational programs, special events, food service operation, and gift shop all send messages to the public. Each facet of garden operations should be considered a possible vehicle for advocacy. Potential means of communication may lie untapped. The messages conveyed by some aspects of an organization may conflict with the intended advocacy position. To be effective in communicating a consistent stance, all aspects of the operation should strive toward a common voice.

The following discussion examines aspects of a typical public garden operation, and ways they can be used to convey an advocacy message. It does not pretend to be exhaustive, merely to provide a fresh perspective and to encourage a broader definition of advocacy.

Plant Displays, Interpretation, and Education

Tropical plant displays in conservatories and greenhouses provide a natural focus for a garden's advocacy message. In his talk at a recent conference on conservatories, Jonathon Ertelt describes the potential of such displays in bringing tropical rain forests "to the masses." He stresses that scale is not necessarily important, citing examples at Cheekwood, the Baltimore Aquarium, and University of North Carolina at Charlotte (1989).

Including butterflies or birds not only brings added interest to a display, but helps to remind visitors that the natural world cannot be considered a "peaceable kingdom"--that all life is interconnected (Halpern 1989). Although undertaking such a display requires added thought to design and horticultural practices, it can be done successfully. The Butterfly House at Calloway Gardens in Georgia allows visitors to actually mingle with the butterflies. The Atlanta Botanical Garden maintains birds in its new Dorothy Chapman Fuqua Conservatory.

The displays alone cannot convey the entire advocacy message. They serve primarily to attract and inspire the audience. Interpretive signage can prove a powerful tool for advocacy, and communicate the rest of

the message. Gardens can try to work some element of the advocacy message into each interpretive label.

The Missouri Botanical Garden re-opened its Climatron in April 1990, emphasizing a stronger conservation theme. A beautifully designed display supports several interpretive exhibits throughout the Climatron, in an effective marriage of horticulture and advocacy. Located directly behind the Climatron, a new Interpretive Center provides a dramatic, if "doomsday", final message through a diorama titled "Paradise (Not Yet) Lost." A pamphlet or interpretive sign could be added to empower the visitor, describing the garden's contributions and providing a list of ways individuals can make a difference through their actions (Bowden 1989).

The SITES traveling rain forest exhibit provides many ideas for interpretation. Wall murals have interactive components where visitors lift a flap to find the answer. People can listen to the sounds of the forest throughout audio headsets. A diorama of a typical home indicates many common household items come from the rain forest. The exhibit uses digital electronic counters to effectively emphasize the speed with which destruction takes place, and a way to keep current with ever-changing figures. A particularly effective interactive computer

program poses the viewer as manager of the rain forest who must make difficult decisions about its fate. The exhibit is supported by a federally funded institution, therefore making materials available upon request.

Interpretive displays do not have to be elaborate or expensive to be effective. The National Tropical Botanical Garden and the Foster Botanic Garden in Hawaii maintain simple displays of tropical fruits and nuts in their visitors centers. Waimea Arboretum posts clippings from newspaper and magazine articles about conservation on a bulletin board in its visitor area.

An advocacy message lends itself to numerous educational activities. Lectures, classes, film series, workshops, and tours can all be useful vehicles of communication. Missouri Botanical Garden staff provide numerous talks on tropical rain forest deforestation as part of their environmental education programming. Various topics offered in Spring/Summer 1989 included: The Nature of Tropical Rain Forests, Biological Diversity Threatened, People and Products of the Tropical Rain Forests, Tropical Rain Forest Destruction and Consequences. The Garden features research activities in its "Curator's Talks" to make people aware of its involvement in the tropics.

Missouri offers a variety of children's educational programs. The younger ages begin with basic concepts, i.e., food comes from plants. Intermediate grades are introduced to conservation issues: pollution, extinction, and preservation. High school partnership programs pair classes from different schools to discuss: world environmental crisis programs, energy use and conservation, hunger and world food supply. Traveling educational packets, or "suitcases," are available for grades 6-12 on deforestation.

Collaborative programming can combine the different strengths of several organizations. Also it is often more readily funded (Appendix A at the end of this thesis provides a list of organizations to contact for more information). Public gardens can make use of existing resources to avoid "re-inventing the wheel."

In a collaborative effort between Missouri Botanical Garden, Chicago Botanic Garden, Indiana State Museum, and the University of Missouri--St. Louis, a two week summer workshop for educators was offered in the summer of 1989. The workshop provided information about tropical rain forests and discussed teaching strategies for K-12 teachers. It was offered in conjunction with the

SITES rain forest exhibit in St. Louis, July 1-September 23, 1990.

Music and Theater

Music can be a powerful form of advocacy. The World Wildlife Fund includes a six-minute video called "Rain Forest Rap" in its "Vanishing Rain Forests Education Kit." Rap music is a popular and fun expression of political consciousness among young people today. (Gates 1990, 60)

Theater performances offer another alternative form of expression. World Wildlife Fund-United Kingdom offers a musical called "Yanomamo", named after an indigenous rain forest people in South America. The musical focuses on the causes and consequences of deforestation (Naturescope 1988, 28). The Goeldi Museum in Brazil encourages children to create their own plays and musicals. The children learn about ecological issues while researching for performance materials (Hamu 1990, 10).

Exhibits

Exhibits have the potential for greater use in public gardens as advocacy tools. They can attract the

interest of the infrequent visitor, and serve as news features.

Elaborate exhibits can cost a lot of money and require a great deal of time to prepare. The Smithsonian Institution Traveling Exhibition Service rents exhibits to other organizations. "Tropical Rainforests: A Disappearing Treasure" is scheduled for a five year tour in 1988-1992. Only larger institutions can provide adequate facilities, staff and funding for the 6,000 square foot exhibit. Other gardens might organize bus tours for staff, volunteers, and members to see the exhibit (Appendix B provides locations and dates).

"Diversity Endangered" is a more modest exhibition of fifteen posters including informative text, which can be rented or purchased from SITES. A companion book, Biodiversity, edited by E.O. Wilson, is also available as a videotape.

The Goeldi Museum in Brazil is negotiating with the World Wildlife Fund to sponsor a traveling exhibit called, "Science of the Kayapo: Alternatives to Destruction." Developed together with the indigenous Kayapo Indians in Brazil, the exhibit highlights the scientific knowledge accumulated by the Kayapo over centuries of life in the Amazon forests (Hamu 1990).

Exhibits might be located in the garden's visitor center or restaurant. Missouri Botanical Garden displayed an rain forest panel exhibit from National Geographic in the hall of its visitor center. The walls of its restaurant depict beautiful full color photographs of tropical plants, and include an interpretive text for patrons to read as they wait in line.

Artwork and photographs can be dramatic advocacy tools (Editors, International Wildlife, 1989). Missouri displays works by Margaret Mee, the famed botanical artist of the Amazon forest. A trust has been established in her name, creating a travelling scholarship for Brazilian botanical students. Another painter, Mary Penner, is among many artists concerned about the destruction of the rain forest who use their medium as an advocacy tool to convey their conservation message (1988).

Special Events

Special events can also attract visitors and serve as an excellent focus for the media. Missouri Botanical Garden has declared 1990 as the "Year of the Rain Forest," and has focused its activities around the theme. Besides hosting the SITES exhibit, the Garden will organize weekend festivals complete with tropical foods, craft demonstrations, and musicians from South America (Dresler

1989). SITES provides a list of ideas for events and other activities.

National and international days can be used to publicize a garden's activities. Missouri Botanical Garden marked World Environment Day in 1989 to launch a recycling compaign. Earth Day celebrates its twentieth anniversary April 22, 1990. Parades, concerts, exhibits, speakers, and media coverage will focus the public's attention on the environment (Spencer 1989).

Travel Programs

Advocacy may be incorporated into special travel programs offered as one of the benefits of garden membership. The current trend in "ecotourism", or ethical travel, not only serves as a great source of inspiration for potential advocates, but also gives them a deeper understanding of the issues. Many reputed environmental organizations are among the supporters of this trend. Developing nations see ecotourism as a way to generate much-needed revenue, and provide new job opportunities without damaging the environment (Warner 1989, 18).

Some travel companies donate a percentage of their proceeds to the host countries. Others organize "working vacations" for their participants. Whatever the level of

involvement, ecotourists agree on the principals of "ethical travel":

> Our visits to foreign countries, especially those in the Third World, should have some other purpose beyond sheer self-gratification...we should protect and preserve what's there, to aid in the economic development of the indigenous population by at least spending some money, and perhaps above all, to respect and honor the people, culture and traditions (Shoup 1989, 3[R]).

The Directory of Alternative Travel Resources, by Dianne G. Brause, provides names of organizations to contact for further information (address in Appendix A). The same author will also publish a directory of "environmentally responsible" travel companies, due for release in spring 1990 (Shoup 1989, 3[R]). Gardens may also encourage horticultural organizations like the American Horticultural Society to offer similar travel opportunities.

Missed Opportunities and Conflicting Messages

Many aspects of visitor services can be overlooked as potential advocacy vehicles. If the garden operates a food service operation, consider both potentially contradictory messages, and opportunities for advocacy. A garden advocating conservation activities may be sending mixed messages by using plastic dishes and cutlery, or styrofoam cups, in its restaurant. The Missouri Botanical

Garden's restaurant switched to paper cups in 1989, and made certain to publicize the move in its membership newsletter (Dresler 1989). Using proper dishes, glasses and mugs may be more costly and time-consuming, but the benefits in demonstrating leadership in this area may outweigh these costs.

Gift shops too can communicate a strong advocacy message through the items they carry. The shop at Missouri Botanical Garden recently reorganized its displays to more prominently feature its large selection of books on tropical rain forests, tropical cultures, conservation, environmental issues, recycling, composting, etc. It also carries several children's books on the rain forest. The National Tropical Botanical Garden included a line of notecards with the garden's own conservation message printed on the back of the cards. National Geographic offers high quality videotapes featuring rain forest themes. Tapes of rain forest sounds are also available. T-shirts and posters can serve as billboards for a garden's advocacy message.

Garden trams or monorails often provide commentary to a captive audience. The San Diego Wild Animal Park recognizes the importance of this commentary for its monorail, and requires each operator to memorize a script

which contains a conservation message written by education staff. The San Diego Zoo will be adopting a similar system, moving away from a "performing animals" entertainment format (Erikson 1989).

Every garden publication should be considered an opportunity to incorporate some aspect of the advocacy message. Membership brochures, garden guides, and educational pamphlets reach a wide audience. The garden's newsletter can be an effective method in reaching its members, staff and volunteers. It provides a forum for discussion through articles, director's messages, reports on related research, and changes in policies or procedures demonstrating the Garden's commitment to the cause.

Encourage staff members to write articles for publication taking an advocacy position on rain forest conservation. Garden, published by New York Botanical Garden, often provides in-depth articles on all aspects of the situation facing tropical rain forests. It includes a guest column feature, which allows individuals to speak out on an issue. The Public Garden, the publication of the American Association of Botanical Gardens and Arboreta, should run a feature issue on advocacy in public gardens. It should include a "Critical Issues" column to provide a forum of up-to-date information on deforestation

figures, current legislation effecting rain forests and recent conservation efforts in tropical countries.

To be effective advocates, gardens must examine their own policies and procedures to bring them in line with their particular advocacy stance. If the advocacy issue concerns tropical rain forest conservation, a garden might consider its own involvement in local plant conservation efforts and its collections policy concerning wild-collected materials. It might address its own contributions to global warming and ozone depletion, waste disposal, efficient energy use, consumer advocacy, and political action (Prance 1989).

Gardens can demonstrate sustainable forms of gardening to the public, and explain how these actions will help convey developed countries' commitment to improving the world's environment. Integrated pest management (IPM) techniques, composting programs, and water conservation measures all help communicate the message that the actions of each individual and each organization do make a difference. Gardens can take leadership roles now by advocating appropriate actions, rather than waiting for regulations to force needed change (Higginbotham 1989).

Gardens can encourage employees to conserve energy, by providing incentives for carpooling or using public transport. Also, a garden can encourage employees and volunteers to become advocates in their own homes and communities.

Ghillean Prance has recently appointed a Conservation Committee at Kew to examine ways the organization can address conservation. Made up of representives from all departments, the committee will solicit ideas and suggestions from all members of staff (Prance 1989). Bringing in a panel of individuals from outside the organization may also turn up aspects which those within may otherwise overlook.

Professional symposia, workshops and conferences provide forums for the exchange of ideas between organizations. A symposium on "The Role of Horticulture in Human Well-Being and Social Development" held April 19-21, 1990 in Arlington, Virginia, gathered researchers, consumers, members of the horticultural industry, and government agencies to discuss the beneficial effects of plants on the quality of life, and the implementation of research.

Working with the Media

Lester Brown of Worldwatch Institute stresses the crucial role the media must play in sounding the call for action concerning the environment. He warns:

> We don't have time for the traditional approach to education...because we don't have generations, we have years. The communications industry is the only instrument that has the capacity to educate on the scale needed and in the time available (Greenpeace 1990, 15).

To use the media effectively, their priorities must be understood. Greenberg and others provide valuable information on television news coverage (1989, 16). Reporters use the following elements to select stories: timeliness, proximity, prominence, consequence, human interest, and visual impact. They tend to pair contrasting viewpoints on environmental stories, a "concerned" view and a "calming" view. Reporters cite government officials, industry representatives, and general citizens most frequently for environmental stories. They use "expert" sources most in longer, multiple-source stories. Advocacy groups are contacted when no "distressed citizens" can be found.

The media researchers suggest several ways to improve an organization's coverage. Most of the suggestions could apply to any type of mass media: 1) concentrate on a few clear points which can be summarized in 20-30 seconds, 2) avoid theory, suggest practical

recommendations, 3) make data more visual, 4) beware the stereotypes: advocates have reputations as doomsayers and being suspicious of the establishment and experts tend to exaggerate their knowledge and fail to appeal to a popular audience, 5) be assertive and available for contact, 6) take a position with more data, nuance, and a different perspective than citizens or industry (Greenberg and others 1989, 42).

Newspaper editorial pages, radio talk-backs and magazines all provide forums for advocacy. A garden may submit articles or news releases on conservation-related events to the environmental or gardening editor. Of the national newspapers, the New York Times and the Washington Post tend to be the most powerful and influence the "news" throughout the country. Gardens may target magazines to reach different audiences: environmental, consumer advocate, economic. Advertising space can be used to promote an advocacy message. Larger gardens may rent a billboard or space on buses or subways.

Limits of Advocacy

How far can gardens carry their advocacy roles? The Internal Revenue Code places limits on lobbying activities for those organizations qualifying for tax-exempt status under Section 501(c)(3). It identifies two

types of political activities: 1) Intervening in political campaigns, 2) Lobbying to influence legislation. Any tax-exempt organization, including private foundations, making expenditures for political campaign purposes will lose its exempt status. In addition, the Revenue Act of 1987 imposes an excise tax on both the organization and its managers for violations (Kracov 1988).

The Code does allow gardens some involvement in lobbying to influence legislation. Herein lies a powerful and direct form of advocacy, as yet largely under-utilized by public gardens. The Code states that "no substantial part" of an organization's expenditures can go toward lobbying activities. Under the "substantial part" test, the scope of involvement remains unclear.

Some organizations may elect to have their lobbying activities monitored by the objective expenditure limits set forth in IRC Sections 501(h) and 4911. They use two tests, distinguishing between two types of involvement: 1) Lobbying (direct effort to influence legislation), and 2) Grass-Roots (indirect attempts to "affect the opinions of the general public or any segment thereof"). IRS Publication 557, "Tax-Exempt Status for Your Organization," and the "Exempt Organization's Handbook" (Sections 390-396), can help gardens determine

whether a given expense will be treated as a lobbying or a grass roots expenditure.

The Code allows up to twenty percent of exempt purpose expenditures to go toward lobbying activities, in a stepped-scale based on total annual expenditures. Grass roots expenditures may not exceed twenty-five percent of the lobbying nontaxable amount for any given year (Harper and Hadley 1983-84).

The important point is that some political activity is permissible. Many of the aspects leading to tropical rain forest destruction and other environmental issues involve national policies and legislation. To maximize the contribution gardens can make toward these issues, they should become more involved with the making of public policy and more-fully utilize their permitted levels of activity.

Getting Started

The following section makes recommendations to public gardens interested in taking advocacy roles, but not knowing where to begin. Once again, although the examples cited deal with tropical rain forest conservation, the principles can be applied to any advocacy issue: 1) become better informed, 2) educate

others within and without the organization, and 3) become active on local, national and international levels.

Become Better Informed

Read the Botanic Garden Conservation Strategy. Read books about the tropical rain forests, deforestation, action currently being taken (A list of suggested reading is included in Appendix A). Read Our Common Future to gain a better understanding of how these and other environmental issue fit into an overall scheme of world involvement.

Subscribe to periodicals, such as the new E Magazine (The Environmental Magazine), which act as umbrella publications for the environmental movement. Keep current with legislation affecting the rain forests and the environment. National Wildlife Federation runs a legislative hotline at (202) 797-6655, which provides a weekly four-minute message on bills before Congress, hearing dates, the status of current legislation, and federal agency regulation proposals (Spencer 1989).

Talk to experts on rain forest destruction and conservation activities. Individuals at related organizations can share valuable information and ideas. Perhaps a staff member can serve as a clearinghouse of

information and contacts. A center for conservation of Hawaiian plants has been established at the National Botanical Tropical Garden for this purpose (Theobald 1989).

Educate Others Inside and Outside the Organization

Encourage everyone to become more informed about the situation in the tropics. Provide the resources to do so through your library, educational and training programs and gift shop. Take an advocacy stance on the issues and explain to people what we each can do to help.

Become Active on Local, National and International Levels

Join the International Association of Botanic Gardens and become an active participant. Establish a "sister garden" relationship with a tropical botanical garden. The University of California in Berkeley and the Robert and Catherine Wilson Botanical Garden in Costa Rica exchange staff, and have developed innovative academic programs in both institutions. Cooperate with related institutions, such as zoos, aquaria, museums, and conservation organizations in developing a common advocacy message.

Examine the organization from a global perspective. Do the collections include rare and

endangered plants? Are they representative of the relative numbers of endangered species throughout the world? What involvement does the garden have in research and conservation activities? Are these efforts coordinated with regional, national and international actions? What changes can the garden make in coordination with others throughout the world to make a difference? Sit down with the governing board, staff, and a guest panel of experienced individuals to draft a plan of action. Then, act on it.

CONCLUSION

In an increasingly complex world, public gardens can provide a valuable public service by taking an advocacy role on related socio-environmental topics. They can fulfill a need in contemporary society by providing thoughtful interpretations and possible solutions based on scientific fact to help people learn to compare and judge for themselves. This requires taking an active role in tackling complex, potentially provocative topics.

The issue of tropical rain forest conservation offers an ideal opportunity for gardens to make a significant contribution. By presenting the many facets involved in the present crisis and explaining the links to their audience, they can help people in one of the world's leading nations understand their own involvement and how their actions can make a difference. The urgency of the issue and the catastrophic ramifications of such destruction if continued at the present rates should provide added incentives to join in the effort.

Tropical rain forest conservation is one very crucial issue public gardens might advocate. They may also address other issues such as the wild-collection of native plants, and the impact on native habitats and species depletion. They can take a pro-active stance concerning groundwater contamination, encourage homeowners to replace their expanses of lawn with alternative plantings, or lead community recycling efforts. They can lobby for more green space in long-range city planning, establish a tree-planting and preservation program, or advocate gardening as a means of maintaining mental and physical well-being. The effects of a nuclear winter on the environment, acid rain, poverty, drugs, and smoking all offer potential advocacy issues.

Through advocacy, public gardens have the potential to address their social role effectively and efficiently. To do so, they must not only come to terms with their own existing biases, but recognize their responsibility to use their advocacy powers effectively to reflect and mold public opinion. These activities will require a certain amount of political savvy, skills, and success. Public gardens must not fear taking a stand on pertinent issues, as long as they do so in a thoughtful, responsible manner and provide opportunities for public discussion.

My research identifies and discusses the reasons gardens have traditionally not taken advocacy roles. It indicates a growing trend toward advocacy in public gardens and related institutions. To be most effective, these organizations should work together to form a common position on related issues, both to prevent a duplication of efforts as well as to provide the public with a clear, focused message. Many of the world's environmental problems can be potentially overwhelming. In the face of growing evidence that solutions to these problems will require major changes in people's attitudes and lives, one wonders how much difference can public gardens make. E.I. Schumacher states:

> Can we rely on it that a "turning around" will be accomplished by enough people quickly enough to save the modern world?...The answer "Yes" would lead to complacency, the answer "No" to despair. It is desirable to leave these perplexities behind us and get down to work (Shaman and Prakash 1989, 5).

This thesis serves as a call for action. It argues the need for more widespread advocacy, and demonstrates the potential for public gardens to make a valuable contribution. Prerequisites include strong and focused leadership, a well-defined mission communicated throughout the organization, and a spirit of, and involvement in, collaborative efforts. There can be no room for complacency, reactive thinking, or unproductive

negative attitudes. Gardens must take a global perspective toward their own purpose, and be willing to respond to cultural change. Effective advocacy requires the commitment of the entire organization. Visitors, non-visitors, garden staff, board members, and volunteers are important constituencies to reach, and should all be considered a potential advocates.

Public gardens must decide whether they are willing to remain on the sideline, letting others make decisions which affect them, or whether they will take the opportunity for an active role in decision-making. Advocacy provides the means for public gardens to be heard. It will require courage to take a stand which may be considered controversial. Inevitably when taking on any new role, mistakes will be made. By working together with organizations familiar with the role of advocacy, gardens will hopefully learn from their experiences. But the biggest mistake lies in not doing anything. Perhaps gardens may find inspiration in these words by Henry Shaw, the founder of Missouri Botanical Garden, quoted by Bo Calloway at the 1989 AABGA Annual Meeting:

> People are always blaming their circumstances for what they are. I don't believe in circumstances. The people who get on in this world are the people who get up and look for the circumstances they want, and if they can't find them, they make them.

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APPENDIX A

SUGGESTED READING AND AVAILABLE RESOURCES

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FOR FUNDING SOURCES

The Environmental Grantmakers Association Directory.

Contact Institute for Global Communications, 3228 Sacramento St. San Francisco, DA 94115. Tel: (415) 923-0900.

FOR INFORMATION ON ECO-TOURISM

Directory of Alternative Travel Resources. Contact Dianne G. Brause, One World Family Travel Network, 81868 Lost Valley Lane, Dexter, OR 97431. Tel: (503) 937-3351.

FOR "ENVIRONMENT-FRIENDLY" PRODUCTS

Seventh Generation (for retail catalog). Department 60M89, 10 Farrell Street, South Burlington, VT 05403.

Conservatree Paper Co. (wholesale). Ten Lombard Street, Suite 250, San Francisco, CA 94111. Tel: (800) 522-9200.

Earth Care Paper Inc. (retail catalog). P.O.Box 3334, Madison, WI 53704. Tel: (608) 256-5522.

ORGANIZATIONS INVOLVED IN TROPICAL RAIN FOREST CONSERVATION

World Wildlife Fund and The Conservation Foundation, 1250 24th Street, N.W., Washington, D.C. 20037.

Conservation International, 1015 18th Street NW, Suite 1000, Washington, DC 20036.

Rainforest Action Network, contact Randy Hayes, 300 Broadway #28, San Francisco, CA 94133, for the nearest local group.

Worldwatch Institute, 1776 Massachusetts Avenue NW, Washington, DC 20036.

Global Tomorrow Coalition, 25422 Trabuco Road, #105-440, El Toro, CA 92630-2797.

International Society of Tropical Foresters, Inc. 5400 Grosvenor Lane, Bethesda, MD 20814.

Center for Environmental Education, 1725 DeSales Street, NW, Washington, D.C. 20036.

National Wildlife Federation, 1400 16th Street NW, Washington, D.C. 20036-2266.

National Geographic Society, P.O. Box 2806, Washington, D.C. 20013.

APPENDIX B

SCHEDULE FOR "S.I.T.E.S." TRAVELING EXHIBIT

"Tropical Rainforests: A Disappearing Treasure"

March-June 1989	World Forestry Center, Portland, OR
July-October 1989	Discovery Center, Charlotte, NC
Nov 1989-Jan 1990	Indiana State Museum, Indianapolis, IN
March-May 1990	Los Angeles County Museum of Natural History, Los Angeles, CA
July-Sept 1990	Missouri Botanical Garden, St. Louis, MO
Oct 1990-Jan 1991	Museum of Science, Boston, MA
February-May 1991	Americal Museum of Natural History, New York City, NY
Sept-Dec 1991	Denver Museum of Natural History, Denver, CO
Jan-April 1992	Houston Museum of Natural History, Houston, TX
Sept-Nov 1992	Fernbank Science Center, Atlanta, GA
Jan-March 1993	Chicago Botanic Garden, Chicago, IL
May-Sept 1993	Science Museum of Minnesota, St. Paul, MN
Oct 1993-Jan 1994	Cleveland Museum of Natural History, Cleveland, OH