

1997 North American Conference on the

MONARCH BUTTERFLY

Reunión de América del Norte en 1997 sobre la

MARIPOSA MONARCA

Roundtable Discussions and Priority Actions

November 10–14, 1997

Morelia, Michoacán, Mexico

Mesas Redondas y Acciones Prioritarias

10 al 14 de noviembre de 1997

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As a result of the Council resolution signed in August 1996, the Secretariat of the Commission for Environmental Cooperation formed an Organizing Committee for the North American Conference on the Monarch Butterfly. Members of the Organizing Committee include:

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PREFACE

“Much research has been done, mostly on the biology of the Monarch...but what we lack is research that will allow us to (understand) the interaction between the butterfly, man and the forest. We cannot limit research to biology of the Monarch.”

JULIA CARABIAS LILLO,
OPENING REMARKS

“The conservation of this butterfly is clearly an effort shared by Canada, Mexico and the United States.”

BRUCE BABBITT,
OPENING REMARKS

“We all share the stewardship of the Monarch Butterfly...All three countries will have to be prepared to do their part...”

KAREN KRAFT SLOAN,
CLOSING REMARKS

The Monarch Butterfly has attracted much interest because it is unique not only among insects, but among all living things. The largest Monarch population emerges in the central and northeastern United States and Canada and flutters its way south several thousand kilometers to remote fir forests in the central mountains of Mexico. There they overwinter in about twenty compact colonies—sometimes numbering in the tens of millions—often within a stone’s throw of local subsistence farms sustaining Mexican campesinos (small-scale farmers) and indigenous peoples. In the spring, the northward trek begins, often with an additional generation being required to reach the northern U.S. and Canadian countryside to complete the migratory cycle.



Meanwhile, the Monarch population West of the Rocky Mountains, of a few hundred thousand, overwinters in more than 200 colonies along the coast of California. These overwintering sites increasingly are found in areas threatened by real estate development.

In November 1997, the North American Conference on the Monarch Butterfly was held in Morelia, Michoacán, Mexico, to address various conservation issues regarding the Monarch Butterfly. The conference, which produced recommendations for action, summarized in this document, builds upon two previous meetings on the same theme: The Symposium on the Biology and Conservation of Monarch Butterflies (Morelos, Mexico, 1981) and The Second International Conference on the Monarch Butterfly (Los Angeles, CA, 1986).

Although the first two conferences were successful in attracting wide attention to the Monarch Butterfly, their content focused

primarily on its biology. Organizers of the Morelia conference felt that more could be achieved if other important, yet often overlooked stakeholders could be involved. The proximity to the Mexican overwintering sites offered the unique opportunity to invite the landowners who reside in and around the Monarch overwintering sites in the states of Mexico and Michoacán. While it can be argued that Monarch Butterfly conservation efforts are needed everywhere along its migratory route, since 1983 the International Union for the Conservation of Nature has deemed conservation efforts in the overwintering habitats in both Mexico and the US to be crucial. Millions of monarchs, concentrated in small patches of ever-dwindling forest, make these areas a top priority of all parties interested in the long-term protection and conservation of this regal insect's unique migratory phenomenon.

To ensure participation of the people directly affected by the presence of overwintering Monarch Butterflies, representatives from communities located in and around the Special Biosphere Reserve for the Monarch Butterfly were extended special invitations to attend the conference. Their participation for the first time at such a gathering brought socio-cultural and economic issues into a dialogue that had previously focused largely on the scientific and technical questions related to the Monarch Butterfly.



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INTRODUCTION

Recognizing the importance of the migratory phenomenon of the Monarch Butterfly across North America, its tri-national character and the need for the establishment of an integrated and international strategy for its conservation, scientists, and representatives from academic institutions; federal, state, and local government agencies; non-governmental and social organizations; small-scale farmers and indigenous groups; and others interested in the conservation of the Monarch Butterfly met in Morelia, Michoacán, in November, 1997 to participate in the North American Conference on the Monarch Butterfly.

Nearly 300 attendees gathered for a week to discuss conservation and development issues pertaining to this extraordinary migratory insect, which has become a symbol of the increased social and economic ties that bind the three countries. The importance of this meeting was emphasized by the presence of Mexico's Secretary of Environment, Natural Resources and Fisheries, the Honorable Julia Carabias Lillo; Bruce Babbitt, Secretary of the U.S. Department of the Interior; Karen Kraft Sloan, Parliamentary Secretary to the Minister of the Environment of Canada; and Governors from the State of Michoacán, Víctor Manuel Tinoco Rubí, and the State of Mexico, César Camacho Quiroz.

The primary objectives of this conference were to:

1. Contribute to the understanding of the migratory phenomenon of the Monarch Butterfly and of the requirements for its conservation along its entire migratory route from tri-national and multi-disciplinary perspectives.
2. Provide a forum for dialogue among individuals, institutions, and groups from Canada, the US, and Mexico interested in the conservation of the Monarch Butterfly.
3. Identify and propose actions that permit the conservation of the Monarch Butterfly through a framework for sustainable development.

These objectives were addressed in three stages. Treatment of the first objective spanned days one and two of the conference and involved the presentation of papers and poster displays on a broad range of topics relevant to the conservation of the Monarch Butterfly. These topics included the biology of the Monarch Butterfly; conservation; development and sustainability; use of natural resources and conservation; and environmental education. Papers presented at the conference are contained in Part I of two volumes.

This volume, Part II of the conference proceedings, presents the results achieved during days three and four which focused on the second and third objectives. Conference participants met in various roundtables each led by a moderator and a panel of commentators.

Achievement of the third objective was finalized during the fifth day. Conference participants prioritized actions for future follow-up and identified gaps in the present implementation of those actions.

Of particular note were the special efforts made to integrate the diverse perspectives present at the meeting into a tri-national dialogue. While biologists are interested in the Monarch Butterfly for its value as an evolutionary, behavioral and physiological model, local Mexican communities are concerned with the limitations placed on their use of natural resources—limits established by the current management plan for the butterfly. Local inhabitants, scientists, nongovernmental representatives and government officials came together as equals in an effort to achieve a new level of understanding taking into consideration their frequently different interests and needs while maintaining their common goal of long-term conservation of the Monarch.

The importance of local participation in conservation efforts cannot be overemphasized. Although it has long been understood that the participation of local stakeholders is absolutely necessary to achieve conservation goals that benefit local communities, in and around Mexican and US Monarch overwintering sites conservation and development have often limited the involvement of local stakeholders.

While overwintering sites in Mexico are being lost to increased logging, overwintering sites in the US are being lost to real estate development and, across North America, summer habitats are threatened by the increasing use of herbicides and pesticides. Under these circumstances, it should not be surprising that conservation efforts are met with little enthusiasm, unless the involvement of all stakeholders is guaranteed. Clearly, in all three countries, effective involvement and cooperation of all stakeholders will prove to be the basis for effective conservation of the Monarch Butterfly throughout North America.

This conference focused much discussion on the plight of local stakeholders and their needs which must be addressed if they are to be enthusiastic in conserving the Monarch overwintering habitat. Participants came to realize that conservation of the overwintering sites in Mexico and California as well as breeding and migrating habitat in Canada and the US, will depend as much on the resolution of local economic and contextual issues as on understanding the needs of the Monarch.

If the conference served but one purpose it was to achieve open and frank discussion among all stakeholders. Communication barriers were brought down and bridges to enhance open discussion and cooperation were built. By conference end, it was clear that our challenge now is to develop conservation initiatives which are in the interest of local inhabitants while still incorporating good science.



ROUNDTABLE DISCUSSIONS

“It seems to me that the main value of this meeting is the communication between the different sectors—campesino, scientific, academic, government, non-government, which until this time has not occurred.”

JÜRGEN HOTH



Jürgen Hoth von der Meiden

The primary functions of the roundtables were to expose conference attendees to the breadth of perspectives represented by the diversity of participants present at the meeting and to discuss the relative importance of potential actions to be prioritized by the participants. All conference participants were invited to attend six different roundtable discussions, led by a moderator and a panel of commentators.

Following a brief introduction and comments by each panelist the floor was open for questions and comments from the audience. A succession of themes was discussed, each with its own panel. The roundtable themes included:

1. Resource Management and Biodiversity
2. Social Participation and Sustainable Development
3. Sustainable Development and Conservation
4. Biological Research Priorities
5. Policy and Law
6. Communication and Outreach



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Several hours were dedicated to each theme so as to maximize in-depth discussion. After each roundtable, participants completed their prioritization forms identifying each item as either high, medium or low priority. Please see the next section dedicated to action items.

Brief summaries of panelist presentations at each roundtable follow. Summaries of other speakers in the discussions are not included due to space limitations.

“The oral tradition and customs of the communities are the best formative strategy...”

ANONYMOUS SPEAKER



ROUND TABLE I

RESOURCE MANAGEMENT AND BIODIVERSITY

“...working with communities and people at the local level, in what I call ‘working landscapes,’ allows you to achieve protection at the same time as you work to protect your lifestyle.”

DAVID GAUTHIER,
KEYNOTE ADDRESS

Panel Members:

William Calvert, Texas Monarch
Watch, USA

David Gauthier, Canadian Plains
Research Center

Kingston Leong, California Polytechnic
State University, USA

Xavier Madrigal Sanchez, University of
Michoacán de San Nicolás de Hidalgo,
Mexico

Pascual Sigala, Advisor, Alianza, A.C.,
Mexico

Jorge Soberón, Mexican National
Commission on Biodiversity

Matt Wagner, Texas Department of
Parks and Wildlife, USA

Moderator: Steve Wendt, Canadian
Wildlife Service, Environment Canada

Steve Wendt began the discussion by reminding panelists and audience alike of the theme of the Roundtable (environmental management) and all that it encompasses—general resource management, forest and habitat management; issues of deforestation, reforestation, food plants and nectar-producing plant conservation. Dr. Wendt stated that all are part of the greater theme of sustainable development.

David Gauthier pointed out that there are many ways to view the issues that relate to biodiversity. Gauthier believes that we must determine the indicators appropriate for measuring how the long-term health of an ecosystem can be balanced against short-term priorities such as employment and regional economic prosperity. He emphasized that if North America is to achieve a sustainable future in environmental as well as in social and economic terms, early warning indicators are needed along with measures of progress and decline of the environment as well as of the economy.

Having studied the relationship between forest structure, microclimate, butterfly mortality, and what affects their reproductive success, Bill Calvert expressed the need to figure out how to manage the forests to prevent the massive die-offs of the Monarch Butterfly colonies that have been predicted if we disturb the forests. Dr. Calvert also emphasized that we must figure out a way to be fair to the

campesinos who live in the region and who are affected by the presence of the Monarch Butterfly.

Matt Wagner believes that Texas and Mexico share land management issues and that they can learn from each other in this area. While concerned with wildlife diversity management, Texas must also be prepared to manage cultural diversity as well due to a major shift in demographics. In conservation biology, biologists work with economists, private landowners and other resource managers to develop solutions, through partnerships. He stressed that public and private partnerships are the key to success where wildlife, such as the Monarch Butterfly, is a public resource.

Dr. Jorge Soberon emphasized that there are three basic conditions necessary to make any sustainable practice possible:

- 1) a good knowledge of the dynamics of the resource of interest;
- 2) a sufficient and correct definition of the relationship between the specific resource and the entire ecosystem; and,
- 3) recognition and the participation of the different components of the social sector.

However, even though all these elements have been identified in the Monarch region, Dr. Soberón insists that it is not possible to sustainably manage both the conservation of the Monarch and use of wood in these forests because of the enormous demographic pressures of the region. In the absence of a resolution to this problem alternatives must be sought from sectors other than the forestry sector.

Representing the campesino sector, Pascual Sigala stated that an integrated management approach of the reserve is needed to protect the biodiversity of the overwintering area of the Monarchs, based on a framework of social justice. To create this framework, the first step should be the revision of the Decree which should include the active participation of the area's agrarian groups and other stakeholders. He also emphasized the belief that it is critical to consider compensation for the campesinos and that a government service office must be opened in the area to meet the specific needs of the campesinos of the region.

Madrigal Sanchez was concerned about the manner in which the information that is available will be organized and used by all the stakeholders. A structure is needed to bring research, technology and society together and to avoid working with different agencies. He believes that the most pressing problem in the area in need of immediate attention is soil conservation and that for the forest to be revitalized we should add agroforestry as an approach to solving the problems. He also stated that there is a critical need for basic information on the flora and fauna of the region.

“The northerners believe we must conserve the Monarch’s habitat and that the Achilles heel is here in this country... We do not believe that. Rather, we think that all we have to do is carry out conservation projects linked to sustainable development.”

ANONYMOUS



ROUND TABLE II

SOCIAL PARTICIPATION AND SUSTAINABLE DEVELOPMENT

“...without significant amounts of local control, no conservation program can effectively succeed.”

BROOKS YEAGER

Panel Members:

Silvano Aureoles Conejo, Advisor,
Alianza, A.C., Mexico

Mia Monroe, Muir Woods National
Monument, California, USA

Mélida Tajbakhsh, U.S. Fish &
Wildlife Service

Moderator: Carlos Toledo Manzur,
SEMARNAP, Mexico

Carlos Toledo started the discussion reminding everyone that the focus of this roundtable would be to relate social participation with sustainable development. The economic aspects of sustainable development pertain to a later roundtable.

Mia Monroe debunked several myths regarding the Monarch situation in California: first, everything about the Monarch is not known; second, the Monarch Butterfly is NOT protected and they do not all go to Pacific Grove; third, the public does NOT have access to the Monarchs. However, through extensive work throughout the state such as surveying and monitoring programs, progress is being made on the development of a useful information base on the California population of Monarchs.

Mélida Tajbakhsh reported on the international conservation program of the U.S. Fish & Wildlife Service and the current training program supported in the area of the Monarch Reserve. This natural resource management training program is aimed at local communities to develop skills in agroforestry, soil and water conservation, as well as in other areas that the community members have suggested.



Jürgen Hoth von der Meden

Silvano Aureoles began his remarks by pointing out that what we are looking for is sustainability, but that in order to attain it, economic, social and environmental problems must be resolved. Eleven years (the time elapsed since the decree that gave origin to the Reserve) is a very long period for those that have nothing. The discomfort and frustration of the campesinos can be an advantage if it is directed towards development of social participation. Aureoles believes that the owners of the resources must actively participate in the decisions made about their land. The social agents must be taken into consideration in a serious and permanent manner and must be recognized as an important part of the process. In the Monarch region it is necessary to consolidate the social organizations, making authorities supervising and coordinating entities, but not decision makers.

“Lack of good campesino organization? We disagree because we think we are well organized, not just recently but for a very long time. It is culturally based....”

CAMPESINO SPOKESPERSON



Jürgen Hoff von der Mieden



ROUND TABLE III

SUSTAINABLE DEVELOPMENT AND CONSERVATION

“Sustainable development and conservation today is a problem of marketing and financing, with real numbers and real mechanisms—not of good intentions.”

ROBERTO SOLIS

Panel Members:

Robert Aiken, Concordia University,
Canada

Homero Gomez Gonzalez,
Representative of the Campesino
Sector, Mexico

Fred Johnson, International Model
Forest Network, Canada

Leticia Merino, Mexican Civil Council
for Sustainable Forestry (CRIM),
UNAM, Mexico

Victor Toledo Mansur, UNAM, Mexico

Moderator: David B. Bray, Florida
International University, USA

Homero Gomez Gonzalez began the presentation portion of this roundtable by highlighting a few points important to the campesinos: the campesinos are keenly aware of the pressures placed on their natural resource base and believe that alternative economic opportunities must be provided to communities in the region for conservation efforts to succeed; they are cognizant of the natural resources at their disposal which have numerous marketing possibilities but they need help in developing these alternative economic opportunities; the decree must be revisited with the input of the communities affected.

Robert Aiken expressed his concerns that two very different perspectives exist on the concept of sustainable development. He stressed that proponents of sustainable development must be convinced that economic growth itself carries major implications for nature. He suggests that the concept of eco-development wherein the ends as well as the means of development are considered is the better approach to conservation.

Leticia Merino stressed the importance of local people benefitting from conservation efforts in order to make conservation itself viable and of local communities actively participating in decision-making regarding their forest resources. Dr. Merino believes that in order to succeed in conservation of the local forests, the people must live as a result of good forest maintenance and practices. She also offered the suggestion that consideration must be

given to the idea of payment to the local communities for environmental services such as maintenance and upkeep of the forest.

Victor Toledo discussed the concept of sustainable development further adding that ethical considerations, such as the creation of consciousness and the theme of control, are the defining aspects of true sustainable development. Dr. Toledo also highlighted sustainable development successes all over Mexico, demonstrating that the conditions in and around the Monarch Reserve are not unique and can be surmounted. He stressed the importance of groups sharing their successful experiences with the communities of the Monarch Reserve, especially in terms of how they have achieved the combination of traditional culture with modern values.

Fred Johnson stressed the importance of the knowledge that local people and communities can provide to the development of projects and programs on non-timber forest products. He reiterated the importance of community involvement in the design and development of any projects that would affect them.

David Bray agreed with Victor Toledo on the importance of the successful sustainable development experiences throughout Mexico. It is his belief that there are important advances in Mexico in community management of natural resources, advances which do not exist in other countries. But he cautioned that while campesino organization is not the only solution to the problems within the Monarch Reserve, it is the one solution without which there can be no other.

“We are not lacking in ideas, we have many alternatives, even projects we created ourselves. And, we have done this without North American assistance.”

ANONYMOUS



Jürgen Hoth von der Meden



ROUND TABLE IV BIOLOGICAL RESEARCH PRIORITIES

*“First, human life.
And then, butterflies.”*

ANONYMOUS

Panel Members:

Karen Oberhauser, University of
Minnesota, USA

Roberto de la Maza Elvira, National
Institute of Ecology, Mexico

Steven Malcolm, Western Michigan
University, USA

Alfonso Alonso Mejia, Smithsonian
Institution, USA

Dennis Frey, California Polytechnic
State University, USA

Manuel Sanchez, Ejido La Mesa,
Mexico

Moderator: Phil Schappert, York
University, Canada

Steven Malcolm presented a mission statement that the panelists had prepared for the roundtable and for the meeting: To achieve sustainable conservation of the Monarch Butterfly, Monarch breeding habitat, migration, migratory habitat and overwintering habitat in North America within the context of sociological, economic, legislative, political and environmental realities. Six goals which target the mission include: 1) a review of published research to establish the current knowledge base; 2) an understanding of the resource dynamics on which Monarchs depend; 3) use of the current knowledge base to develop resource management plans for overwintering habitat, breeding habitat and migratory resources; 4) identification of gaps in the knowledge base and new research priorities; 5) implementation of a management plan; 6) development of the Monarch Butterfly as an environmental indicator species.

Alfonso Alonso stated that we already have a great deal of biological information but it is little used. More information is needed and must be distributed for everyone's use. There are many topics for more research especially in the buffer zones around the core overwintering areas. Dr. Alonso thinks that the Model Forest Program offers good methodology to carry out some of the needed activities.

Karen Oberhauser emphasized the importance of the ecosystem approach for understanding where the Monarch lives throughout its life. Dr. Oberhauser stated that whenever possible, scientists should utilize experimental studies, not just correlative and observational studies, and whenever possible scientists should engage in collaborative research to maximize the range of expertise and resources. Lastly, she stated that research must be applicable to conservation.

Dennis Frey stated the differences between overwintering sites in California and Mexico as 1) butterflies number in the 100 thousands in California and in the millions in Mexico; and 2) overwintering sites are widely dispersed throughout California while in Mexico they are concentrated in a very small area. Because the Monarch Butterflies are concentrated in a limited area in Mexico, this population is at much greater risk.



Jürgen Hoff von der Meden

Representing the campesinos, Manuel Sanchez stated that the campesinos are not against conducting studies on the Monarch, in fact such studies are well received. Many campesinos want and need to know the results of the many research programs to fully understand what's happening in their region, why it is regarded as important, why there is so much interest and how they can participate in conservation activities. However, too often, research that takes place in this region, even with the help of the campesinos and based on direct information provided by them, is published in languages that are totally unknown to them.

Roberto de la Maza stated that the most important area for research related to the Monarch is how to achieve an equilibrium between the overwintering sites and the areas surrounding them in Mexico, and to balance the Monarch's presence with employment for the local residents. De la Maza also suggested specific topics for research on the Monarch including: determining how many sub-species actually exist in Mexico; defining the eastern route of the Monarchs in Mexico; evaluating how the Monarchs interact with those of the Yucatan Peninsula; determining what other butterfly species are found in the Monarch Reserve and how these can also be protected.

“There are many areas for research... (like) the mobile nature of the (Monarch) colonies.”

JORGE SOBERÓN,
OPENING REMARKS



ROUND TABLE V POLICY AND LAW

“The problem is that the legislation and regulations are the formal expression of a set of political interests where the campesino organizations have little political power.”

ROSENDO CARO

Panel Members:

Jesús Manuel de Jesús, Felipe de los Alzati, Zitácuaro, Michoacán

Roberto Solís, Director of the Special Biosphere Reserve of the Monarch Butterfly, Mexico

Steve Wendt, Canadian Wildlife Service, Environment Canada

Brooks Yeager, United States Department of Interior

Moderator: Pedro Alvarez Icaza, National Institute of Ecology, Mexico

Steve Wendt believes that Canada is looking more to partnerships and co-management for the protection of community needs as well as of individual needs. Dr. Wendt stated that locally driven needs, scientific and conservation needs should always be considered when establishing co-management and partnerships. Canada works more with policies than with laws and is learning that without local participation and acceptance, no law or policy will be effective which is probably true for every country and place. In Mexico there are structures to seek the proper development of policies. The Model Forest can be one of them.

Brooks Yeager stated that the U.S. recognizes a role that has to be played domestically because the U.S. is the country which the Monarchs traverse in their migration. The many activities in governmental and non-governmental groups have helped a lot, and are a proof of the great interest Americans have in the process. It will be important for the federal government to define how its role in conserving the migration phenomena should be constructed. Yeager also stated that more recently the U.S. has been working with partnership programs to encourage regional or sub-regional policies, as well as providing encouragement through economic and tax incentives. The abundance and wide distribution of Monarchs and the emerging understanding of the migration provide an unusual opportunity to take action in the form of partnerships.

Jesus Manuel de Jesus stated that the campesinos in attendance at this conference have learned a lot about what is done in the region in terms of research and they are happy to welcome their northern friends but he emphasized that the campesinos are really present to be included in the decision-making process for the region. The campesinos would like regulation of the sanctuaries, without forgetting that Monarchs, communities and ejidos are equally important.

De Jesus expressed appreciation for the interest of Americans and Canadians, but asked that northern friends take real steps for the conservation of Monarchs in their own countries, too. He invited the establishment of an adopt-a-sanctuary program as well as a solid international reforestation program. De Jesus concluded his remarks inviting everyone to visit the sanctuaries.



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Roberto Solís began his remarks saying that it is not enough to declare that we need to conserve the migration of the Monarchs in a sustainable way. He went on to say that action agreements, laws and regulations that allow the identification of the environmental hazards along the three migratory routes to conserve the migration phenomenon are necessary.

Pedro Alvarez Icaza, addressed campesinos as the stewards of the land and discussed ecological policies established by the government. He acknowledged the limited effectiveness of the 1986 Presidential Decree because it did not consider the local stakeholders. Campesino participation at this conference proves that they are aware of the importance of conserving monarchs and their habitats. Icaza went on to affirm that there is an urgent need to revisit the decree. He suggested that land use planning is a helpful instrument to see the big picture for what can be done in a region especially because there is a lack of consistency between the real and the declared sanctuaries. All aspects need to be considered in a discussion with campesinos and other stakeholders in order to create a new decree. He said that we must face the fact that there can be no conservation without development and no development without conservation. He ended his comments stating that the Mexican government would like to discuss a strategy with the people from this region, at least with the 54 communities that own land in the Reserve, early in 1998.

“The decree must be revised based on a complete study considering human life.”

HOMERO GOMEZ



ROUND TABLE VI COMMUNICATION AND OUTREACH

“Whatever communication mechanism or process is used should be more formative than informative because only in that way can adequate linkages be established.”

ANONYMOUS

Panel Members:

Luis Felipe Crespo, Special Biosphere Reserve of the Monarch Butterfly, Mexico

Don Davis, Friends of Presqu'île, Canada

Francisco Garcia, Commissioner of San Francisco de los Reyes de Michoacán, Mexico

Jean Lauriault, Canadian Museum of Nature, Canada

Oscar Montero, Educational Television Training Center, Mexico

Chip Taylor, Monarch Watch, USA

Chair: Elizabeth Donnelly, Journey North, USA

The discussion at this table began with presentations by Oscar Montero and Luis Felipe Crespo, describing programs already in place at the Monarch Reserve including a joint communications project under the direction of the Reserve administration and the Centre for Educational Television Training (CETE) to develop the communications capacity of local inhabitants especially in audiovisual production methods, and the Reserve administration's own program to train local communications specialists to develop and manage an internet network of telecenters within the Reserve.

Panelists Chip Taylor and Elizabeth Donnelly presented information about their educational programs for children focusing on the Monarch Butterfly. They emphasized the possibilities of Reserve residents connecting to these programs and services which offer many educational tools that can be adapted for the benefit of the schoolchildren of the Reserve.

Other panelists offered ideas to consider in projects that combine sustainable development with conservation efforts. Francisco Garcia, speaking on behalf of the Ejido San Francisco de los Reyes de Michoacán, emphasized the importance of communicating information about the Monarch to local people, through school and other organized programs. Don Davis told of school-to-school efforts to collaborate on projects such as Canadian school children raising funds for the needs of schoolchildren within the Reserve.

Jean Lauriault from the Canadian Museum of Nature in Ottawa, emphasized the following four points:

1. All projects should be initiated and directed by the community.
2. Projects should be adapted to the specific needs of the community.
3. Projects should maximize community participation.
4. All projects should respect the community's cultural values.

“We who are the campesinos are disposed to continue the dialogue... We all want the information shared here to become a reality—not just another promise.”

MANUEL SANCHEZ GARCIA



Jürgen Hoff von der Meden



PRIORITY FOLLOW-UP ACTIONS

“I believe the financial means, the technology and people exist to make these things happen.”

DON DAVIS



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Conference announcements invited participants and nonparticipants alike to suggest Action Items for consideration at the conference. A comprehensive list of action items, gleaned from existing scientific literature, was developed and distributed at the conference by the Conference Steering Committee.

The two days of roundtable discussion were aimed at highlighting priority action items on this list to better inform participants. Following each roundtable discussion the attendees were invited to submit their prioritized action items to produce a consensus list of the high priority actions. The response of attendees was excellent. The 53 actions on the following pages, divided among five categories, reflect the opinions of a majority of participants. In some instances the campesinos and indigenous groups caucused in order to unify their position on priority actions.

Those items identified as the top ten or so most important actions requiring immediate attention were presented at the final session for: 1) further discussion; 2) listing of groups already working on these actions; and, 3) identification of entities which might begin work on selected actions. The prioritized action items are presented in the pages that follow. The original lists from which the final choices were selected can be found in Appendix “A” of this document.

It is important to note the inherent difficulties that encumbered the process of identifying and prioritizing action items, such as the probable mistranslation of at least a few items or differing interpretations in meaning, among others. However, despite these obstacles, the conference organizers believe that this priority setting exercise successfully laid the foundation for future progress.

While the roundtables served as the mechanism to expose conference participants to the broad gamut of perspectives, the priority setting exercise served to build consensus on items requiring action in both the short and long-term. The ultimate objective of the priority setting was to identify those important actions which are not receiving adequate attention so that individuals or organizations can step forward to fill the void.

Resource Management and Biodiversity

1. Review reserve management plan with local participation.
2. Develop alternative income and fuel sources for forest dependent communities.
3. Identify land use potential at the ejido and community level.
4. Promote/encourage reforestation.
5. Identify legal, social and practical impediments to resource management.
6. Conduct biodiversity threat analysis to determine conservation needs.
7. Decrease soil erosion.
8. Develop a program to train and employ people in a permanent forest industry.

Sustainable Development and Conservation

1. Strengthen organizational capacity of local communities.
2. Provide technical support.
3. Create a permanent training program for campesinos addressing use and management of biodiversity.
4. Incorporate local priorities in workshops and training.
5. Promote exchange of experience among communities.
6. Encourage school, state, local and private participation.
7. Promote a regional development program for alternative sources of employment within the communities.
8. Showcase alternative economic projects.
9. Provide economic incentives to encourage local protection of reserves.
10. Generate an intensive program on reforestation with direct participation of the campesinos.
11. Establish a campesino council within the reserve to determine actions that institutions carry-out and endorse investment programs.
12. Create an information and consultation center regarding the monarch butterfly.
13. SEMARNAP should open a local office to deal with permits regarding forest.
14. Revise the decree which created the Monarch Sanctuary in direct consultation with the communities, ejidos and small-scale land owners.
15. Develop compensation programs.

Biological Research Priorities

1. Study the role of overwintering site characteristics on butterfly presence and survival.
2. Experimentally study Oyamel ecosystem succession and watershed function.
3. Monitor Monarch distribution and abundance and encourage public participation
4. Study environmental effects on distribution and abundance.
5. Use remote sensing techniques to study the temporal and spatial distribution of overwintering sites and Monarch abundance and dynamics.
6. Study the variation in butterfly condition during the overwintering season and its effects on behavior and survival.
7. Study the impact of milkweed cultivation and butterfly gardening on Monarch distribution and abundance.
8. Study sources of mortality during all life stages.
9. Monitor milkweed resource distribution, abundance and diversity.
10. Study the use of the Monarch Butterfly and its migration as an environmental indicator.

Policy and Law

1. Seek alternative funding mechanisms.
2. Review and assess laws, policies, actions and the decree which created the Monarch Sanctuary.
3. Promote the reduced use of pesticides.
4. Develop a strategy for long-term political support and national councils in all three countries.

5. Increase enforcement.
6. Develop a framework for channeling funds.
7. Promote participatory land-use planning.
8. Establish a local coordinating committee for reserves.
9. Convene a conference of resource managers.
10. Establish new reserves.

Communication and Outreach

1. Establish community training project(s) for sustainable development.
2. Develop outreach initiatives to inform the public of trans-border collaboration.
3. Incorporate local and regional priorities into workshops and training.
4. Establish a network of organizations involved in environmental education projects.
5. Recognize and publicize reserves, successful initiatives and demonstration projects.
6. Promote a Canada-Mexico student exchange program.
7. Ensure that training courses contain action-oriented information.
8. Improve communication between local communities and outside players.
9. Establish Monarch Butterfly internet clearing house on information and current research.
10. Strengthen the educational experience of visitors to the Reserve.



HIGHLIGHTS OF THE CLOSING SESSION

Throughout the first four days of the conference, in the presentations as well as during the round tables, a great many themes and subjects related to the conservation and protection of the Monarch Butterfly in all three countries were discussed, such as the sustainable development of the regions in which the overwintering habitats are located in both Mexico and the United States. The government representatives that had the opportunity to speak during the Closing Session highlighted the following points as central to the conference:

1. The protection and conservation of the Monarch's migratory phenomenon is the shared responsibility of all three countries of North America and as such represents an excellent opportunity for trilateral cooperation and the development of closer ties between each government and its citizens.
2. To facilitate cooperation and coordination, a trilateral strategy should be developed for the conservation and protection of the Monarch's migratory phenomenon from the environmental hazards which place it in danger in the various habitats that it frequents.
3. The small-scale farmers and indigenous people in Mexico who live in the region where the Monarch Butterfly overwinters, have known and lived with the Monarch for many generations, and for this reason it is important to recognize the efforts which they undertake for its conservation.
4. The Mexican Secretary of the Environment, Natural Resources and Fisheries will initiate a joint effort with the stewards of the natural resources on the overwintering grounds, the local government authorities and all interested parties, to revise the decree which created the Special Biosphere Reserve of the Monarch Butterfly, to determine the best alternatives for conservation and sustainable development in the region.
5. The local communities should benefit directly from the environmental and economic services that result from conservation efforts and the migratory phenomenon, and new mechanisms should be explored through which funds can be directly channeled to the communities and local organizations.



APPENDIX A: ORIGINAL ACTION ITEM LISTS

ITEMS ADDED BY PARTICIPANTS AT THE
CONFERENCE ARE INCLUDED

I. Resource Management and Biodiversity

1. Assess current activities, trends, experiences, opportunities.
2. Identify legal, social, practical impediments to management of the Reserve.
3. Revise the decree that gave origin to the Reserve.
4. Revise agricultural techniques that can be damaging soils thus creating pressure on forest resources.
5. Conduct biodiversity threat analysis to determine conservation needs.
6. Review Reserves management plan and local participation plan requested by World Bank.
7. Promote model sustainable development plans that emphasize community participation.
8. Establish multidisciplinary programs for forest protection, involving all stakeholders.
9. Decrease habitat loss caused by deforestation.
10. Apply remote sensing data to determine rate of deforestation.
11. Develop alternative income and fuel sources for forest-dependent communities
12. Encourage reforestation.
13. Protect known breeding areas from adverse development.
14. Decrease soil erosion.
15. Provide incentives to decrease use of harmful pesticides, increase use of beneficial pesticides.
16. Establish subsidy and compensatory systems for the region's inhabitants.
17. Establish environmental accounts, with products returning to the campesino communities. Combined sources of income should be identified and oriented for reforestation of disturbed areas.
18. Identify and protect significant host plant and nectar resources.
19. Decrease invasive plant species.
20. Compare and evaluate public and private conservation approaches.
21. Identify and promote low-impact eco-tourism opportunities that meet Environmental Impact Assessment requirements.
22. Provide incentives to start such programs.
23. Establish eco-tourism network to share information about such programs.
24. Identify appropriate public and private roles.
25. Ensure that training courses contain practical, "how to information.
26. Include investor's perspective—business aspects, regulations, etc.

27. Facilitate development of tourist control policies.
28. Launch a national or international program to educate potential visitors to the Reserve.
29. Investigate alternative funding mechanisms.
30. Develop strategy for securing long-term political support and funding.
31. Determine funding priorities.
32. Determine appropriate framework for channeling funds into priority actions.
33. Determine specific action plans for U.S., Canada, Mexico.
34. Identify aspects of concern to all three governments.
35. Create a program for the adoption of reserves, through a system of funds and actions oriented to each particular reserve.
36. Define agreements at the tri-national level for cooperative protection actions and at the national level that recognize the campesino priority of revising the Decree.

II. A. Social Participation and Sustainable Development

1. Assess current activities, trends, experiences and opportunities.
2. Recognize and publicize reserves, successful initiatives and projects.
3. Encourage school, state, local, and private participation in conservation.
4. Identify potential promotional events (e.g., poster contest, postage stamp, festivals, etc.).
5. Inaugurate community training project for sustainable development.
6. Incorporate local input into action plans.
7. Provide educational technical support.
8. Improve communication between local communities and outside players.
9. Repair local resentment over previous habitat protection efforts.
10. Invite local input over past misunderstandings and how they can be avoided in the future.
11. Determine how to minimize resentment in future habitat protection efforts.
12. Emphasize benefits of integrating conservation and sustainable development.
13. Conduct follow-up to ensure communities support action plans.
14. Develop demonstration projects to showcase and duplicate successes.
15. Identify community organization and social and cultural impediments.
16. Incorporate local priorities into workshops and training.
17. Encourage best practices such as sanctuary representatives and model communities.
18. Provide incentives to encourage local protection of reserves.
19. Provide incentives to decrease use of harmful pesticides, increase use of beneficial pesticides.
20. Identify and promote low-impact eco-tourism opportunities that meet Environmental Impact Assessment requirements.
21. Provide incentives to start such programs.
22. Establish eco-tourism network to share information about such programs.
23. Identify appropriate public and private roles.
24. Ensure that training courses contain practical, how to information.

25. Include investors perspective—business aspects, regulations, etc.
26. Facilitate development of tourist control policies.
27. Launch a national or international program to educate potential visitors to the Reserve.
28. Investigate alternative funding mechanisms.
29. Develop strategy for securing long-term political support and funding.
30. Determine funding priorities.
31. Determine appropriate framework for channeling funds into priority actions.
32. Determine specific action plans for U.S., Canada, Mexico.
33. Identify aspects of concern to all three governments.
34. Community committees of cross-sectoral representatives in each country would be useful for the Monarchs.
35. All tours should have local guides involved. Sometimes tours do not, but the point was made that they always should.
36. Professionals must find a way to pass on their knowledge to local people. We must involve locals in monitoring, not just have technical people come in on a transient basis, and then leave. This is a way to involve people locally, and improve their knowledge of the forest and the programs needed to conserve it.
37. Find ways to train or assist local organizations to have images that they can use on articles they sell, and earn royalties back to the community, that could support conservation and development work.
38. Develop an agrarian center for each reserve. Perhaps the existing reserve committees could provide advice.
39. Create campesino councils for the development of the reserves, and more broadly, initiate a regional development program that would benefit them.
40. Ensure that technicians and professionals of the region are employed and work to ensure that they become trained and more experienced. In other words, not just people from outside.
41. Invite municipal, state and federal government representatives from all levels to participate in the programs, and not just environmental departments but other departments including social services and education.

II. B. Sustainable Development and Conservation

1. Assess current activities, trends, experiences, opportunities.
2. Build organizational capacity of local organizations.
3. Promote model sustainable development plans that emphasize community participation.
4. Decrease habitat loss caused by deforestation.
5. Apply remote sensing data to determine rate of deforestation.
6. Develop alternative income and fuel sources for forest-dependent communities
7. Encourage reforestation.
8. Protect known breeding areas from adverse development.
9. Decrease soil erosion.

10. Provide incentives to decrease use of harmful pesticides, increase use of beneficial pesticides.
11. Compare and evaluate public and private conservation approaches.
12. Incorporate local input into action plans.
13. Provide educational technical support.
14. Improve communication between local communities and outside players.
15. Determine how to minimize resentment in future habitat protection efforts.
16. Emphasize benefits of integrating conservation and sustainable development.
17. Conduct follow-up to ensure communities support action plans.
18. Develop demonstration projects to showcase and duplicate successes.
19. Identify community organization and social and cultural impediments.
20. Identify opportunities for sustainable development and private conservation efforts.
21. Incorporate local priorities into workshops and training.
22. Encourage best practices such as sanctuary representatives and model communities.
23. Provide incentives to encourage local protection of reserves.
24. Encourage school, state, local, and private participation in conservation.
25. Identify potential promotional events (e.g., poster contest, festivals, etc.).
26. Inaugurate community training project for sustainable development.
27. Identify and promote low-impact eco-tourism opportunities that meet Environmental Impact Assessment requirements.
28. Provide incentives to start such programs.
29. Establish eco-tourism network to share information about such programs.
30. Identify appropriate public and private roles.
31. Ensure that training courses contain practical, how to information.
32. Include investors perspective—business aspects, regulations, etc.—in training.
33. Facilitate development of tourist control policies.
34. Launch a national or international program to educate potential visitors to the Reserve.
35. Investigate alternative funding mechanisms.
36. Develop strategy for securing long-term political support and funding.
37. Determine funding priorities.
38. Identify aspects of concern to all three governments.
39. Advisory councils should be established involving both technical people and local people from the reserves.
40. Payment for ecological services that are rendered by forest protection should be provided.
41. Restoration should be conducted in both an economic and ecologic sense.
42. Trust funds to support restoration should be established.
43. Value added development should be promoted.
44. Self-management of lands should be promoted.
45. A fund for forest communities involving locals in project design should be established.

46. Scholarships should be offered, especially for indigenous people.
47. Shared risk joint ventures should be examined as a new way of promoting conservation and development.
48. Tools and planning that could help communities to capture tourism should be developed.
49. Higher fees should be charged, where appropriate, which may generate trust funds for projects.
50. Forest certification should be promoted.

III. Biological Research Priorities

1. Define subspecies and identify Eastern routes and refuges, and identify other species and their conservation needs.
2. Determine the real size of colonies, so population dynamics can be monitored and the success of conservation measures can be evaluated.
3. Determine the annual mortality rate so averages mortality can be known and massive mortality events can be properly evaluated in population terms.
4. Establish minimal conditions for each colony.
5. Identify effects of pesticides on Monarchs, particularly on their survival and reproduction rates (fitness).
6. Understand the community dynamics of the forests.
7. Identify predators and their dynamics.
8. Prepare exhaustive inventories of plants and animals.
9. Identify risk factors for other species of the region having a “protected” status.
10. Identify where biological corridors are needed between the different reserves (which are part of the original forest). When necessary, make sure corridors are established.
11. Conduct a formal evaluation of the environmental impact of tourism on the different ecosystem components and not only on the monarchs.
12. Recognize Monarchs as indicators of ecosystem health and environmental quality, and of climatic change.
13. Describe the watershed to which the Reserve belongs, in order to have an ecosystem approach.
14. Understand the dynamics of the resources the Monarchs depend on.
15. Establish a regional library for local inhabitants and visitors; all scientific papers dealing with this region shall be available in a Spanish version
16. Organize participative forums to direct and ensure the continuity of research and of decisions based on its results.
17. Create a Council for the Conservation of Monarchs. It should be a trilateral entity, with a National Council in each of the three North American countries.
18. Establish and administer a fund for research, that could be part of, or linked to, the Council for the Conservation of Monarchs. A “fideicomiso” could also be considered in order to finance research projects.
19. Researchers must make sure their results are available for everyone in the regional library.
20. Training mechanisms must be established so those campesinos who want to can participate in research projects.

21. Mechanisms must be established that guarantee participation of campesino communities in the selection of research subjects when necessary, since communities frequently need new knowledge for the better management of their resources.
22. Fees for ecological services must be established.
23. Assess existing research.
24. Obtain basic information on habitat, biology and ecology.
25. Determine research priorities.
26. Coordinate work in priority areas.
27. Develop comprehensive strategy to include forest ecology (in addition to biology).
28. Establish hemispheric monitoring program.
29. Evaluate need for more tagging to determine overwintering behavior.
30. Explore implications of global warming.
31. Identify important sites along the migration route.
32. Investigate alternative funding mechanisms.
33. Develop strategy for securing long-term political support.
34. Develop strategy for securing long-term funding support.
35. Determine appropriate framework for channeling funds into priority actions.
36. Identify aspects of concern to all three governments.
37. Identify areas for research.
38. Study the phenology of overwintering generation monarchs.
39. Study geographical variation trends for patterns.
40. Study the relationship between weather/ climate patterns and patterns of migration and abundance.
41. Study the relationship between annual variation in host plant phenology, abundance and net primary production.
42. Study the pattern of variation in mating phenology.
43. Study the role of feeding and nectar sources during migrations.
44. Study the role of feeding and nectar sources at overwintering sites.
45. Study the extent and impact of predators on both overwintering and spring/summer monarch abundance population dynamics.
46. Study the extent and impact of parasitoids/parasites on both overwintering and spring/summer monarch abundance.
47. Study the extent and impact of infectious diseases on both overwintering and spring/summer monarch abundance.
48. Study the variation in overwintering sites mortality due to local and regional weather/climate patterns.
49. Study the role of specific habitat characteristics that might ameliorate mortality.
50. Study the pattern of both intra-site and inter-site movement at overwintering sites and their role in conservation strategies.

IV. Policy and Law

1. Identify aspects of concern to all three governments.
2. Investigate alternative funding mechanisms.
3. Develop strategy for securing long-term political support and funding.

4. Determine funding priorities.
5. Determine appropriate framework for channeling funds into priority actions.
6. Determine specific action plans for U.S., Canada, Mexico.
7. Actions to assist Mexico.
8. Conduct training initiative.
9. Assist in building funding partnerships.
10. Lend political weight to new initiatives.
11. Purchase remote sensing devices to improve available science.
12. Fund on-site Reserve personnel to work in conservation and development.
13. Survey federal, province, state and local, private land managers.
14. Conference of state, province and federal managers.
15. Consider establishing monarch program or reserves in U.S.
16. Develop systematic assessment and consultation process to evaluate potential new reserves.
17. For potential sites that meet assessment criteria, establish new reserves through Federal declarations, partnerships with states, or umbrella program that recognizes various public and private initiatives.
18. Systematically survey U.S. monarch conservation activities.
19. Cooperative strategy with the Commission on Environmental Cooperation, US Fish & Wildlife, Trilateral Committee.
20. Department of Interior participation in above group.
21. Commission on Environmental Cooperation co-hosting of symposium.
22. Collaboration on projects in Mexico's Reserve.
23. Consider mechanisms for long-term funding of conservation efforts.
24. Assess current programs.
25. Establish hemispheric monitoring program.
26. Create hemispheric umbrella program to recognize and publicize public and private initiatives.
27. Increase number and contributions of partners.
28. Increase information sharing and coordination among partners.
29. Publicize Conservation Directory and CEC repository for published information.
30. Develop Internet resources.
31. Emphasize global approach.
32. Implement comprehensive management plans with low administrative/program cost ratio.
33. Designate or create umbrella organization to collect and disseminate information and coordinate partner participation in planning and implementation.
34. Ensure continuity of initiatives.

V. Communication and Outreach

1. Assess current activities, trends, experiences, opportunities.
2. Develop outreach initiative to inform public of trans-border collaboration.
3. Establish a network of organizations involved in environmental education projects.
4. Identify aspects of concern to all three governments.

5. Recognize and publicize reserves, successful initiatives and projects.
6. Encourage school, state, local, and private participation in conservation.
7. Identify potential promotional events (e.g., poster contest, festivals, etc.).
8. Inaugurate community training project for sustainable development.
9. Develop outreach initiative to inform public of trans-border collaboration.
10. Establish a network of organizations involved in environmental education projects.
11. Determine how to minimize resentment in future habitat protection efforts.
12. Emphasize benefits of integrating conservation and sustainable development.
13. Conduct follow-up to ensure communities support action plans.
14. Develop demonstration projects to showcase and duplicate successes.
15. Identify community organization and social and cultural impediments.
16. Identify opportunities for sustainable development and private conservation efforts.
17. Incorporate local priorities into workshops and training.
18. Encourage best practices such as sanctuary representatives and model communities.
19. Identify and promote low-impact eco-tourism opportunities that meet Environmental Impact Assessment requirements.
20. Provide incentives to start such programs.
21. Establish eco-tourism network to share information about such programs.
22. Identify appropriate public and private roles.
23. Ensure that training courses contain practical, “how to” information.
24. Include investors perspective—business aspects, regulations, etc.
25. Facilitate development of tourist control policies.
26. Launch a national or international program to educate potential visitors to the Reserve.
27. Investigate alternative funding mechanisms.
28. Develop strategy for securing long-term political support and funding.
29. Determine funding priorities.
30. Determine appropriate framework for channeling funds into priority actions.
31. Determine specific action plans for US, Canada, Mexico.
32. Increase entrance fees for foreign visitors that can be tied to the establishment of a trust fund which could support community projects.
33. A tax or fee on the guiding companies which bring visitors to the area which could also give support to community projects.
34. The tagging system used on butterflies needs a protocol related to minimizing damage to butterflies and improving their safety.
35. Channel should be opened for classrooms to send funds directly to the Reserve.
36. Establish a popular magazine to communicate research results.
37. Establish an exchange program for students.

38. Establish small restaurants in the Reserve area.
39. Prepare a directory of those schools interested in Monarch Butterflies.
40. Establish foreign language training programs.
41. Provision of equipment for schools.
42. Establish an avenue/vehicle to take products to the international market place that are produced locally.
43. Establish in each country a committee, involving the different stakeholders, that raises and administers funds, and that assesses projects.
44. Establish mechanisms for decision making in the agrarian nuclei and their commissioners (representatives) through the Technical Council of the Reserve.
45. Start reviewing the Decree that originated the Reserve in the eighties, particularly of its eighth chapter, which limits the access to the nucleus area.
46. Create campesino development councils for the Reserve.
47. Create programs of regional support in order to develop employment and give priority to the inhabitants of the region.
48. Establish permanent education programs in each of the three countries.
49. Evaluate economic instruments that can help finding solutions to the deteriorated economy of the families of the Monarch region, favoring mechanisms like ecological accounts, payments for diversity, etc.
50. Find, identify and create international financing mechanisms for regional and local activities considering always that shared resources represent also shared responsibilities.
51. Find mechanisms of financial support for the campesinos that don't disturb the forest.
52. Establish programs for capacity building and technical education.
53. Promote by any possible means social participation for the conservation.
54. Establish formal agreements promoting tri-national conservation actions.
55. Put the actual participation pyramid up side down, strengthening observation and training teams.
56. Generate economic alternatives as payment of environmental services, which demands the revision of the Decree and of all the activities related to the reserves in Mexico and with the summer habitats of the Eastern population, as well as those of the Western one.



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APPENDIX B: LIST OF CONFERENCE PARTICIPANTS

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