

SESSION VI

INTERNATIONAL POLLINATORS INITIATIVE: THE SAO PAULO DECLARATION (PRINCIPLE RESULTS AND PROPOSALS FOR ACTION)

[excerpts from “ Report on the recommendations of the Workshop on the conservation and sustainable use of Pollinators in Agriculture with Emphasis on bees” .Brazilian Ministry of Environment, Brasilia, December 1999.]

INTERNATIONAL POLLINATORS INITIATIVE: THE SÃO PAULO DECLARATION ON POLLINATORS

Excerpts from the **Report on the Recommendations of the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture with Emphasis on Bees**, Brazilian Ministry of Environment, Brasilia, December 1999

EXECUTIVE SUMMARY

One-third of the world's crops demand pollination to set seeds and fruits and the great majority of them are pollinated by many of the estimated 25,000 species of bees. The annual value of this service in the U.S. is calculated at US \$6-8 billion and the estimate worldwide is US \$ 65-70 billion. The most widely used species in crop pollination is the honeybee (*Apis mellifera*). A major problem is emerging for the world's agricultural production reflecting the risk involved in relying on a single pollinator species. Honeybees in many parts of the world have contracted a serious disease and the numbers of honeybee colonies have decreased dramatically. Fruit and vegetable growers in the U.S. and Europe are complaining about poor fruit sets despite good blooming. As the disease has spread throughout most of the world, specialists consider all countries will become seriously affected. Farmers and growers now wish to use native of bees. Many species of native bees are known to be efficient pollinators of crops and a few species have been managed for this purpose. However, the numbers of native bees are dwindling; some species seriously so. Declines in numbers have been reported in North and Central America and Europe. The losses are due mostly to the use of agrochemicals and monocultures, to deforestation, and possibly to the introduction of exotic pollinators.

The emergence of a serious and widespread disease has made it clear that native pollinators need to be protected and sustainably managed for the pollination service they can provide and that agricultural practices be designed to incorporate the protection and sustainable management of bee populations. The pollinator crisis exemplifies the intimate relationship existing between the welfare of natural environments and their biodiversity and the needs of sustainable agriculture.

As a contribution to the development of the CBD work program approved by Decision III/11 on the "Conservation and Sustainable Use of Agricultural Biological Diversity", which identified pollinators as one of the initial priorities, the Brazilian Government held an international workshop of experts to propose a framework for an *International Initiative on Pollinators* as a key element in this program. The workshop was attended by 61 scientists from 15 countries and four international organisations (CBD Secretariat, FAO, IBRA and ICPBR). Six groups of specialists discussed: 1- Reducing the Taxonomic Impediment on Pollinators, 2- Monitoring the Decline of Pollinators, 3- Identifying the Causes of Pollinator Decline, 4- Quantifying the Economic Value of Pollinators to Agriculture, 5- Conservation of Pollinator Diversity, and 6- Sustainable Use of Pollinators.

The recommendations of the Workshop include a proposal that COP5 formally establish an *International Pollinators Initiative* based on the framework for action contained in this report and request SBSTTA to co-ordinate, with support from the Executive Secretary, the preparation of a first Global Diversity Outlook Report on Pollinators. The Workshop participants also requested that COP5 call for

international co-operation to develop the *International Pollinators Initiative* and request the financial support of GEF for this initiative and, furthermore, propose the creation of a *Pollinators Specialist Group* within the Species Survival Commission of the IUCN.

The recommendations produced by this workshop should help foster support from agencies to enhance initiatives on all continents on pollinator conservation and sustainable use. This would help to mainstream the issue of biodiversity in our society and to direct the conservation movements to promote the maintenance of biodiversity as an essential component to ecosystem functioning.

The workshop participants concluded that there is insufficient reliable data on the reported declines in the numbers of pollinators and their effects on agriculture, but that the necessary expertise to collect such data is available. Furthermore, they agreed that such an effort is viable provided the institutional support is available. However, the difficulties in obtaining reliable identification of pollinators (especially of bees), which are vital for the success of both the monitoring programme and pollination research, was also stressed. They also emphasised that the pollination requirements of relatively few crops are known. The experts spoke of the need to produce manuals and catalogues and agreed that the creation of websites with databases of specialists, publications and reports and information on the pollination requirements of crops and on their pollinators is vital and that success of the proposed actions will be greatly enhanced with public awareness of the problem. The spread of successful pollinators for some cultures should be regulated, in order to avoid their introduction in areas outside their natural distribution and avoid competition with local pollinators.

The proposals for action of this Workshop are varied, and many are concerned with the collection of reliable information and its dissemination. The predominance of these two subjects demonstrates the participants' desire to have access to standardised extra data. Some of this information already exists but is not readily available, while much additional data need to be collected. An international training program was suggested, with standardised methodology and well-defined goals in order to create a worldwide network of experts capable to develop appropriate actions for the conservation and sustainable use of local pollinator diversity.

SUMMARY OF MAJOR FINDINGS

1. All the participants remarked that we have insufficient reliable data on the reported declines in the numbers of pollinators and their effects on agriculture worldwide.
2. Some experts have clear evidence demonstrating that numbers have declined, while most stated their data only suggest that pollinators are declining, but all considered the information to indicate emphatically that an impending crisis exists.
3. They stated that reliable methods are available to collect standardised data worldwide, on the status and trends of pollinators, provided that institutional support is given and more experts are trained.
4. All stressed the need to have access to reliable data on the reported declines to:
 - a. explain why they are occurring,
 - b. make confident evaluations of their expected effects on agricultural production,
 - c. select the necessary action to resolve the question.

5. The experts agreed on the difficulties in obtaining reliable identification of pollinators (especially of bees) which are vital for the success of both the monitoring programme and pollination management.
6. They emphasised the need to expand the understanding of pollination requirements of crops worldwide.
7. All recognised the need to produce manuals on methods and catalogues of species of species and interactions.
8. The need for better public awareness of the problem was recognised, as well as the dissemination of best practices on native pollinators conservation and sustainable use.
9. The major tasks are to:
 - a. monitor the numbers and diversity of pollinators of target crop systems and landscapes;
 - b. determine the pollination requirements of crops and their effective pollinators
 - c. refine the estimates of the economic worth of pollination and the cost of its decline;
 - d. test and recommend pollinator management and restoration strategies;
 - e. appraise methods to increase the sizes of pollinators' populations and diversity, stimulate public awareness of the role of pollinators in their lives.

LIST OF PROPOSALS FOR ACTION

TAXONOMIC IMPEDIMENT:

1. Assess the scale of the Taxonomic Impediment
2. Maintain continuity of existing taxonomic and reference collections of bees
3. Establish Centres of Excellence in Bee Taxonomy
4. Train bee taxonomists
5. Train parataxonomists
6. Repatriate data [Capacity building and benefit sharing]
7. Stimulate taxonomic output
8. Hold a Workshop on motivation and training of parataxonomists
9. Hold a Workshop on automated systems for bee identification

MONITORING THE DECLINE:

1. Establish a committee to co-ordinate a global monitoring plan and network
2. Refine plans and methods for implementation of a global monitoring plan
3. Assess methods, prepare manuals for monitoring pollinators and train participants
4. Implement a pilot global monitoring program in selected areas worldwide
5. Assess the potential impact of exotic pollinators on native pollinators
6. Establish a network of websites with databases for all pollinator monitoring data
7. Prepare a Global Biodiversity Outlook Report on the status and trends of pollinators
8. Promote follow up activities to ensure continuity and improve the proposed program

CAUSES OF DECLINE:

1. Assess pollinator diversity and pollinator efficiency in representative agroecosystems and adjacent natural and seminatural environments
2. [This issue needs further attention, as workgroup report was not submitted]

ECONOMIC IMPORTANCE:

1. Establish a network of experts and a network of databases
2. Determine the pollination requirements of each crop species
3. Determine best pollinators for each crop species
4. Determine impact of pollinator presence/absence on fruit and seed yield
5. Establish pollination models for selected crops
6. Develop a generalised economic method for evaluation of crop-pollinator-pollination systems
7. Conduct cost/benefit analyses for different crop and pollination systems, at the farm level
8. Conduct total crop production cost analyses for different crop-pollinator-pollination systems, at the national level, including externalities
9. Conduct cost analyses for changes from one crop-pollination system to another, at the international level, including infrastructure maintenance
10. Disseminate information generated by various means

CONSERVATION AND RESTORATION:

1. Establish an international advisory group on pollinator conservation
2. Establish an international information network on pollinator conservation and a global directory of pollinator experts
3. Assess the state of scientific and indigenous knowledge on pollinator conservation
4. Develop and update global and national lists of threatened pollinator species
5. Develop model-testing protocols for the introduction of non-native pollinators and to assess impacts of agrochemicals on pollinators
6. Develop an international communication outreach capacity
7. Produce multilingual manuals on pollinator conservation and restoration for farmers
8. Create “bee smart” certification labels for “pollination friendly” products

SUSTAINABLE USE:

1. Disseminate information on pollination in agricultural environments through data bases, websites, and networks
2. Establish a roster of existing pollination and pollinators experts to serve as a pool for consultations in technology transfer
3. Promote applied research on pollination in agricultural ecosystems through training of post-graduates to work on gap issues
4. Protect natural habitats, within agricultural landscapes, as sources of wild pollinators for crop improvement
5. Evaluate positive and negative effects of alternative practices and technologies in agricultural production on pollinator conservation and effectiveness
6. Evaluate impacts on pollination of practices and technologies used in agricultural production
7. Improve the knowledge on the real needs of pollination of tropical crops and forest trees
8. Gather and disseminate/exchange information of best practices
9. Conduct risk/impact assessments of main causes of pollination decline
10. Develop guidelines for policy makers and for farmers

FOLLOW-UP RECOMMENDATIONS

The participants of the workshop proposed follow up activities to promote the initiative which needs to be developed:

1. Propose that COP5 formally establish an *International Pollinators Initiative* based on the framework for action contained in this report.
2. Request that COP5 call for international Co-operation to develop the *International Pollinators Initiative*. It is suggested that this initiative be supported by existing organisations, particularly the relevant organs of FAO, and IUCN, IBRA, ICPBR and Apimondia.
3. Recommend that COP 5 request the financial support of the Global Environment Facility - GEF for this initiative.
4. Recommend that COP 5 request SBSTTA to co-ordinate, with support from the Executive Secretary, the preparation of a first *Global Biodiversity Outlook Report on Pollinators – GBO-P*.
 - a) It is suggested that a first GBO-P be prepared for 2002 based on published and other existing data.
 - b) A second GBO-P could be prepared for 2005 based on standardised monitoring of pollinators and pollination worldwide. This will depend on establishing the monitoring programme with a functioning network of agreed selected sites and proven methods.
5. Propose the creation of a Pollinators Specialist Group within the Species Survival Commission of the IUCN.

CONVERGENCE OF PROPOSALS

The proposals for action of this Workshop are varied, but many are concerned with the collection of reliable information and its dissemination. The predominance of these two subjects demonstrates the participants' desire to have access to better data. Some of this information already exists but is not readily available, while much additional data need to be collected.

Need to collect reliable data:

1. Standardised monitoring of the numbers of pollinators (particularly bees) over a worldwide network of selected sites is essential for identifying patterns of change in their numbers.
2. The monitoring programme would entail substantial improvements in the services of the identification of pollinators and there is a serious limiting taxonomic deficit in this respect.
3. Assessment of the pollination requirements of agricultural crops and of the roles of pollinators will permit improvements in pollination and thus of crop production.
4. Assessment of the economic worth of crop pollinators should be feasible once the data from # 3 are available.
5. Identification of the means of conserving and increasing the numbers of pollinators is a subject for multidisciplinary approach.

Communication:

Suggested publications:

Manuals on monitoring techniques

Manuals for measuring pollinator decline

Manuals for promoting pollinator recovery

Global Biodiversity Outlook Reports on the Status of pollinators

Web site:

A co-ordinated network of web site is required with lists of researchers, crops, pollinators, pollination, publications, crop losses and all the data from the monitoring programme. It should be organised at local and global levels and with Internet access. This might be organised and run by FAO and IBRA.

Education:

Educational programmes for the public, for schools and for post-graduate courses.

Training programmes for entomologists and parataxonomists.

Use of post-docs in long-term studies, to disseminate knowledge and in regional training programs, with the standardised methodologies established in this programme, emphasising regionally important pollinators.

Further specialist meetings:

Another international planning workshop like the Sao Paulo workshop should be organised and aimed at specialists from Asia, Australasia, Eastern Europe and Africa (regions under-represented at the Sao Paulo workshop) to complement the recommendations of the Sao Paulo workshop, from the perspectives of these regions. This event could provide an opportunity to further detail the proposals for actions recommended in Sao Paulo, as well as consolidate the support of international and national agencies to the proposed International Initiative on the Conservation and Sustainable Use of Pollinators.

Regional meetings should be organised in each continent, similar to the one that discussed the European perspectives held at the Linnean Society, London, 8 April 1995. Nevertheless, international participation and guidelines are important for helping in the establishment of new and stronger joint projects, emphasising a general improvement of the pollinators' use on a global scale.