

Session I : discussion

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Colloque international sur le thème

Nature et Jardins botaniques au XXI^e siècle

Genève — 2-4 juin 1993

SESSION I — DISCUSSION

PREMIER INTERVENANT:

Lorsque M. Olivier a fait allusion aux interventions des études spécifiques et appliquées et aux orientations de la recherche officielle particulièrement, il a parlé de trois thèmes qui sont difficiles à diffuser ou qui ne sont peut-être pas acceptés dans certaines revues officielles: la biologie de la reproduction, la répartition de la variabilité et le maintien de l'habitat nécessaire aux plantes. A quoi est dû ce désintérêt officiel pour ces sujets?

L. OLIVIER

Ce que je voulais dire c'est que la recherche fondamentale exige que l'on publie sur des thèmes originaux et des thèmes de recherche fondamentale; donc je dirai qu'à la limite il est concevable de prendre une espèce comme exemple, et de faire toute une série de recherches là-dessus. Par exemple, à l'heure actuelle, la grande plante en vogue est *Arabidopsis thaliana* parce qu'elle est capable de produire plusieurs générations par an, donc on peut entreprendre de nombreuses études de biologie de la reproduction, de génétique de population sur ce matériel; simplement, vous allez trouver plusieurs centaines de publications sur *Arabidopsis* et absolument aucune sur les endémiques qui nous intéressent pour la conservation. Pourquoi? Parce qu'à partir du moment où l'on met en application une théorie, où l'on met en application des études fondamentales, ces travaux ne sont pas considérés comme publication de recherche. Le problème est là, et comme vous savez qu'à l'heure actuelle en Europe, il faut absolument, pour pouvoir progresser dans les universités, publier dans des revues à comité de lecture, et en général ce sont des revues internationales, toutes publications qui seraient des publications répétitives, qui n'auraient comme originalité que de simplement changer d'espèce, ne seraient pas acceptées. Le problème est là, c'est un problème d'organisation: il y a maintenant la nécessité qu'une organisation parallèle à celle de la recherche fondamentale se mette en place pour que l'on commence à recueillir des informations sur la biologie de la reproduction, et que l'on mène des études systématiques sur la biologie de la reproduction, pour réaliser une sorte d'immense banque de données sur ces sujets. Je donnerai simplement un exemple: que connaissons-nous des nombres chromosomiques en Méditerranée? Nous avons des indications souvent vagues qui ont été comptées en jardin botanique; dans la plupart des cas, des comptages sur des populations naturelles n'ont pas été réalisés, or la variabilité en nombres chromosomiques est très grande dans les populations naturelles.

SECOND INTERVENANT:

Pour continuer dans le même ordre d'idées, est-ce qu'on ne peut pas insister sur un problème qui me paraît majeur, à savoir celui de la quantité de travail à effectuer. C'est-à-dire qu'on est souvent dans des jardins botaniques ayant la possibilité théorique d'entreprendre ce genre d'étude mais qui sont souvent représentés par un ou deux botanistes seulement qui ne peuvent assurer à la fois la gestion, la réception du public, les sujets de botanique, etc. Donc on se retrouve dans un problème de nombre de personnes, de nombre de botanistes présents dans les jardins. Comment faire pour remédier à cet état de fait, notamment dans les jardins méditerranéens?

M. W. HOLDGATE:

Perhaps I can ask several people to respond? I would be interested to learn how many gardens have built fruitful research links with local universities and centres. Such links must surely offer a means for such bodies to augment their research strength and to benefit from the research material that the gardens themselves can provide. Are not partnerships one way forward in this area? Let me put it to the panel? Who would like to respond?

P. WYSE JACKSON:

There is such a diverse range of botanic gardens and situations that it is hard to generalize. Certainly there is a great shortage of staff in botanic gardens. In many cases the scientists, technicians and educators that are employed are on soft money, that is on short-term contracts, and that certainly weakens the long-term institutional development of many of these gardens and their research programmes. However, if an institution prepares a strategic development plan and calculates what its future role will be in conservation, in research or whatever, and writes into that certain targets for funding and for staffing, then at least they will know what the limits of their future role in research will be and to plan accordingly for the number of staff they need.

M. W. HOLDGATE:

I have one question I would like to put to any one of our colleagues. Dr. Olivier in particular emphasized the additional pressures of climate change that were likely to be superimposed on the already difficult problems caused by pressure on resources from human demand today. Some biogeographers and ecologists have begun to analyze the capacity of the world flora and ecosystems to respond distributionally to some of the projections of change. Clearly the botanic garden community will find itself faced with difficult problems, simply because of the increased difficulty of maintaining a number of taxa in new circumstances. Is there anything — like a strategy, a forward-looking analysis, a task force or something of that nature — in the botanic garden community which is looking ahead to the very demanding circumstances of the role of your community, in for example ensuring that the flora of the future is assisted, if it has to disperse much more rapidly than nature would let it. Perhaps that would not be a good thing to do in conservation terms, but what is being done by your community on this front, please?

M. MAUNDER:

The reintroduction specialist group of the Species Survival Commission certainly has worries about a problem that both demands and defies analyses at the moment. And we certainly do think that there will be a need to manipulate population in response to climate change. At the moment I think we could be fairly safe in saying that we do not have the capacity to deal with the problem as we recognize it at the moment. We have just finished in the Royal Botanic Gardens Kew doing a national sustainable development strategy for the island of St Helena. In this we tried to model

the possible impact of climate change on the endemic marine fishes, invertebrates and plant species. We are greatly constrained by the resolution of current climate modelling and our poor understanding of species ecology.

L. OLIVIER:

Je pense qu'effectivement, dans quelques années, vont se poser des problèmes relativement importants en Méditerranée, en particulier pour toutes les espèces endémiques orophiles des pays du sud de la Méditerranée. Si les scénarios de changements climatiques se passent tels que nous les connaissons, il est évident que toutes les endémiques orophiles de l'Afrique du Nord, du sud de l'Espagne, des montagnes de Grèce dans certains cas, vont être des endémiques qui n'auront pas la possibilité de migrer, puisqu'elles sont limitées dans leur migration en latitude et en altitude; en latitude, cela se comprend très bien puisque ce sont de véritables îles à l'heure actuelle, des îles continentales, et en altitude puisqu'elles sont souvent, déjà à l'heure actuelle, au sommet de la montagne. Donc, il s'agira là, vraisemblablement, de mettre en place un véritable système d'assistance internationale pour transplanter ces espèces ailleurs. Alors c'est vrai que, jusqu'à présent, je dirais qu'il s'agit d'un sujet tabou dont on ne parle qu'à demi-mot parce que, d'une certaine manière, cela pourrait être conçu, ou compris par les pays du sud, comme étant une nouvelle forme de pillage des ressources du sud inventée par les pays du nord; mais je reste persuadé qu'au moins du point de vue fondamental, il faudrait que l'on commence à expérimenter de telles pratiques à partir de matériel qui est conservé à l'intérieur des jardins botaniques, donc conservé *ex situ*, parce que ce n'est pas lorsque le phénomène sera dramatique qu'il faudra s'en préoccuper. Donc, il faudrait d'ores et déjà organiser des campagnes de récoltes de semences, commencer à expérimenter et à pratiquer des essais de transplantations pour voir si les espèces s'adaptent.

Ph. CLERC:

Il ressort des chiffres que M. Holdgate nous a donnés quand il nous a dit que les jardins botaniques étaient probablement à la mauvaise place, le fait que le jardin botanique est un luxe de pays riches. Que peut-on faire pour remédier à cela et quel est le rôle du BGCI là-dedans?

M. W. HOLDGATE:

This has indeed been mentioned by several speakers and Professor Borhidi has commented similarly about that very remarkable place at Amani in Tanzania — which I visited about three years ago — that in other respects is a very depressing site. The decline of some of the formerly great gardens in the tropical world has also been referred to. Peter, what is the BGCI doing about this?

P. WYSE JACKSON:

I think it would be interesting to say at first not what the BGCI are doing about it but what the countries themselves are doing about it. Every time I give a figure of the number of botanic gardens in the world, the figure goes up. Now whatever definition of botanic gardens one decides on the number still goes up. And most of the new botanic gardens that have been established are in developing countries, particularly in the tropics. A few years ago when we counted the number of botanic gardens functioning in Brasil they were perhaps 7 or 8. If you count now, the number of institutions that are active in some form or another or new botanic gardens starting, it is 17 or 18 and the number is growing all the time. And local communities in many countries, particularly in the tropics, see a need for new botanical gardens because their economies are heavily based on plants. Plants are not seen, in any way as a luxury, and the growth area for botanic gardens is in tropical and developing countries. Two weeks ago I was in Haiti. Haiti is one of poorest country in the western world, but a new botanical garden is being started which will be 30 acres in extend

with some of rain forest, in the center of the slums of Port au Prince. It will become a center for teaching people horticulture, how to grow the plants they need to live. Haiti seems the last place on earth one would think, in the present climate, of putting a new botanical garden, and it is very encouraging to see that there are many of these projects developing. BGCi spends a lot of its time, and is sometimes criticised for spending too much of time, trying to assist these new garden projects. We try to put them in touch with each other, we try to get gardens such as are represented here involved with gardens in developing countries in the tropics. There is an international fraternity building up which is strengthening day by day as we see new botanic gardens emerge in many tropical countries. They are beginning to tackle some already pressing problems. It is also interesting to note how many of the very ancient tropical botanic gardens such as Bogor in Indonesia; such as the botanic garden in Mauritius have changed their focus away from being gardens for introduction of economic plants to gardens for biodiversity conservation. The lead that a garden such as the Bogor Botanic Garden is taking now in biodiversity conservation illustrates the trends that is happening in many of these ancient tropical gardens where their roles are gradually changing.

D. BRAMWELL:

I would like just to add one think to what Peter was saying. I think it is very important that new development of botanic garden should be in tropical and subtropical countries, but I don't think we should forget that consumer society is in northwestern Europe and is very much in USA and that the botanical gardens that are there have a very important role to play on that in educating society about the sustainable use of natural resources, and therefore I don't think we should be too pessimistic about the present distribution of botanic gardens. I do not think it means that the botanic gardens that we have established in Europe and North America are by any means redundant but they do have a very important education role to play, and certainly we should concentrate the development to new gardens in other areas in tropical countries in the third world. It is just an observation, rather than a question.

J. RAMMELLOO:

Quand on parle de la conservation de la biodiversité au sein des jardins botaniques, on pense toujours aux plantes phanérogamiques et à la phanérogamie. Il est un fait évident que dans les jardins botaniques on ne sait quasiment pas cultiver ou sauvegarder la biodiversité des cryptogames, et je crois qu'il est important que, dans le futur, les jardins botaniques prennent un rôle plus important dans la conservation in situ parce que, sinon, on perdra un patrimoine inestimable en plantes cryptogamiques.

M. W. HOLDGATE:

As one who was once trained as an entomologist I would like to say that, given the interdependence of many plant and insect species, maybe an interdisciplinary link between the botanists and the entomologists would not come amiss in this area. I do not know if such a link exists, but I am sure that my entomological colleagues, if they were here, would strongly endorse this proposition.

J. R. AKEROYD:

This is just a comment about cryptogams. They have been rather the poor brethren of the higher plants in recent years. Certainly in the British Isles now, there is a lot more emphasis being given to their conservation, especially because north-west Europe has some of the most important cryptogam populations in the world. The British Isles for example, especially western Ireland and Scotland, may be poor in flowering plants, but extremely rich in mosses, lichenworts and lichens. With regard to the insects, I had a friend and colleague at Cambridge who did many years work

on the bumble-bee populations in the botanic gardens there. It is astonishing how the local insect fauna of East Anglia, is threatened by modern farming, but has found a refuge in the botanic gardens, where bees produce many kilos of honey every year. So I think botanic gardens actually can be quite a good refuge for insects.

W. MCK. KLEIN:

While we are making a special pitch for the cryptogams and the phanerogams and the insects that inhabit our gardens, I would like to make a pitch for the administration of botanic gardens as well. What I heard this morning was that in fact the world's climate is changing radically, the political climate is changing radically, the administrative climate of botanic garden are changing radically, that is requiring a degree of enterpenorship in botanic gardens that simply did not exist before, and is required in order for these institutions not simply to survive but to thrive. My question to the panel would be:

- Are there any institutions that you are aware of, who are concerned about the care and feeding and concerned about the future administrations of botanical gardens and securing the kind of leadership which is going to be required in the future?

P. WYSE JACKSON:

It is a subject which would be useful to discuss in a session on its own. There are a lot of international exchanges in botanic garden administration beginning to take place where they did'nt before. Moreover, there are very few opportunities for botanic gardens to obtain formal training in botanic garden administration. There is a new course on botanic garden management being held for the first time by the Royal Botanic Garden Kew this summer. And I think that this perhaps will present opportunities for many gardens to gain new expertise, new ideas for how they can develop their own administrations. Many more opportunities for staff exchanges at the administrative level would also be very valuable. I have heard in the last day or two, of garden directors visiting other gardens to see how they run their fundraising campaigns.