

**Learning in Protected Areas
– How to Assess Quality**
Report of a European Conference
Austria and Hungary – September 1998



**European Committee for Environmental Education ECEE
Commission on Education and Communication**



Learning in Protected Areas – How to Assess Quality

**Conference Report
25-28 September 1998**

**Lake Neusiedel National Park, Austria
Fertő Hanság National Park, Hungary**

**Organised by the
European Committee for Environmental Education ECEE
Commission on Education and Communication**

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Secretary to ECEE

Editors's Note

This record of the conference has been compiled from papers submitted by speakers and participants and notes taken during plenary sessions and discussions. Some editing of the papers has been necessary to clarify terminology and common English usage. However, every effort has been made to retain the author's original meaning.

The views expressed in this publication do not necessarily reflect those of IUCN but those presented at the workshop.

Acknowledgements

Special thanks go to the conference organisers.

In Austria: Monica Lieschke (ECEE Chair) and Karin Schneeweiss, Forum Umweltbildung, Vienna. Also to Alois Lang from Neusiedler See National Park

In Hungary:

Eva Csobod, Rozsa Juhasz, Professors House, Budapest
Attila Fersch, Krisztina Tolnai, Fertő-Hanság National Park

The conference organisers are extremely grateful to the support given by:

- IUCN/CEC (Commission on Education and Communication)
- Austrian Federal Ministry of Environment, Youth and Family Affairs
- Hungarian Ministry of Environment

Cover photograph by Eva Csobod: Fertő-Hanság National Park, Hungary

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Printed by IUCN – The World Conservation Union - July 1999

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I- About the Conference

1.1 Introduction

This conference was unique in the history of ECEE in that it was hosted jointly by two nations, Austria and Hungary, sharing Lake Neusiedel as a common focus for national parks on either side of the border. The participants greatly appreciated the opportunity to enjoy the facilities of the two national park centres at Illmitz in Austria and Sarród in Hungary.

Opportunity was also given to the participants to make field visits to important wildlife areas within the two parks; to witness some of the conservation activities and education and communication programmes of the areas. The time given by park staff to lead the excursions and to discuss their work with the conference participants was greatly appreciated.

1.2 Objectives

In holding this conference, the ECEE had the following objectives:

- to focus on quality criteria for learning and communication in protected areas and appropriate evaluation methods
- to consider how communication and education programmes in such areas can provide effective outcomes for biodiversity
- to identify the indicators of successful programmes
- to identify appropriate evaluation methods

1.3 Participants

Participants included people active in education and communication in national parks, protected areas and other valued sites, in NGOs, GOs, Park Management teams, Training and Research.

The conference brought together expertise and best practice from more than 30 countries across Europe and from further afield, who worked together to develop some practical solutions to the problems of assessment and 'quality criteria' for education and communication programmes and evaluation methods.

1.4 Outcomes

The conference produced the basis for a 'tool-kit' for planning and evaluation of programmes in national parks and protected areas.

II Protected Area Context

2. Protected Areas and the need to Communicate

Frits Hesselink

Chairman of Communication and Education Commission of IUCN
(Prepared from notes)

Nature conservation is necessary because of people. We do not know how to treat nature as we should and so we need to build bridges to develop awareness that nature and peoples' lives go hand in hand. If we are really going to preserve nature, we must involve people at all levels of society.

2.1 Why do National Parks need Education? (Why is Education so Important?)

From the point of view of a manager of a Protected Area – many pressures must be faced and coped with. The manager must perform a juggling act, taking into account all of the following:

- Economic Pressures
- Social Pressures
- The Political Agenda
- Management objectives for the area
- Staffing pressures and problems.

Education in National Parks must also take these into account, therefore. Educators must position themselves within the changing world of the Park.

2.2 Issues for the next Millennium

The establishment of protected areas seemed to provide 'the answer' for nature conservation, but are they actually delivering their original objectives?

- Are conservationists ready to negotiate to achieve the optimum for nature between the competing claims of social, ecological and economic demands and conditions?
- What is the conservationist's response to change?

In general conservationists, who prefer the route of 'business as usual', do not welcome change. Changes are usually seen as a threat.

2.3 Threats to Protected Areas

Threats to Protected Areas come from:

- Urban development
- Agricultural development
- Industrial development
- Recreational demands
- Pollution
- The fact that people are alienated from nature
- Conservation being seen as a last priority
- Protected areas are isolated from society in general.

2.4 The Way Forward

Answers to achieving the optimum for nature conservation in Protected Areas will come from:

- Learning by all concerned – residents; farmers; industrialists; developers; tourists; hunters; recreational users; politicians; protected area managers and staff
- Adapting to change
- Taking advantage of all the new opportunities from trends and change in society
- Open communication – (at the heart of the issue)
- Seeing Protected Areas as a means of achieving conservation goals and maintaining certain values – but not the objective itself.

2.5 Protected Areas as Learning Organisations

There are two contrasting extremes, although many lie between these two:

Old Style

Hierarchical or 'top-down'
Look to the past
Inward looking
Fixed agendas
Staff are 'directed'
Lobbying
Have 'target groups'

The Future?

Non-hierarchical or 'bottom-up'
Look to the future
Outward looking
Mixed orientation
Staff are 'enabled'
Transacting
Have 'stakeholders'

The implication is that staff in Protected Areas need to have attitudes that enable the conservation process to happen through partnerships and active participation rather than trying to impose it.

2.6 New Trends and Opportunities

The drive for 'Sustainable Development' provides many opportunities for Protected Areas:

- Business adopting environmentally responsible and ethical policies
- New partnerships can be formed around the basis of achieving a sustainable future
- New activities
- Internationalisation
- Biodiversity and political conflicts
- International trade
- New roles and quality of life
- Decentralisation
 - Protected Areas can get closer to the people
 - Protected Areas are close to local authorities and can play new roles in biodiversity politics
- The reducing role of central government means that:
 - new actors will be taking responsibility
 - new distribution channels will emerge
 - there are opportunities to develop new public/private partnerships
 - new financial mechanisms will emerge
- Interactive policy management will mean:
 - new opportunities for dialogue to shape policies
 - a role for protected areas in policy transactions
- Life long learning is now every person's right. Thus:

- citizens now demand education
- learning is an integral part of the quality of life
- Protected areas can play a role through spending a mandatory 10% of their budget on educational provision.

2.7 The role of protected areas in enabling and learning:

By assigning personnel to education and giving it a strong place in mission statements:

- Local residents reap benefits
- Government policy sees results
- Visitors show high levels of customer satisfaction
- Businesses have opportunities for profit
- Management rejects its former top-down attitudes.

2.8 The consequences for communicators

Old approaches

External
 Interpretation
 Inside the protected area
 'Experts'
 Preaching to people
 Science based
 Ecology
 End of pipe

New opportunities

Internal and external
 Information (a right)
 New media
 'Stakeholders'
 Interaction with stakeholders
 Society based
 Added value
 Management linked

2.9 Assessing quality of learning in protected areas

The following aspects of educational and communication programmes and initiatives need to be assessed:

- Proving that education/communication gives 'added value'
- That you are meeting the needs of customers
- That your market is expanding
- That behaviour and attitudes are changed
- That it reduces risk of conservation objectives not being achieved
- Helps people to make wise choices

The process must start now!

2.10 Discussion Points

The following point was strongly made during discussion of the introduction, especially by conference participants from protected areas.

Everything raised so far is concerned with humans - their ethics and behaviour - but the concern of a protected area is to do with species. Is the resource managed for people or for nature? Surely for nature? Communication with, and taking on board the views of, all stakeholders will mean it is necessary to make compromises that may not benefit nature. As park managers we cannot afford to do this. Education and communication and getting people on our side must therefore be aimed at children and is long-term. For the adults in protected areas it is too late to change their

attitudes and behaviour. Visitors are our customers, but we cannot let them do exactly as they please just to give increased 'customer satisfaction'.

In reply, the point was made that conservationists were often far too defensive and created problems of hostility and alienation of key people through not being prepared to compromise. If we do not listen - trade-off and compromise - we will lose out in the long term. It is far better for future sustainability to win hearts and minds, and to gain willing co-operation and active participation of the stakeholders.

II Protected Area Context (cont)

3. 'Perception of, and Education about, Protected Areas'

Marija Zupancic-Vicar "Parks for Life" - Action for Protected Areas in Europe, Regional Vice-Chair, IUCN/WCPA, Rodine 51, 4274 Zirovnica, Slovenia

3.1 Introduction

WCPA - World Commission on Protected Areas, one of the six IUCN commissions, is a network of volunteers mainly protected area professionals, members of government, NGOs and other institutions.

The strategic objectives of WCPA are:

- to help governments and others plan protected areas and integrate them into all sectors - by provision of strategic advice to policy makers
- to strengthen capacity and effectiveness of protected area managers - through provision of guidance, tools and information
- to increase investment in protected areas, by persuading public and corporate donors, as well as governments, of their value, and
- to enhance WCPA's capacity to implement its plan.

In harmony with the Strategic Plan, WCPA has developed regional programmes as well as global theme programmes, task forces and other programmes. WCPA activities include input to main global conventions as well as regional strategies, action plans and other actions on biodiversity conservation, protected area systems and management, and sustainable use of resources.

In Europe, the Parks for Life "*Action Plan for Protected Areas*" was prepared, and is currently undergoing implementation. "*Parks for Life*", together with its newest version: "*Parks for Life - The Next Five Years*", sets out the policies and actions that each country should take to improve its protected areas, as well as outlining action needed at international level.

In the plan, all relevant problems and threats to protected areas in Europe are addressed and actions are suggested. The 'audience' are organisations with influence over protected areas and individuals with direct responsibility for planning and managing protected areas, that is: all of those, who are working with or in protected areas, governments, planning authorities and protected area managers.

3.2 Protected Areas in Europe

More than 12% of the total land area of Europe - an area as large as France, Belgium and Netherlands together - are protected under the IUCN management categories system, and designated within the respective national legislation. All but the smallest protected areas are listed in the United Nations List of Protected Areas.

There are a number of global and regional instruments and other initiatives under which protected areas are designated as being of international importance, e.g.:

- World Heritage Sites
- World Network of Biosphere Reserves
- Ramsar Sites, etc.

For Europe, a single Common Database of Protected Areas is maintained, including sites designated under Natura 2000. This already comprises 1,470 Special Protection Areas and candidate lists of Special Areas for Conservation drawn up by EU Member States.

In the protected areas field, Europe is perhaps best known internationally for its rich heritage of cultural landscapes - those areas where people and nature have lived together in harmony for centuries. Indeed, the idea of protected landscapes (IUCN management category V) started in Europe. According to our colleagues in the World Conservation Monitoring Centre, of all protected landscapes nearly 50% by number, and more than 30% by area covered, are in Europe.

However, I have to tell you that many of these protected landscapes are not well managed. Many lack management plans and staff; many have been set up without the necessary government authority, and there are still many cases where local people are not yet seen as vital allies in conservation. There is a need for much improvement in our protected landscapes.

Yet it is a mistake to think that all of Europe is a managed landscape, and that the only opportunities open to us are of making protected landscapes and small nature reserves. Despite its small size and large population density, Europe does still have some areas of wilderness. Yes, they may be smaller than wilderness areas in, say, North America and Africa, but they are still substantial. And with the declining pressures on land for food production, there is the opportunity to create national parks in IUCN Category II - where nature and natural processes are the priority, and people are only visitors.

There is also the opportunity to rebuild whole ecosystems - there are some good examples here in Austria (the Donau-Auen National Park) and in many other countries.

The area of new national parks established between 1990 and 1997 is almost as large as the area of national parks founded in the previous 20 years. Based on a Report from 1997, there are 87 new national parks with an area of over 5 million ha in 23 European countries that are in the planning process.

Referring, however, to the IUCN management objectives of a national park Category II, in most national parks in Europe these objectives are not yet achieved. There are still long-standing impacts on the parks such as hunting, forestry, water management, etc. Many of the parks are also too small to be able to combat the threats from the adjacent areas. In 18 of the 33 European countries that contain national parks, Category II national parks cover less than 1% of the total country area.

We also understand that the EU enlargement process is of critical importance to Europe's biodiversity and sustainability and to its system for protected areas. Therefore, the reasons for continued action by WCPA in the implementation of "Parks for Life" still exists:

- the coverage of protected areas in Europe is still very uneven
- the management of many protected areas is still not adequate
- the natural environments, as well as potential natural and cultural landscapes, face many powerful threats. People's awareness of the vital importance of these

places as a life-support system is not as strong as it needs to be, if these areas are to be saved for the future.

However, we also have to take into account the reality in which the protected areas in Europe will be managed in the 21st century:

- more people demanding more resources (an addition of 10% will mean a demand for many millions more hectares)
- cultural diversity is under threat and, as a consequence, so is the loss of biodiversity and landscape value
- climate change
- greater impact of technology upon society, to mention but a few.

3.3 Perception of Protected Areas

Parks and protected areas are established in most cases for the benefit, education, and enjoyment of current and future generations. How these values are perceived shifts with time, place and personalities. However, much depends on how the enduring human purposes of parks and protected areas - as contributors to the quality of life - are emphasised by the protected area policy and management. The doors to parks and protected areas have to be opened, and more people should have the access to these places. The recreational opportunities offered by protected areas should be used as the way in which people can:

- find refreshment of mind and spirit
- escape the pressures of urban life
- re-discover themselves through direct contact with nature and the beauty of wild landscapes as well as cultural landscapes.

The managers who have to make efforts for the public, feel that parks and protected areas are really an organic part of their own lives. In fact, the greatest challenge facing protected area professionals and all environmentalists today is to find new ways of demonstrating that the conservation of nature and the sustainable use of natural resources are of fundamental relevance to the daily lives of people, including those who may never visit a protected area.

Protected areas provide valuable outdoor learning experience:

- as places where an ethic for nature conservation could be fostered
- as sites where the benefits of nature for humans can be experienced and studied
- as models of environmental management against which human impact on other systems can be compared.

Indigenous cultures, their knowledge and lifestyles, provide a rich resource for education, particularly in developing an understanding of the concepts of sustainable living. If the aim is that 'all people should be for parks', then it must be demonstrated far more clearly that 'parks are for people' and are part of the fundamental life-support system upon which humanity ultimately depends for its survival.

3.4 Environmental Education about Protected Areas

Environmental education helps people understand that biological and physical features are the natural basis of the human environment. However, its ethical, social, cultural and economic dimensions play their part, and should be included in any

raising of human understanding if we are to preserve nature, make better use of natural resources and satisfy our needs. Therefore, it is about developing:

- an understanding human dependence and impact upon the earth's resources and on the lives of others
- an environmental ethic, and
- the skills to enable people to participate in informed environmental decision making and management.

Thus, environmental education is a vital way of building public awareness, understanding and support, and is focussed on more than just plants, animals and biological process. It is about making people aware of their relationships with nature and ensuring that these relationships are sustainable.

Environmental education must be designed to influence all key target groups including:

- visitors
- pressure groups
- local people, and also
- those who do not care or do not even want to know.

The vital matter is to motivate and excite children - through direct involvement where possible - so that they *want* to conserve nature. There is evidence of a growing awareness of environmental and protected area issues among young people. This existing interest in environmental topics among the young can be built upon through imaginative environmental projects within the framework of the formal education system.

Environmental education in protected areas must be developed in such way that it can be applied everywhere that humans live, and must not be limited just to protected areas. It has to be varied, comprehensive and provide rich experiences. It begins with information given during guided tours and should build up an emotional relationship between human and nature.

The protected areas offer excellent outdoor classrooms for education in a wide range of studies: geography, social sciences, history, biology and geology, in particular. Site-based studies are particularly effective, both for schools and for adults, and allow for a cross-curricular approach to environmental education. The use of protected areas by schools, colleges and universities as focal points for both formal and informal educational purposes should continue to be encouraged.

It is vital that parks carry out environmental education programmes, and that there are sufficient educational and other professional staff to provide a high quality service to all target groups as well as the sensitive contact needed to take care of and advice to visitors. Educational work means personal involvement. Parks should keep their educational programmes under constant review, and monitor and evaluate their effectiveness.

Referring to the Report on the Management and Protection of National Parks Category II in Europe (1997), more than 60% of national parks carry through some kind of education programme:

- the most important target group for these programmes are schools (58%)
- 20-30% of the parks offer education programmes for visitors
- only 11% for locals and for experts.

However, in almost 80% of the national parks, info-points guide the visitors through the park and guided tours are offered by over 70% of the parks.

Most park and protected area managers rely on traditional methods to put across the environmental message:

- interpretative trails
- display panels with a wide variety of information
- a range of interpretative techniques to meet local information needs, e.g. newsletters, leaflets, videos, slides, films, rangers, education staff, computers, etc.

Yet modern research demonstrates that simple information transfer is not enough when trying to give young people a sense of commitment as well as wish to change their behaviour.

A relatively small number of parks operate 'sensitive' programmes based on discovery and a living experience. The methods they use appeal less to reason and more to experiencing nature using all the senses (seeing, hearing, smelling, touching and tasting). This is what discovery and living experiences are all about. A genuine interest in nature and the desire to protect it come only after some kind of emotional link has been established: 'If I understand something, I care for it and I am prepared to do something to protect it'.

At university level, although 'management of protected areas' is not generally offered as a specific course, a number of graduate and postgraduate courses now include environmental planning and natural resource management, and more such courses are needed. Universities can - and do - play an important role in research relevant to the management of protected areas and habitat. Indeed, protected areas can offer endless opportunities for engaging universities in the creative interchange of ideas. Universities also help in the field of environmental education, training and research. Several NGOs, in particular the EUROPARC Federation and EUROSITE provide managers of protected areas all over Europe with the opportunity to exchange and share their valuable knowledge and experience. A major effort was made by the Europarc Expertise Exchange project, a "Parks for Life" Priority Project, funded by PHARE and carried out in 13 CEE countries. WCPA will develop best practice guidelines in relation to training, tourism and protected areas and for the involvement of local communities in the establishment and management of protected areas. It is particularly important to prepare guidelines on how to develop and run national training programmes and to develop training materials in several languages for environmental education and other topics.

Finally, every protected area should have written material which should describe: what the protected area seeks to conserve, what are the main features, where visitors can go and what they can do, facilities for visitors, any rules for visitors and why they are necessary.

3.5 Conclusion

The process of environmental education - of effective mass communication of natural heritage values, employing a range of media - has to begin where the people are. This is because many of them, because of their socio-economic circumstances, will always be deprived of the opportunity to experience truly wild nature at first hand. Many European countries are already tackling this problem with imaginative environmental and educational programmes within the cities, bringing nature and countryside into the towns.

However, it is also important to build better appreciation by the public of Europe's natural heritage and cultural landscapes, through better educative and interpretative programmes in protected areas, aimed both at local people and at visitors from elsewhere.

If people, the young or the old, the city dweller or the rural community, the politician or the tourist, are to receive - and act upon - the environmental message, then all protected area managers and environmental scientists must learn to communicate in a style and a language which can be readily understood by their audience. Communicating the message of the protected area in a language adapted to the particular needs of the listener - speaking with clarity and simplicity - is fundamental to gaining public and political support for European protected areas.

3.6 References

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III Principles & Theory of Evaluation

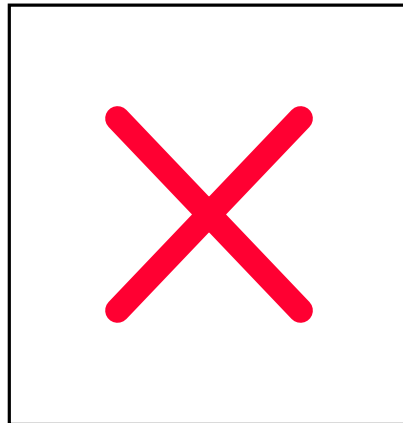
4. Didn't We Do Well! Checking the Success of Education and Communication Programmes

John Baines Bureau for Environmental Education and Training

4.1 Introduction

I wonder how you react when evaluation of your project or work is mentioned?

Figure 1



Do you recognise yourself?

When faced with evaluation of your work do you feel:

- i) Threatened and under attack?
- ii) Good, happy and welcome evaluation?
- iii) You would rather not know and ignore it?

Many people have negative reactions to evaluation because:

- it is often perceived as criticism of oneself and one's work
- it is perceived as being done on oneself by someone else
- it never seems to present the whole truth as you see it.

A lot of the negativism is based on myths about evaluation. If only we could recognise that evaluation is a tool to help us succeed, we might be more open to it. We all like succeeding. It makes us feel good and motivates us to do even better. We learn what works from our successes (unlike failures, which only teach us what did not work) and this gives us the ability to do even better. In this short presentation I hope to promote more positive images of evaluation and present my top Critical

Success Factors (CSFs) for effective evaluation. CSFs are those things that you must do to make it more likely that you will achieve your goal.

4.2 Commitment of the project leader, staff and stakeholders

Those involved in the project need to understand and be happy with the evaluation plan. Evaluation will be less threatening if it is understood that it relates to the overall performance of the *project itself* – its design, resource allocation, job descriptions, management, etc. - and is not solely dependent on the performance individuals undertaking the project. If a project is not working successfully, then the fault may be with the design of the project itself, rather than a lack of proficiency or competence of the people implementing it.

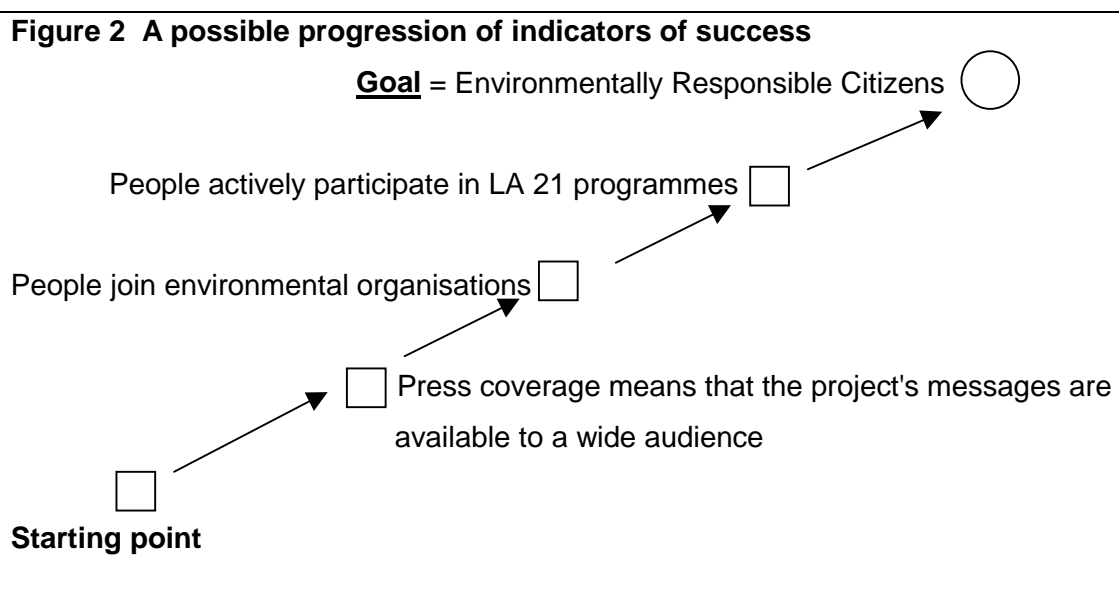
Commitment is more likely if all the stakeholders understand the benefits of evaluation. For example, evaluation can:

- improve the amount of control one has over a project
- identify successes and problems
- provide a systematic assessment of progress and success
- communicate results to sponsors and supporters, staff and other interested parties
- show a commitment to a professional approach.

4.3 Aims and objectives

It is important to be clear what is to be evaluated and why. That way you can match what you need to find out to the methods you use. Are you wanting to use evaluation to find out how successful a project was or are you using it to help you keep a project on course? Probably both but you will need to use different techniques.

When evaluating environmental education and communication work we often get so hung up on the problems of evaluating the long-term effectiveness of the programme on knowledge, attitudes and behaviour, that we ignore other aspects of the project that need evaluation. But these are often good indicators of how effective our



programme is. For example, we might need to check that the materials we produce are actually being distributed, or that the project staff have the knowledge and skills to deliver the programme. If we can make sure that everything that is within our direct control is working effectively, then it is more likely that the broader goals will be achieved.

What we can say is that we are less likely to achieve our long-term objectives if we do not evaluate what we can control. Make sure you have realistic expectations of your evaluation.

4.4 Indicators of success

It is never certain that we will achieve our goal until we actually achieve it! However, we need some criteria by which we can judge the progress we are making. We can agree a number of indicators that show whether or not we are going in the right direction. For example, an indicator of success for an education and communication programme might be that all the stakeholders agree to attend a meeting, or that community leaders endorse a leaflet. (In terms of your project plan they could also be critical success factors).

4.5 Information

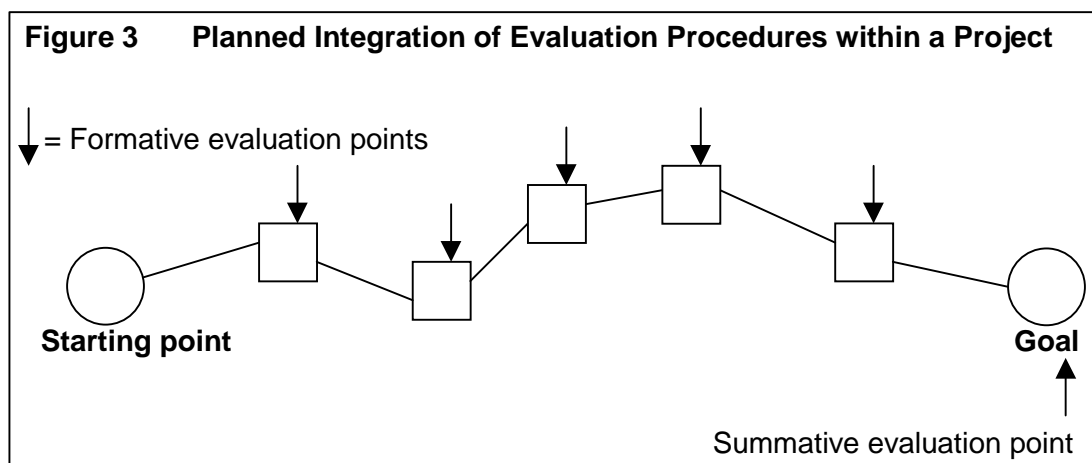
The foundation of effective evaluation is sound information. If we are to measure the progress of a project, we need to know where we are starting from. This will require the collection of base-line data. It may require the setting up of control groups, those that are part of the project and others that are not. As long as other factors are the same, it should be possible to measure the effect of the programme.

During a programme information relevant to your long-term goal and your indicators of success will need to be collected, processed analysed and acted upon. Whatever you do should be possible of being verified or audited by others so that objectivity can be shown. We need to specify from the start what information is needed, how it is to be collected, processed, used and objectivity audited.

Information should be relevant. In education and communication programmes you often need to use qualitative rather than quantitative techniques. These may involve structured interviews, questionnaires and other techniques. Training of staff may be necessary.

4.6 Rigorous planning

Evaluation needs to be planned as rigorously as the project itself - in fact it needs to be an integral part of the project plan. It needs to have aims, objectives, targets, procedures, schedules, responsibilities and, of course, a budget.



The plan will relate to two main types of evaluation:

- a) *Formative evaluation*: evaluation carried out regularly throughout a project to monitor progress and take corrective action as necessary.
- b) *Summative evaluation*: that comes at the end of a project to determine how successful the project has been at achieving its original aims.

4.7 Action

Formative evaluation is of little value if the results are not used to improve the performance of the project as it progresses. The evaluation plan needs to state how the results of evaluation will be used. If this is not agreed with project staff and stakeholders at the outset, then it can prove very difficult to make necessary changes because existing ways of doing things may have become entrenched and people difficult to persuade.

Summative evaluation will inform the programme participants of how successful they have been, but it needs wider communication so that others can learn from the experience. Publication in professional journals, on the Internet, talks at conferences etc. can all help to pass on the messages and lessons learned.

4.8 Validate

Most evaluation can be done by project staff and participants. However, there is also a need for external validation to show that 'what you say has happened has actually happened'. This should have been part of the original evaluation plan. It will probably require that an auditor has access to your information which shows that you have followed the correct procedures and interpreted the information reasonably.

4.9 Handy hints

- Keep it simple
- Minimise
- Standardise
- Make it verifiable
- Little and often
- Do most of it yourself

Evaluation all sounds a bit bureaucratic and time consuming, when all you really want to do is to make a difference! Anything you analyse seems to be more complicated than it really is, but this should not deter us. The following hints may help you get the task into perspective.

1. Keep it simple

Although it is an integral part, while you are evaluating you are not doing the project. Use the most simple methods you can to collect the information you need.

2. Minimise

Collect only the information you need: remember it needs to be processed as well and that takes time. Resist the temptation to collect information just because you can. Always ask yourself if you really need to know something.

3. Standardise

Very important if you wish to compare results from place to place or over a period of time. Also saves a lot of time collecting and processing.

4. Make it verifiable

Your methods and the quality of the information you collect should be verifiable so that an independent auditor can validate your results.

5. Do most of it yourself

It is not necessary to employ expensive consultants. If you plan evaluation properly, most of it can be done internally.

6. Little and often

That way you get regular feedback and a good indication of how well you are doing. Nothing is likely to come as a nasty shock!

4.10 Conclusion

Evaluation:

- Is a valuable tool
- Is part of the professional approach
- Promotes positive attitudes to our work.

Evaluation is a useful tool. Without it we will never know how successful we are being, and will never get that 'feel good factor' that comes at knowing something has worked and been achieved. Evaluation has attracted a certain mystique to it - something that 'only experts can do', and that we are on the receiving end. But I hope, after reading this, you will feel positive towards evaluation and are motivated to take responsibility, for it as a vital part of your project planning.

III Principles & Theory of Evaluation

5. Stepping Stones – Towards Quality Evaluation in National Parks and Protected Areas

Report of keynotes and discussion

The following points were raised during a series of talks and discussions on the topic of evaluation of education and communication programmes in protected areas.

The session was led by Søren Breiting, Eva Csobod, Petra Lindemann-Mathies and Søren Kruse. (Prepared from notes taken during the session.)

5.1 Towards Quality Evaluation - Nature Schools Project Denmark

Søren Breiting Royal Danish School of Education Studies

Consider a typical family going to a protected area. They have never been there before and are, therefore, 'blank sheets'. However, they have images, expectations and preconceptions. It is important to discover what these are. Do they simply see a 'bird' or do they know it as a 'white stork'?

When people visit a protected area they will experience a variety of efforts to teach them more about nature and environmental problems. The expectations (the 'goals') of the protected area staff are that these experiences will help the visitors to develop a greater environmental awareness.

After their journey the family is faced with all kinds of different experiences, e.g:

- climbing an observation tower
- entering a hide.

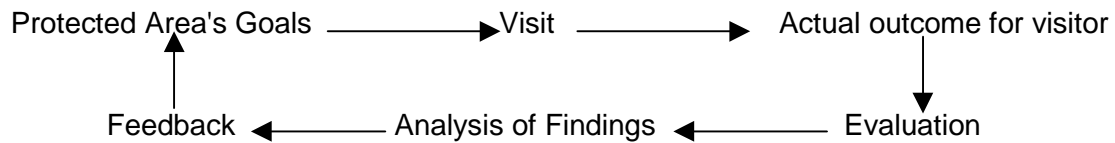
These encounters may be more exciting than the wildlife they actually see!

They are also faced with a plethora of signs, trails, the toilets, restaurant, shop, play area, guidebooks, posters, exhibits and interpretative displays. Will they return home enlightened and informed with new perspectives on the wildlife seen and the value of the protected area? Or are their experiences more superficial, such as:

- the scenery was very nice!
- the weather was good!
- the birds were exciting!
- that's the first time we've ever seen a snake!
- it was nice to sail on the lake!

Is this level of experience a success? Did they figure in the 'goals' for visitors to the park? They are the actual outcomes, but may not be apparent from the evaluation process. Can the actual outcomes be evaluated and compared with the protected area's goals?

How close are these outcomes to the goals that were set by the Park Managers?

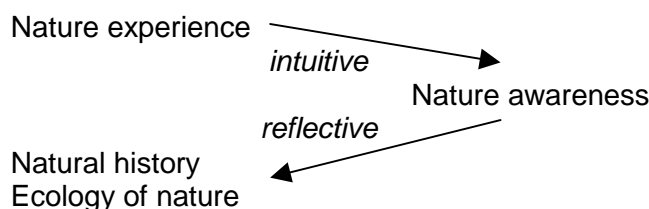


Evaluation and analysis of the actual outcomes for visitors is important for the fulfilment of the goals of the protected area and its communication programme; for identifying the success factors, and for modifying programmes and interpretation methods. It is essential if quality is to be improved and for determining the measures that need to be taken to obtain better results – i.e. results that are more in keeping with the protected area's intended goals.

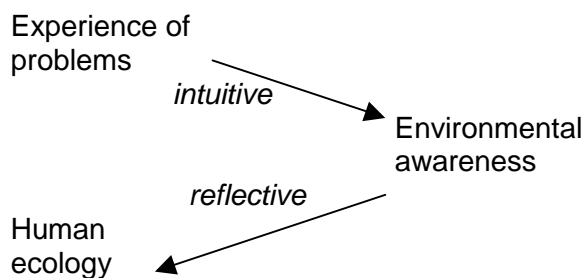
Success factors can operate at a variety of levels. There will be '*intuitive*' outcomes from the direct experience of nature. These are emotional responses concerned with feelings and increased awareness. They are the immediate outcome - the development of positive feelings for nature, for example.

However, as time passes there will be a more '*reflective*' outcomes' which are to do with a person's increased knowledge and understanding of natural history and ecological processes, leading on to an understanding of human impact on the environment.

These have implications for the timing of an evaluation. The immediate response is more likely to discover the results of the 'intuitive outcomes', whereas a delayed evaluation is more likely to be given at the 'reflective level'.



The same may be true for a direct experience of environmental problems – there will be an immediate intuitive reaction and increased awareness followed in time by reflection and enhanced understanding of human ecology and human impact on nature.



In the above examples: 'The ecology of nature' can also be described as 'The household of nature', and 'Human ecology' as 'Man's household on Earth'.

A major goal for the visitor's experience in a protected area is an increased understanding of the 'ecology of nature' – an increased awareness, knowledge and understanding of the interdependence of nature and of human impact – our use of and effects on natural resources – a mix of history of man and the history of societies.

Thus, field work in the ecology of nature carries with it:

- the emotional response - the development of positive feelings for nature
- the cognitive response - the understanding of how nature functions, leading to
- observation – man as a destroyer of nature. This latter response can often be the most difficult to handle.

Nature becomes 'environment' when it is seen through the 'spectacles' of human interests! How are we doing this? Are we dealing with 'democratic participation' in order to foster more environmentally active citizens or is it 'persuasion'?

Discussion points:

i) One aspect that was not covered by Søren's presentation was that of the moral approach to nature:

- *the recognition that nature has a right to exist in its own right and not just because it has a value to humans.*
- *that our generation has a moral obligation to pass on nature intact for following generations.*

ii) What were the goals of the park staff in organising the field excursions for the conference participants? Partly this was an 'ice breaker', but also to show valuable aspects of the area that are reasons for its designation as a national park – these in part are both factual and emotional. They also had in mind a demonstration of the visitor experience; some of the management aspects of the park and some of the conflicts that exist between protected areas and the land owners who may be trying to exploit it in other ways, e.g. the conflict in the Austrian part of Lake Neusiedel between the vine growers and the starlings that raid the crop; the measures that are taken to protect the crop.

Thus, the conference participants are not just average visitors - if there is any such person as an 'average visitor'!

However, there are some lessons from the experience:

- *active participation is more likely to make the experience 'meaningful'*
- *it leads to greater enjoyment – a positive emotional response*
- *it is an aid to learning some facts.*

Evaluating the experience can gain insight into all of these aspects which can be built into the goals for a protected area. We can evaluate 'factual' aspects:

- *enjoyment - the weather was good*
 - *the view was good*
 - *the company was good!*
 - *we saw interesting things*
- *knowledge gained*
 - *ask a number of factual questions*

However, there are also other criteria:

- people can say they are satisfied without being asked
- we can see 'smiling' faces
- we can assess interest stimulated through the number of questions asked.

There are many ways, therefore, in which educators can work more closely with protected areas and 'add value' to their general conservation activities. The evaluation data has a dual role – it shows the value of the park as a general visitor experience and its success in increasing awareness and understanding of conservation problems; it is useful 'ammunition' in persuading park management to allocate resources to enhancing the visitor experience and the educational function.

Nature Schools Project Denmark

Søren went on to describe a project involving five 'Nature Schools' involved in some 20 visits to protected areas. Teachers were involved in goal setting for the programme. An evaluation form was prepared asking the participants such questions as:

- What were the most exciting aspects of the visit?
- What did you learn?
- Make drawings of your experiences

The children participating were interviewed, their immediate reactions (intuitive) recorded and drawings collected.

These interviews were followed up 3-8 months later with the same children. The purpose was to obtain their more reflective response - to ascertain their recall, knowledge and understanding – i.e. the lasting impact of the visit. The pictures and questionnaire were used to recap and to stimulate discussion with the individuals concerned.

Teachers were also involved before during and after the visit in discussion; the results were analysed and the effectiveness of the programme in achieving its original goals assessed.

5. 2 Typical Properties of Qualitative and Quantitative Methods of Evaluation.

Eva Csobod

Quantitative methods can be applied to all participants, stakeholders and target groups. Qualitative methods are more restricted since these require interviews and the use of 'sampling' techniques.

Quantitative Methods

Used to collect quantitative information
- gives numbers and ratios
Easy to get a large sample

Qualitative Methods

Collects qualitative information
- gives in-depth information
Difficult to get a large sample

Possible to have a representative sample	Possible to show a variation
Questions are closed	Questions are open
Possible to use many questions	Only a small number of questions are used
Answers are fixed	Answers can be very varied
Easy to store the information	Hard to store the information
Easy to summarise the answers	Hard to summarise the answers
Easy to present as summaries	Hard to present the variety

Thus qualitative information provides much greater depth but is more time consuming. It will involve interaction between interviewer and interviewee, providing the evaluator with more valuable information than the more restricted range of answers obtained through quantitative data:

- Is there a 'communication' problem?
- Did the interviewee understand the question?
- What was the emotional response to the experience?
- What was the best/worst part of the visit?

Particular interests of the interviewee can be pursued in depth. It allows probing of answers and allows the interviewer to observe 'body language'. There may be a mismatch between what is said and the body language of the interviewee.

5. 3 General Evaluation Theory and Methodology'.

Søren Kruse Royal Danish School of Education Studies

Assessing the quality of an educational or communication programme is a matter of communication between people. In general, people are very polite to each other and so may not always be 'telling the truth' when it comes to evaluation. They may be saying '*what they believe the evaluator wants to hear*' or giving the answer that '*they think is expected of them*'. The evaluator must get at the truth, however. It is valuable, therefore to be aware of the general theory and methodology of evaluation, of learning theory and the consequences for evaluation.

General Evaluation Theory and Methodology

There are four generations of evaluation:

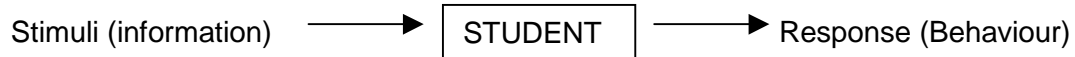
- i) *measures* - to assess objectively knowledge and skills gained
- ii) *description* - methods to identify processes and results in education
- iii) *assessment* – methods to judge the value of the education/process/result interactions (i.e. judgement instead of description)
- iv) *negotiation* - methods to produce a background context and visitor context for value-based statements.

A possible fifth generation is concerned with learning and improving the situation, i.e. about the future - history is important but the future more so. Thus, by interpreting the past - how the present has come about - we can go onto the future and produce change.

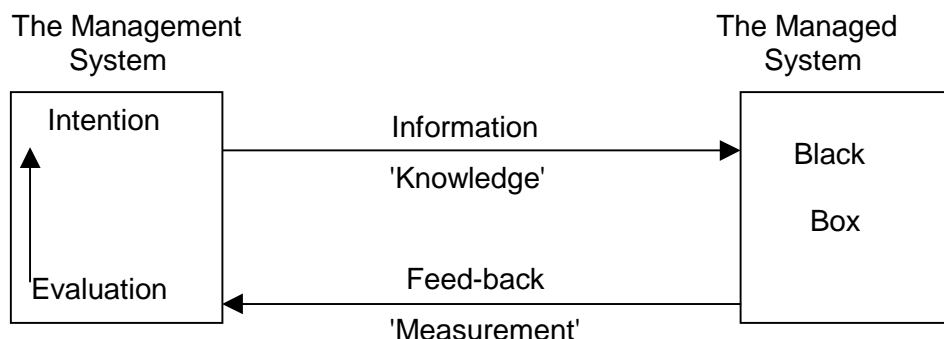
Learning

There are views of learning and evaluation from outside:

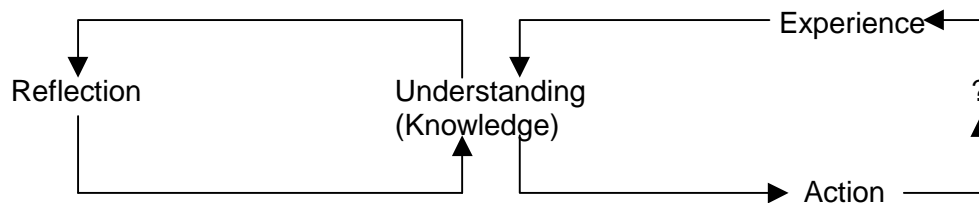
- i) Learning



- ii) Evaluation



In fact learning is a much more active process than the outsider's view. We learn best when we do something actively – we gain by the direct experience; we reflect about the actions in which we have been involved .



This can be seen as a cognitive model, but emotions follow the same process. From the 'insider's' viewpoint, two questions should be asked about evaluation:

- i) Is self-evaluation possible?
- ii) Is self-evaluation desirable?

This is because different values are held by managers, educators, stakeholders, visitors to protected areas, etc. The teacher has different perspectives from the audience and from that of their manager. It is like a ballet dancer who may perceive their performance as being like a swan or a flower, but the audience may perceive it as a fish, dog or octopus!

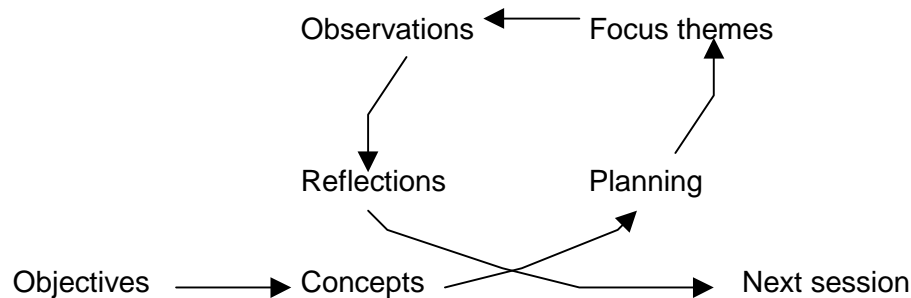
Thus, it may be that an external assessment will give a very different viewpoint on the results being achieved than if the educator was to do it as a self-assessment. Thus, we need others to look at what we are doing in order to obtain objective results, but there needs to be real communication between the evaluator and the teacher to maximise understanding of the values held and of the goals, and such communication is also vital with those who control the purse strings! It may in fact be a political decision that is the real control. We need strategies to communicate with the decision-makers so that they fully understand education values and goals.

Therefore, we need to know:

- Who is in power?
- Who decides what to describe and what is of value?
- Who decides the criteria for assessment?
- Which communication activity do we want to evaluate?
- Is it an assessment of the *process* or of the *product*?
- Do you assess in order to improve learning or for 'legitimation' (i.e. showing that your programme is beneficial?)
- Do you assess on the 'action' taken to improve the situation (i.e. the long-term effects; changes in people's behaviour)?
- Who's action is being assessed
 - participants?
 - teachers?
 - local or national organisations dealing with political change?
- What is the problem we are trying to solve?
- Is it in the power of the audience to help resolve the problem?

Although external assessment, sensitively carried out, is very beneficial, self-assessment of each educational or communication session is important too, if your own performance is to be continuously improved. The process is shown in the diagram:

A self-assessment process



This procedure is based on session planning. It has central objectives and concepts that the educator wishes to communicate to the audience. The assessment has a series of focus themes, and could be observed by a friend, a fellow teacher or colleague, or an external 'expert' assessor or as a focus for self-evaluation. Following up these observations is important. The teacher or observer asks a series of questions and reflects on the outcomes:

- What happened during the programme?
- How did it go with the focus-themes?
- Were the key ideas communicated successfully?
- What is the evidence for this?
- What could be done to improve performance?
- What is likely to work better? Why?

The answers are then incorporated into the planning for the next session, i.e. you do something with your results.

Other methods of assessment include:

- Workshops on 'Visions for programme development',
- Focus group interviews for quality assessment –
 - i) e.g. 10 adults interviewed beforehand asked questions about their expectations, current attitudes, knowledge, etc. and followed up afterwards on how far expectations were met, current perceptions, etc.
 - ii) Group of young people used for the same purpose,
 - iii) Questions asked about positive and negative aspects of the visit.

5.4 Quality and Evaluation in Protected Areas

Chris Maas Geesteranus

(Prepared from notes taken during his talk)

This talk is concerned with the process of evaluating the effectiveness of educational programmes with target groups in protected areas. It is an essential part of 'quality management'.

Someone who evaluates something (e.g. an education programme) is wanting to:

- establish its value
- discover whether aims (targets) have been met
- decide what changes (if any) need to be made and how to proceed in redesigning the programme
- gather evidence in order to account for the work to others.

With Environmental Education the approach used by the educator will differ with the target audience and the objectives of the organisation. The Environmental Education targets must be realistic and transparent - clear enough to evaluate.

Environmental Education programmes are most likely to be successful with the selected target groups if they are:

- demand driven
- relevant to their needs
- professionally delivered
- effective
- appropriate
- innovative
- encourage participation.

How can these qualities be measured?

Evaluation by a teacher support organisation will be different from that organised by a national park or protected area service.

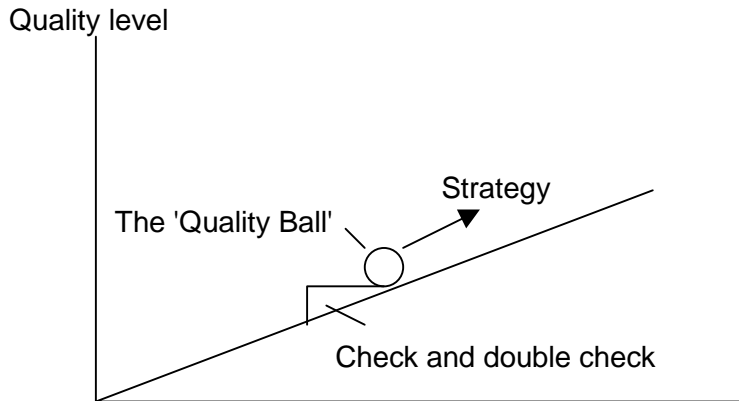
One of the problems in making an evaluation is finding criteria by which we can define quality:

- What is quality?
- Are we talking about the quality of products and processes or both?
- How can such evaluation be carried out by the individual?
- Who is making the judgement of what quality is?
- How is success perceived by the target group?

The criteria must be:

- Clear and verifiable
- Fair and acceptable to all concerned
- Objective and reliable.

In one sense the 'quality' of an educational programme can be likened to moving a ball up a slope:



A matrix can be drawn up for the evaluation process:

<u>Norms</u>	<u>Product</u>	<u>Process</u>
	What are the specifics?	How is it to developed?
Strategy	Does it fit with the organisation?	Is in line with the working methods of the organisation
Control	Who is involved internally?	Who is involved externally?
Check & Double check	How to ensure constant quality improvement?	How to keep in touch with the stakeholders?

What are we going to do with the results of the evaluations? If the results are poor what must be done to improve the situation?

IV Case Studies of Evaluation

6. Public Participation through Environmental Education and Communication Programmes – Effective Protection of Natural Sites in Brazil

Suzana M Padua President IPÊ, Instituto de Pesquisas Ecologicas
Director for the Brazil Programme, Wildlife Preservation Trust

6.1 Introduction

Today I would like to outline the field of Environmental Education and highlight some difficulties that we as educators encounter. I shall then describe the continuous evaluation model which I have adapted and utilised in many instances in Brazil, and applied to a participatory approach to acquire an effective community involvement.

As far back as 1974 Dr W Stapp, a leading name in this field in the US, defined the following goal for Environmental Education:

"Environmental Education is aimed at producing a citizenry that is knowledgeable concerning the total environment and its associated problems, aware and skilled in how to become involved in helping to solve these problems, and motivated to work towards their solution."

Subsequently, Dr Stapp's goals were analysed and broken down in detail, revealing its breadth and great potential at a key gathering of educators in Tbilisi, Russia, in 1977. At this meeting it became clear why Environmental Education can have a much greater impact than traditional education. A very concise explanation is that while traditional education deals mainly with cognitive gains and process skills, Environmental Education encompasses feelings, involvement, responsibilities, actions and a behaviour that reflects these values.

These Tbilisi principles were confirmed at the Rio Summit in 1992, and over the past few years many countries have adopted Environmental Education as the central focus for educational changes. The essence of Environmental Education is a change in paradigms; changes that occur from inside out; changes that affect how we behave. With the increase and intensification of environmental problems world-wide, we come to realise that if our actions are the cause of so many serious wounds to our planet, only we can heal or minimise the damage we see all around us.

Although this may seem clear and simple, why have we not progressed at a faster pace? There have been more than 25 years of progress in research and successful examples of Environmental Education programmes all round the world. Research has to identify adequate strategies for specific situations and for different target audiences. Studies by Hungerford and Volk, for example, show what makes people change behaviour and become involved in protecting the environment. These researchers encourage students to begin by investigating a local environmental issue:

- what is causing the problem?
- who is responsible?
- how can the situation change?

The results of this approach have been fantastic, with grammar school children discussing with congressmen the need to change certain laws (and changing them!)

We have seen that repression is not enough to protect natural areas. We also have examples of how negative human impacts decrease when Environmental Education programmes are implemented. The case studies I will show today have clearly demonstrated how people's involvement is important to ameliorate problems such as hunting and poaching, unfortunately common in many natural areas, and how it encouraged local people to participate in the protection of natural areas.

6.2 The need for research and evaluation

Research can be critical to help us be more effective. For example, we conducted a study in Brazil to assess how much parents learned from their children. Results indicated that contrary to the general assumption, parents do not learn from their children! If you wish to reach adults through their children you must keep in mind that information will not be transferred spontaneously.

Another study indicated which strategies were more effective when using nature trails. We tested four different treatment groups and compared them with a control group. Results indicated that statistically there were no significant differences between groups, but all treatments indicated differences when compared to a control group. Therefore, it not really matter what was offered.

The treatments included a slide show as a preparation for a nature walk with:

- i) self-guided tours
- ii) guided tours
- iii) guided tours with a manual
- iv) a group who were not shown slides but walked the nature trail with no prior information.

The lack of significant differences indicates that what is really important is the exposure to the natural world – a direct contact with nature.

All these findings are of great help, but environmental problems seem to outnumber all our achievements. This presents some challenges directly related to Environmental Education. Despite the apparent consensus of its importance, it is not uncommon to see Environmental Education included in conservation projects merely as an appealing buzzword to satisfy funders and supporters. When this is the case it does not seem to have credibility in the proportion to the ways it is mentioned, and resources allocated to the Environmental Education programme are often self-defeatingly sparse.

Many countries with rich concentrations of biodiversity have few resources to spend on protected areas. This is often due to the ever-increasing social and economic pressures on available funding. Conservation is rarely a priority in this scenario, and protected areas are frequently far from being protected effectively. In addition, programmes which involve education and public participation may not be actively encouraged by politicians because it increases people's awareness of the situation and its causes, and leads to demands for change to a *status quo* which may suit the politicians. Bringing everyone on board is difficult, but essential for effective protection of areas such as the Brazilian Atlantic forest.

Even though education is a slow process rather than a 'quick fix', we educators need to be able to demonstrate that Environmental Education is truly effective for conservation. In order to do this a programme needs to exist long enough to produce

results that can be disseminated and shared among other educators and conservationists. It does seem like a 'Catch 22' situation that we need to tackle as best we can.

Even among other conservationists, environmental educators have a hard time to turn theirs into a priority area. The reasons may vary, but frequently educators themselves are to blame. Very few programmes are evaluated and their results are consequently unclear. Despite apparent success, many education programmes produce no systematic data that can indicate effectiveness. The solution to increase credibility may be to identify 'core indicators', adopt research methods and incorporate assessment techniques that can help educators demonstrate the results of their programmes.

Additionally, Environmental Education is in essence interdisciplinary. This sounds beautiful and is in fact an all important trait. Nevertheless, Judy Braus, a researcher now with WWF-US. pointed out that Environmental Education does not have a home. It is not a science per se, nor is it ecology, nor geography, nor history and so forth. It is not even 'education' in the traditional sense. How can it be incorporated into so many areas of study? With a holistic approach that includes ethics for a better world for all species, Environmental Education needs to sensitise each and everyone of us to do our share in conservation related fields.

In developing countries we face additional problems, many of which are related to a lack of pertinent information:

- the access to literature is difficult. Developing countries have few libraries that carry periodicals or that are up-to-date with Environmental Education
- educators are frequently isolated in remote areas where communication is difficult in all ways
- the access to specialised short or long term courses is almost non existent. There is a lack of opportunities in many countries for training in Environmental Education at all levels.

Some countries face even greater challenges. Research studies that could serve as examples are usually published only in English and sometimes Spanish. These may be popular world-wide but are not understood in Brazil, for example or many African nations. Therefore, the sharing of information and networking are critical because educators need to improve their skills in order to face the environmental emergencies that may seem overwhelming and which seem to increase geometrically.

I mention these problems because the world is really a very small planet and what effects Brazil is affecting Austria and Hungary, and vice versa. In the search for effectiveness we need to share what is known, both the successes and failures. The successes serve as inspiration to other educators and understanding the failures can save time, energy and resources.

6.3 Environmental Education programmes in the Brazilian Atlantic Forest

With this in mind I would like to share with you the experiences I have had in creating and co-ordinating Environmental Education programmes for protected areas in the Brazilian Atlantic Forest.

In the Morro do Diabo State Park in Sao Paulo, efforts have been made to integrate local people with conservation. The Park protects one of the most endangered

ecosystems with an outstanding biodiversity. 82% of Sao Paulo State was once forest covered. Now less than 5% is left. Through regular activities developed with a communicator / teacher, the people began to develop a sense of local pride in their environment and felt empowered and able to actively participate in the Park's protection. The activities have included:

- plays
- running contests from 'the grey to the green'
- building floats for festivities
- a T-shirt competition for a 'lambada night'
- tree planting, and
- conservation campaigns.

A key feature of the programmes has been making them *fun*. Initially the programme focused on individuals, but institutions rapidly became involved - including the Forestry Institute and the Education and Agriculture departments, NGOs and businesses.

This participatory approach to environmental education proved to be effective in a just a short time. Logging has stopped and there has been a decrease in hunting, forest fires and unsightly garbage disposal. However, this programme suffered when the person responsible for the programme, who was a strong leader, left the area.

Based on the successes of the initial programme, another was developed for the Caetetus Ecological Station in Sao Paulo. This time, however, the programme was designed to make it capable of continuing and developing after the departure of the 'leader'. The local departments of Education and Agriculture, landowners from around the park and interested community members were all key supporters of the education programme that developed. An important success factor for getting local involvement was the development of a management plan that involved the participation of local groups in its implementation.

The Station's director began an open process, with meetings that all interested people were invited to and encouraged to attend. Problems and viable alternatives were discussed, and specialised professionals collected data for the chosen plan. In this process everyone felt responsible, as they were all co-authors of the decision. As a consequence, all segments of the local community participated in the implementation of Station's conservation plan. Landowners lent tractors and other machinery when needed; the Department for Education allocated a teacher to co-ordinate the school visiting schedules and other education activities; the Agriculture Department taught or helped with specific issues, and the local governments provided transportation and meals so students could visit the Station.

New conservation NGOs were created locally and now a group of very committed individuals supports the Station's protection. In only 4 years Caetetus became a landmark among the five surrounding counties, and a focus of local pride. Today, the model is being repeated in another protected area. The key element has been the use of participatory processes where steps are built together with local people.

6.4 Summary

- Strong leaders can achieve a lot in a short time, but for a project to survive the loss of a strong leader, the participants need to feel a sense of ownership of the project.
- Participation helps develop commitment to a project.

- Schools can be effective focal points for education programmes, but audiences should not be restricted to students alone.
- The programmes need to be designed for a broad range of audiences.
- Educators need to become facilitators and work through respect for local people and groups. In turn, these increase their self-esteem and empower them to act.
- Local involvement can begin with motivated individuals.
- Involvement of local and national institutions is to be encouraged.
- Look for a goal that everyone can give their consent to.
- Education should not just be about informing people - it should help build the capacity of local people to work towards sustainable lifestyles.
- Evaluation is necessary to obtain sound data on the effectiveness of education projects.
- Success should be judged by the impact on the community as well as conservation.
- Those wanting to achieve sustainable development goals need to learn how to communicate more effectively with people at all levels from local farmer to federal administrator to avoid isolation, opposing objectives and lack of support.
- Strong arguments should be made to convince donors that education is an important but long term process and needs long term financial support.

6.5 A Programme Evaluation Model

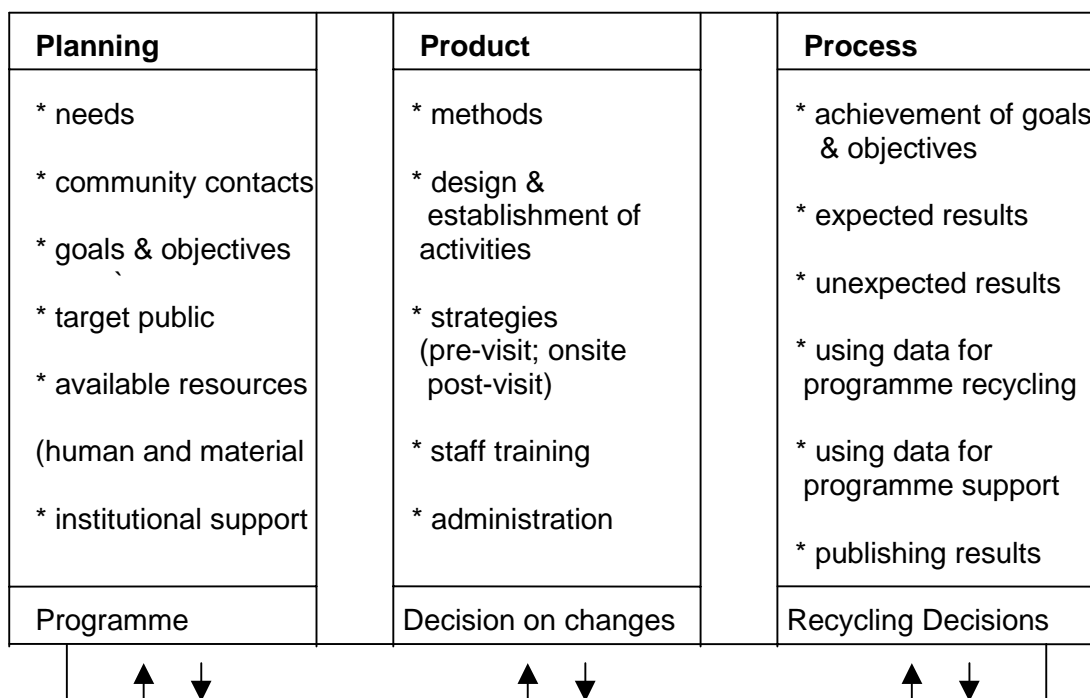


Figure 1. The PPP Model for Programme Evaluation

(Modified from Jacobson 1991, and Padua and Jacobson 1993.)

In: *Planning Education to Care for the Earth*. IUCN, 1995.

IV Case Studies of Evaluation

7. Evaluation of the effectiveness of Environmental Education in the National Parks of the United Kingdom

David Brinn Education Officer, Brecon Beacons National Park
7 Glamorgan Street, Brecon, Powys, LD3 7DP UK

7.1 Introduction

There are 11 National Parks in England and Wales. They are mainly located in the North and West where the countryside is more rugged and population densities lower. These are not Parks of the Yellowstone Pattern - that is, they are not of the IUCN Category II type. Rather, they are Protected Landscapes conforming to the IUCN Category V description. People live and work in these Parks. We have to try to balance many potentially conflicting interests and expectations.

My own Park, the Brecon Beacons National Park, extends over 134,420 hectares, and has 32,000 residents. 70% of the land is privately owned by farmers.

Around 3½ million people visit the Park each year. Schools and colleges in-and-around the Parks use them as places in which to study. Also, the Parks are used extensively by school and college groups from more distant locations, who come to them for study visits.

The Parks were the product of legislation which was enacted in 1949. Educational resources were not specifically prescribed in the legislation but those involved with running the Parks were given the responsibility for securing that *"Persons interested will be able to learn about the history, natural features, flora and fauna of National Parks and objects of architectural or historical interest therein..."*

It is worth reflecting that since their inception the UK Parks have invested tens of millions of pounds in education and the Parks are used by education groups more than any other areas in Britain.

The Parks were given a great deal of autonomy and they evolved differently. Information and Education programmes varied from park to park. For example, there were:

- courses at residential study centres
- programmes at day visit centres
- interpreted guided walks
- field studies
- distance-learning provisions
- lectures, and
- teacher-training provisions.

The Peak Park developed the renowned Losehill Study Centre; the Lake District produced excellent curriculum-related teaching aids, and Snowdonia broke ground with initiatives for safety in educational visits.

Efforts to evaluate the effectiveness of the programmes provided were not very sophisticated. Some questionnaires were in use - but in effect '*customer satisfaction*' was gauged rather than the specific educational gains for the Parks.

In the early 1990s, the status and effectiveness of the Parks were reviewed and in the Edwards Report entitled "Fit for the Future", a process was started such that service-performance monitoring was looked at. (The Parks' educational role was included in these discussions.) Unfortunately, it now seems as though we will be required to play the numbers game. Success will be gauged from the number of students we deal with - "Bums on Seats" - with our Park-grants being increased only if we can demonstrate quantitative growth. This says little about the 'quality of service' offered.

In 1995, 'The Environment Act', reflecting the Review findings, re-defined the purposes of National Parks in the UK. The National Park Authorities were now instructed to "... *promote opportunities for the understanding and enjoyment of the special qualities (of the Parks) by the public.*"

As well as the Environment Act, there were other influences in the mid 1990s. All the Parks were looking at *Sustainable Development* as an issue to be addressed in their plans, and there was also concern about the level of Government and public support for the Parks. In some Parks the educational role changed so that Education for Sustainability and Education for Participation were considered to be a logical extension to conventional Environmental Education. For example, in the Brecon Beacons National Park the role of education was looked at in terms of its likely contribution toward developing understanding and support for its objectives and the contribution that could be made toward a wider acceptance of the principles of sustainability.

The questions '*WHY are we educating*' and '*HOW best should we educate*' were discussed as a result. Also at that time, in the Brecon Beacons National Park, a pilot-project revealed that children were worried about the environment - often for complex reasons, and showed that they were pessimistic about the future. Questioning revealed that their understanding of environmental issues was often flawed. In a survey of 1,000 pupils in the 7 to 11 age-range 20% were deeply worried about the environment and 30% often worried about environmental issues. We are currently looking into these worries.

It is not the function of this present talk to elaborate on these findings but it is worth noting just a few points:

- *Litter* was seen to be the biggest problem, whereas
- *Population Growth* was least worried about
- *Consumerism* only attracted 50% of the concerned "votes".

Perhaps this was to be expected with children but we will be looking further at their perceptions. Optimism was in short supply. Less than 15% of the children believed that the world would be a better place by the time they reached adulthood, and some seemed resigned to ecological failure. We are expanding this project because the preliminary findings, if confirmed, may have an influence on our educational activities.

With all these changes and influences it was felt necessary to share concerns and experience. So, in 1997, the Education Officers for the UK Parks met in the Lake

District. Among several topics on the agenda, the *evaluation of educational programmes* was considered. The 3 Parks in Wales were asked to form a Working Group and, hopefully, start a project to explore evaluation methods. Trinity College Carmarthen and the advisory service for a local council's education section were invited to join the group.

7.2 Setting up the evaluation process

The Working Group soon became aware of the complexities of the task. Gains in knowledge and understanding resulting from the Parks' educational programmes can be fairly easily measured. Attitude shifts and behavioural changes would, however, be very difficult to assess. It was also recognised that the Parks' educational programmes were only one element in a whole range of influences that help determine the overall educational effect. We have to recognise such influences. It also became clear that, for this project to move forward from the simple to the complex, we would require external, expert assistance. How far can we, in fact, go?

However, we wanted to *start the process* if only to add to our understanding of the problems - leaving understanding of the solutions until later. To do this, a questionnaire to probe children's knowledge and understanding following Park educational programmes will be used. This will be trialled during the Academic Year which has just started. The Working Group then considered the possibilities for the application of a landscape-evaluation technique, based on a series of artists' impressions, to probe attitude changes. The Yorkshire Dales and North York Moors National Parks used landscape-drawings in their public consultation exercises. Our education project will use 4 landscape-drawings and a very simple questionnaire to gauge any attitude changes - initially in children (of the 9 to 11 years age group) following participation in a Park educational programme. The 4 landscape drawings will depict:

1. A typical view of the National Park at present.
2. The view likely to follow-on from the failure of traditional agriculture.
3. The view likely to follow-on from a weakening of development control powers.
4. The view which would reflect the balance that the successful application of National Park policies would produce.

Before taking part in a National Park Educational Programme:

Pupils will be asked to choose the picture which they would wish to represent the Park landscape they would like to 'inherit' when they grow up. They will be questioned about their reasons for choosing that picture.

During the National Park activity:

The leader will explain in simple terms the reasons behind the National Park's management policies (for example, in the Brecon Beacons National Park, having small woodlands; viable farms being sensitively farmed, control of building in the open countryside, etc.). In other words, describe the elements of a landscape which would reflect ideal National Park management.

After the activity:

Children will be asked to carefully look again at the pictures and choose once more. If they do change their selection they will be questioned as to why they changed. The children will be told that *their* choices are what matters and that in a sense there is *no correct answer* - different people have different attitudes toward countryside and this is what we want to gauge. What will be interesting is to note whether there any

measurable attitude shift has taken place *after exposure to the information given during the educational programme*. If so, will this be in a direction which parallels that hoped for by the National Park? We fully recognise that this approach is by no means simple and, as we progress along the learning curve, we may well have to modify our ideas. We are also anxious to talk with others who have advanced further into this complex area than we have.

IV Case Studies of Evaluation

8 Evaluation of Success or Success of Evaluation?

Ruth Grant, Scottish Natural Heritage (SNH)

8.1 Introduction

This paper is about our experience of evaluating interpretative projects relating to National Nature Reserves (NNR). We see interpretation as an educative tool, which not only enhances visitor understanding and appreciation of a place, but also encourages people to value the special qualities that led to its designation for nature conservation. Tax payers' money is used to pay for conservation and it is important that the public understands and supports the role and importance of the suite of Reserves as well as appreciating the 'specialness' of individual Reserves. We need to know whether our interpretation projects are meeting their objectives, so evaluation is built in to project planning.

8.2 What are National Nature Reserves?

The National Nature Reserves (NNR) in Scotland protect some of our most valuable wildlife and geological sites. They include:

- mountain
- peat bog
- freshwater, and
- semi-natural woodland or grassland habitats.

Some habitats are coastal so include cliffs, sand dunes or estuaries. Many have a combination of features, which together make them important places to protect. In common with all parts of the UK, none has escaped the hand of Man. Indeed few include actively managed farming, woodland or sporting activities. Many are close to where people live and to major tourist routes. These are often popular with visitors. A few are very remote, known only in name by the public - if at all.

Unlike many sites designated under the EU Habitats and Species Directives, some NNR are owned (and many are managed) by SNH, the Government's agency for protecting nature and promoting enjoyment and understanding of it. While informal recreation was not the purpose of designating the Reserves we recognise that visitors and conservation can be compatible in many places, if carefully planned and managed. We have a responsibility to help people to enjoy the places that are protected for our future.

8.3 Educating people about NNRs

Some NNRs are used for a variety of educational purposes, from fieldwork done by local schools to university research projects; from local people volunteering and thus helping to promote the reserve within their own communities to public open days. This paper concentrates on education of the public achieved through interpretation.

Most often interpretation is provided on site, or close to the Reserve. It is often low key (an identity sign with a small amount of information, a leaflet or perhaps an interpretative panel or two) reflecting the prime purpose of the site as a reserve - a place to be discovered, rather than widely promoted. A few robust Reserves in

popular tourist areas have higher profile provisions, even quite a large-scale visitor centre. Sometimes local people are involved in planning and providing interpretation, a process which itself can be a learning experience. There is perhaps more scope to do this than we have done so far.

It is equally valid to bring the NNRs to the people by providing education away from sites, to highlight the special nature of particular reserves and to promote the importance of NNRs as national “treasures”. Indeed for one of my examples it would be impossible for all but a handful of people ever to visit the place.

Evaluation is critical, showing how successful we have been in spending public money on educating people about their Reserves and allowing us to learn how to do better next time. In the two examples described we have allocated between 5 and 10% of the project budget to evaluation.

8.4 Two examples

i) Rhum

Rhum is an island off the west coast reached only by the ferry which runs three times week, and boats carrying tourists in summer. There is limited accommodation on the island so the numbers staying there will always be small. But an increasing number are going on day trips, to experience the spectacular boat journey and spend a couple of hours on the island.

Rhum holds many interests for the visitor - its geology which has told us much about ancient volcanoes and determined the island's topography; its history from pre-historic incomers to its early twentieth century use as a private “play ground” for a rich industrialist; its variety of wildlife; and the programmes of research and restoration done by SNH and its predecessor, the Nature Conservancy Council.

Rhum the Rock Cocktail is a panel or poster designed for reading on the ferry or tourist boat trip to the island. It is only one part of the planned interpretation, but I have selected it as an example of low key provision, and a particular way of evaluating *before* committing a lot of money. In planning the project:

- First we found out about the visitors who go to Rhum
 - who are they?
 - what interests them?
 - what do they already know about the subject of our interpretation?
(Answer - very little!)
- Then we decided *what we wanted them to know* about Rhum's geology.
- Finally we determined how to do this, using the boat trip, from which - weather permitting - there are good views of Rhum and islands of contrasting shapes due to their different rocks.

Within SNH we have frequent discussions about what to tell the public, how best to communicate, in order to achieve our interpretative objectives. Sometimes there are divisions between our scientific staff and our environmental educators about the approach and the amount of detail. So for this project we produced two versions of the story and are now testing which is more successful in 'getting over the message'. This is quite easy to do, as visitors are 'captive' for two hours! Only once we know which approach our visitors prefer will we produce the final version. We will be able to prove our money is well spent because we know we have chosen the best way for visitors learn about what they are interested in as well as the things we intended them to learn. Not only that, but we will have a case study to use with our staff who

don't have a background in education or interpretation and don't always put themselves in the visitor's shoes!

ii) St. Kilda

My second example is much larger in scale. *St Kilda Explored* was a major exhibition which looked at this unique remote rocky archipelago at the north-western fringe of Europe. Few people are privileged to visit St Kilda, but many have heard of it without really appreciating its story. Perhaps they have heard of the evacuation of its population 60 years ago, when it was judged that a resident community could not be sustained. But the public has little knowledge of the lesson there are for today's debate on sustainable communities; or of the research into both the human history and wildlife; or of the protection given by its status as a World Heritage Site and NNR.

How could we increase public understanding of its importance? The answer was to take the story to the people of Scotland. In partnership with Historic Scotland, the National Trust for Scotland (who own St Kilda) and Glasgow City Council we put on a major exhibition in Scotland's largest city, followed by a tour of parts of the exhibition to other parts of Scotland.

Glasgow Museums was a natural partner as its collections included quite a lot of St Kilda material, as well as giving access to its annual 1 million visitors. The museum already knew a lot about its visitors, through regular surveys (a way for us to save money on project planning!) and a formative survey (questionnaire) told us what they knew and felt about St Kilda. Examples of the questionnaires used are at the end of this paper.

The exhibition was planned carefully, with keen attention to:

- measurable learning outcomes (what did we want people to know, feel or do?)
- attracting maximum visitor participation
- summative (questionnaire) surveys, and
- tracking (observing what visitors did) surveys.

These provided evidence of how the objectives were met. Also people could pin up their response, in words or pictures, providing another way to gauge the impact (one talented cartoonist put up a new response each week and these were published in the city's newspaper!). Other survey work included finding out how museum assistants fared in their new roles as interpreters, and analysis of project planning and implementation by the partners.

We found out that:

- our interpretative objectives had largely been met
- people enjoyed many of the interactive elements in the exhibition. This was especially true of an "archaeological dig" (a sand-pit with artefacts buried) and a "laboratory" which allowed people to explore details of their own choice at their own speed
- the hands-on role of the museum staff as active interpreters was also successful, and justified the money which SNH had invested in this part of the project
- some elements worked less well, including the more "scientific" activities; and people did not spend a great deal of time reading information boards
- most importantly people said that they felt that it was very important to look after St Kilda and places like it even though they could never visit themselves.

The evaluation of project planning from the perspective of the partners enabled us to learn a great deal learned about how to deliver complex projects of this type. This provided valuable experience for an exhibition called *'Wild Wet and Wonderful'* being held this year (1998). This time we have used a topic - peat bogs - and taken the exhibition to the communities where bogs are part of everyday life, perceived at best as a source of domestic fuel and at worst as a wasteland to be drained or dumped on.

8.5 Summary: Success of evaluation - evaluation of success:

My golden rules

1. Know about your audience - who are they and what interests them?
2. Decide what you want people to learn (to know, to feel or to do)
3. If possible, test out some ideas before spending a lot of money on the programme
4. Build appropriate evaluation into the project plan from the start
5. Use what *you* learn next time, and tell others about what you have learned!

**Examples of Questionnaires Used to Evaluate the 'St Kilda Explored'
Exhibition**

1. Development Process Audit

ST KILDA EXPLORED

Development Process Audit

This is a confidential questionnaire to gather the views of all the participants in the planning, design and construction of St Kilda Explored. Please complete the following questions as fully as you wish and send in the accompanying envelope to ----- who will be compiling a report.

Your comments will help in the planning of future exhibitions

What do you feel went well with the planning and installation of the exhibition?

What did not go well?

How would you like to see these elements changed in the future?

Did you enjoy the time spent on the exhibition? Why?

Do you have any suggestions which might help in future exhibitions?

Thank you for your time.

2. Summative Evaluation to Visitors to St Kilda Explored

I work for Glasgow Museums and we are interested in your opinions about this exhibition. Could you spare me a few minutes to answer some questions?

1. How many times have you visited the St Kilda Explored Exhibition?

- a. This is the first time
 - b. Twice
 - c. Three times
 - d. More
- Please say-----

2. How long did you spend in the exhibition today?

- a. Up to five minutes
 - b. Up to fifteen minutes
 - c. Up to half an hour
 - d. More
- Please say-----

3. Did you have to wait your turn to see or use any part of the exhibition?

- a. No
- b. Yes, up to 5 minutes
- c. Yes, up to 15 minutes
- d. Came back later
- e. Too busy, and did not see or use
- f. Out of order?

4. Now that you have seen the exhibition, what did you like best?

5. What did you like least?

6. Which of the following things do you remember looking at in the exhibition?

- a. The introductory video
- b. The photograph albums
- c. The young puffin area
- d. The art around the walls
- e. The objects in the drawers
- f. The extinct area, the Great Auk and the people
- g. The leaflets on conservation bodies

Which of the following activities did you take part in?

- a. Measuring the Soay ram
- b. Counting birds on the video
- c. Counting puffins in the burrows
- d. Surveying the house
- e. The excavation
- f. Sorting the samples in the trays
- g. Reading the folders
- h. Using the microscope
- i. Using the computer
- j. Writing comments on the board

8. Please read the following pairs of statements and say which one you agree with most strongly. (SHOW CARD)

- a. I did not like finding information about St Kilda for myself
- b. I enjoyed finding out about St Kilda for myself
- a. This way of displaying objects made me think
- b. I prefer exhibitions where objects are displayed in sequence in cases
- a. There was something of interest for all ages
- b. The exhibition was mainly for children

9. Which methods of supplying information did you find most useful? You can choose more than one. (SHOW CARD)

- a. Introductory video
- b. Leaflets
- c. Text in panels
- d. Labels in drawers and glass cases
- e. Folders
- f. Books
- g. Talking to exhibition staff

10. Which of the words describe how the exhibition made you feel? You can choose as many words as you like. (SHOW CARD)

- | | | | |
|------------|--------------------------|-------------|--------------------------|
| Frustrated | <input type="checkbox"/> | Intrigued | <input type="checkbox"/> |
| Annoyed | <input type="checkbox"/> | Interested | <input type="checkbox"/> |
| Bored | <input type="checkbox"/> | Challenged | <input type="checkbox"/> |
| Confused | <input type="checkbox"/> | Fulfilled | <input type="checkbox"/> |
| Puzzled | <input type="checkbox"/> | Stimulated | <input type="checkbox"/> |
| | | Comfortable | <input type="checkbox"/> |

11. Thinking of the islands themselves, do any of these words describe how the exhibition made you feel about St Kilda nowadays? (SHOW CARD)

- | | | | |
|--------------------------|--------------------------|---------------|--------------------------|
| Concerned for the future | <input type="checkbox"/> | Indifferent | <input type="checkbox"/> |
| Protective | <input type="checkbox"/> | Apathetic | <input type="checkbox"/> |
| Hopeful | <input type="checkbox"/> | Irrelevant | <input type="checkbox"/> |
| Worth studying | <input type="checkbox"/> | Waste of time | <input type="checkbox"/> |
| Want to visit St Kilda | <input type="checkbox"/> | | |

12. In general do you think that your visit to the exhibition will make you feel more positive about caring for:

- | | | | | |
|----------------------------|-----|--------------------------|----|--------------------------|
| a. The natural environment | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| b. Archaeological remains | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| c. Buildings | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |

Finally, some details about you...

13. Where is your normal residence?

- a. Glasgow
- b. Central Scotland
- c. Scotland
- d. Elsewhere in UK
- e. Abroad

14. Sex of visitor?

- a. male
- b. female

15. Which age range do you fall within?

- 16-19 20-24 25-34 35-44 45-59 60+

3.

ST KILDA EXPLORED

SUSTAINABILITY SURVEY

INTRODUCTION: Scottish Natural Heritage helped us by paying part of the cost of this exhibition. We are conducting a small survey on their behalf. It would help us, and SNH, when we prepare exhibitions in the future if you could answer a few questions – it won't take long.

We have already asked a large group of our visitors if they thought it was important to protect St Kilda for the future and 96% said it was very or quite important. The question I am going to ask you explores the reasons behind such an opinion and any reasons against it.

1. Now that you have been round the exhibition, what reasons can you imagine people giving to support the position that it is important to protect the island?

2. And can you imagine what reasons people might give for supporting the position that it is not very or not at all important to protect the islands?

3. Changing the subject slightly, has visiting the exhibition made you feel that you personally are more likely than before to think about conserving things in the environment?

- a. Yes
- b. No
- c. Already do
- d. Don't know

4. Is there anything in particular that you do now that helps to conserve things in the environment? (SHOW CARD)

- a. Recycle glass
- b. Recycle paper
- c. Use public transport
- d. Use bicycle
- e. Use unleaded petrol
- f. Use power sparingly
- g. Other

Please say-----

The exhibition describes the life of St Kilda lived before the accepted 'extras' from the outside world. They took enough from the things in their environment – the birds, the sheep, fuel and building materials - to sustain their life style, whilst ensuring that there would always be enough there for tomorrow.

5. Do you recognise that the lifestyle of the people of St Kilda at that time, while hard, was entirely sustainable?

- a. Yes
- b. No

We live in an entirely different world to that inhabited by the people of St Kilda. The resources for maintaining the way we live, and the way people live in other places, come from all over the world.

6. Do you think it is important that people of our times make every effort to sustain the resources which are available in the world? Choose one:

- a. Very important
- b. Probably
- c. Not important
- d. Impossible

Any comments?

Finally, some details about you...

7. Where is your normal residence?

- a. Glasgow
- b. Central Scotland
- c. Scotland
- d. Elsewhere in UK
- e. Abroad

8. Sex of visitor:

- a. male
- b. female

9. Which age range do you fall within?

- 16-19 20-24 25-34 35-44 45-59 60+

**Thank you very much for your time and attention.
Is there any question you would like to ask me?**

Visitors were tracked to see how they used the St Kilda Explored Exhibition.

ST KILDA EXPLORED

TRACKING SURVEY

Components of the exhibition included in the tracking survey.

Time visitor entered? ___ Time spent in K8? ___ and K9? ___ Time of exit? ___

Sex of visitor? ___ Approximate age? ___

Leaflets Collected

1. Introductory
2. Introductory
3. Survey
4. Archaeology
5. The St Kildans
6. Buildings
7. Soay sheep
8. Mammals
9. Birds
10. Marine
11. Organisations

Objects/Art

1. Blackhouse
2. House 8
3. Old photo albums (+ time?)
4. Photo of Dun
5. Ina's photos
6. Photo albums (+ time?)
7. Liz Ogilvie's work
8. Norman Ackroyd etchings
9. Vanishing St Kildans
10. Great Auk

Information Panels/Video

1. Introductory video (+ time watched)
2. SNH panel
3. Introductory panel
4. House 8 panel
5. Village plan
6. Survey plan
7. Buildings and How panel
8. Archaeology panels
9. Discovery room panels
10. Answers panel
11. Gash sample instructions
12. Acknowledgement panel

Interactives

(looked at/time spent doing?)

1. Soay sheep
2. Bird count
3. Puffin burrow
4. Survey
5. Excavation
6. Young puffin
7. Finds identification
8. Gash samples
9. Microscope
10. Computer
11. Comments board

Workbooks

1. Young puffin books
2. Archaeology workbooks
3. St Kildan workbooks
4. Buildings workbooks
5. Soay and mammals workbooks
6. Birds and marine workbooks

IV Case Studies of Evaluation

9. How Do We Measure "Having a Good Time"?

Peter Iwaniewicz

Federal Ministry for Environment, Youth and Family Affairs

I would like to start with a brief overview about some basic criteria on which national parks are set up. According to the IUCN, a *national park* is:

- i) a protected area mainly for ecosystem protection and **recreation**
- ii) a natural area of land or sea, designated to provide a foundation of **spiritual**, scientific, **educational**, **recreational** and **visitor opportunities**

These definitions make it sound as we could have a really good time in such a place! Let's take a look at the management objectives for protected areas, Category II.

Preservation of species and genetic diversity	1
Maintenance of environmental services	1
Tourism and recreation	1
Scientific research	2
Wilderness protection	2
Protection of specific natural/cultural features	2
Education	2
Sustainable use of resources	3

We can see that not only nature protection, but visitors too, are an essential part of the concept of protected areas. Education is - interestingly enough - ranked only as a secondary objective.

What can visitors expect when they come to a National Park?

I browsed through the different offers from our National Parks and will give you a brief survey of what I found:

Information Centres:

There you buy can **merchandise** like:

- maps and books
- traditional products of the region like wine, clothing (for example made of felt) and other specialities
- souvenirs and all kinds of paraphernalia.

You can also:

- **Visit exhibitions** or in some cases a **small** animal park, where you can feed and touch some animals.
- **Follow trails**, where the visitor can follow a marked path with signs giving information about plants, animals, landscape and ecology are placed along the trails.

Join in guided tours:

There is a variety of different offers, most of them are focused on nature, but in some cases there are tours with a focus on cultural topics. These cultural offers, such as a visit to a historic working place or a coach-ride, are organised by the municipality or another organisation in the region.

What problems do National Park Administrators have to face?

In 1996 The Austrian Federal Environment Agency compiled the results of an international survey on the subject of **Planning and Management of National Parks**. In Chapter One we find an interesting table about the major problems in a National Park:

Research	29%
Acceptance	31%
Administration	35%
Visitors	46%
Finances	70%

When I was invited to give you a case study, I tried to find information about evaluation methods and programmes that are used by the Park. In one case I heard about a questionnaire, but in general there are no structured ways of getting feedback from the visitors. I talked a lot to the people with responsibility for the NP and this is what I heard:

- Many visitors don't have enough time.
- It is easier to get 400 öS, than 4 hours of time from the visitors.
- They expect some kind of a zoo, where everything can be seen at any time.
- We are at our limits with the personnel resources available.
- Quality is better than quantity.
- Our programmes focus on biology and ecology. For adventure or entertainment there are other places to go.

What I could not investigate, was any study of the **needs of the visitors**, especially the needs of those, who have never been to a National Park.

We do know the main target groups seen by rangers or guides. A study was made 1997 by ARGE Umwelterziehung, which you probably know best through Monica Lieschke!

Here is an abbreviated overview of the results:

Senior citizens	4 nominations
Kindergartens	5
Students	6
Teachers	6
Austrian tourists	9
Special interest groups	12
Families	19
Foreign tourists	23
Primary schools	61
Secondary + high school	128

Let's put it all together:

We should educate and provide people with recreational opportunities, but from the view of National Parks, people are often seen as a problem. We don't know anything about their needs, maybe because we fear that their aims and wants are not compatible with the goals of the administrators.

To find answers to this question, we could ask the visitors fill out questionnaires, but with this method we don't get any impression of why a lot of people do not come to a National Park.

What 'having a good time' mean?

A psychologist named Mihaly Csikszentmihalyi, has been studying states of optimal experience. He gave people in different societies from all over the world a timing device, and every time the clock beeped, they had to write down how they felt and what they had been doing at that moment. The conclusion was, that 'feeling fine' is not simply a question of money or social status, but a question of the right challenge. On one side of the scale is **boredom** and on the other side it's being **overly challenged**. If people reach an optimal balance between this two sides, than they are so involved in what they doing that time flows. On this base Joseph Cornell developed his concept of **Flow-learning**, which is now widely used by people planning outdoor activities - even in National Parks.

Resumée:

The thing that I perceive is that National Parks do a lot for the needs of small groups of people - those who are nature lovers. But if we want to spread the idea of National Parks, the idea of ecosystems, of biodiversity etc., then we have to reach more people and they will only come if a visit to a National Park if it promises that they will 'have a good time.'

- It's a challenge to combine the goals of protection with the visitors' needs
- We need to know more about these needs
- If we want to spread the idea of the importance of nature conservation, we must keep National Parks open for everyone.

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10 Moving Forests: a project aimed at promoting sustainable forest management. Guadiana Valley Natural Park, Portugal

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(Prepared from notes)

Protected areas are frequently created in sparsely populated areas with weak economies. In other words, the local people are poor. Local communities often object to a protected area because they consider it yet another burden of restrictions and prohibitions to the area's development that they think might take them out of poverty. This is to be expected when a management plan is developed without giving local communities a say in how their area is to be used.

The Guadiana Valley in Southeast Portugal includes some of the best riverine ecosystems in the Iberian Peninsula and, indeed, the whole Mediterranean. It hosts a rich endemic flora and several threatened animal species including the black stork, Egyptian vulture, great bustard and otter. Since its foundation, the Association for the Protection of the Mértola Heritage has had the objective that the area should be protected. Their intense lobbying was strengthened when it joined a WorldWide Fund for Nature international project. In 1991 it was designated as a Park.

The Association has emphasised the benefits of the area becoming a Park and is now working with the various stakeholders to involve local people in the development and use of the areas for education and other activities. A network of local teachers is supported to carry out environmental education in the area to make it a centre of excellence, locally and nationally. Farmers, hunters and labourers are increasing economic activities that are linked to conservation.

The management plan is being drawn up at a series of workshops attended by the stakeholders. Experts are available for local people to question and to learn from. It represents a forum where common goals can be built up and any conflicts aired and resolved. A manual is being prepared which will have a high profile public launch. The involvement of stakeholders from the start means that the final management plan will be welcomed and actively supported by the local community.

The project is being paid for by WWF in the first year only. After that it will put in a decreasing proportion until the project is self-financing.

What has been learned?

- People often perceive conservation as restricting their opportunities for economic development.
- Conservation and sustainable development need to be presented as beneficial developments.
- Financial benefits from implementing sustainable development helps get support for the programmes.
- Seeking the involvement of local people in the development of a local area management plan can help it gain acceptance.
- Involve local people from the start - at a time when they can have most influence over the outcomes.

11. The Šumava National Park: Information System, Family Programmes and Co-operation with the Bavarian Forest National Park.

Martina Ptakova National Park and Landscape Protected Area, Šumava, Czech Republic

11. 1 Introduction.

In 1991 a large portion of the Šumava mountains situated along the SW frontier of the Czech Republic was declared a National Park. This represents the highest category of nature conservation in the Czech Republic. Šumava National Park is the largest and undoubtedly the most important national park in our republic. Due to its size, 69,000 hectares, it is amongst the largest of the European national parks. Woodland covers 80 % of the Park and almost 9,000 ha of the forests are now left to natural development without any human impact.

11.2 Information system

Fewer than 2,000 permanent inhabitants live in 8 municipalities within the Šumava National Park. In 1997, 1.75 million visitors came here to enjoy the area's outstanding beauty. The main groups of visitors are: local inhabitants, general public and groups of children.

The general public is most numerous target group, and so the greatest expenditure is on this category. Information centres, a field information system, field infrastructure, and visitors' programmes - are just some of the ways of meeting the visitors' needs. We make every effort to satisfy the demands of this group, that embrace a wide spectrum of interests, ranging through peace and quiet, unlimited hiking, long term stays, short stays, day visits, casual tourists and sports enthusiasts.

Local inhabitants are very important group. Ways of affecting this target group are quite different with regard to their natural interests in the area. The best way of making contact with local inhabitants is through the spoken word - an everyday contact, creating permanent relations. The aim is to build a sense of pride in their National Park, for the benefit of the Park. This is a never ending process and is one of the weaker elements of the NP Administration.

Most visitors to the Šumava National Park come to relax and enjoy the natural beauty, seeking peace of mind.

11.3 The aims of the field information system in Šumava National Park are:

- to create positive feelings in the public towards the park and its conservation efforts
- a low-profile influence, by guiding visitors through the park
- information in plain language differentiated for various target groups
- facilitating the visitor's dialogue with nature

11. 4 The following methods of interpretation are used in the Šumava National park:

i) Information centres:

These information centres are by the entrances into the park. Some of them are only open seasonally but the 3 main centres are open the year-round. They are the information centre in Svinná Lada next to the peat bog Chalupská slat', the information centre Kvilda and Kašperské Hory. In these centres, various lectures about Šumava NP are organised throughout the year for the public. The visitors can watch slide shows or video programmes about Šumava NP. There is a 'children's corner' in the Kvilda information centre, where small children can have contact with wild animals, although they are only toys. The newly opened information centre in Kašperské Hory offers many activities aimed at all visitor groups. The tourists have the possibility of finding out about walking and cycle trails.

ii) The Field Information System

This consists of:

- basic information panels at 30 locations in communities within and outside the park. These provide the first contact with visitors
- field panels describing points of special interest and natural monuments
- nature study trails and study round trips within the Šumava NP
- 300 km of bicycle trails
- 350 km of cross-country ski trails
- 500 km of interpretative foot trails
- nearly 60 km of boat trails.

iii) Programmes for children and families

These are specific groups, and the most easy to influence. It is also the most readily available group. We prepare programmes for the kindergarten children throughout the year. They can learn basic information about Šumava NP and about its natural history. For these and similar programmes we would like to have better facilities, but on the other hand nature itself is the best 'classroom in the trees'. Regular 'Eco-gossip' programmes are organised for elementary schools in which the children can learn about the history of the region, the development of the landscape, its animals and plants.

Our Administration co-operates with the Dřípatka Environmental Education centre. Together we organise various programmes for children and their parents. We try to organise these projects near to the information centres inside Šumava NP. The children have their own page in our magazine and the names of these programmes are derived from it. For example: Kulišek the pygmy owl - *Glaucidium passerinum* - gives rise to '*Kulišek's Invitation to the Countryside in Spring*', '*Kulišek's Book of Forest Wisdom*', '*Kulišek's Secret*', etc. Kulišek - the small wise owl - presents all these programmes.

Together with this centre we also organise camps for children – '*The school of nature protection*'. Because of the large demand to take part in this camp, there will be two opportunities next year. The participants can learn new information about Šumava NP. They can try to work as a 'specialist'. For example, they can help to locate the Šumava gentian and discover its habitat needs; explore soil and water animals; clear tourist trails through the forest, etc. During this camp the participants visit many places inside the Šumava NP where they meet rangers, specialists and other staff of the Šumava NP Administration. They can learn how they can help to protect nature.

The most well known programme for children and parents is a programme organised for 'Earth Day'. In the surroundings of a small town, Vimperk, a nature trail is prepared, with many activities for family groups. Parents and children have to solve various puzzles about nature. They can test their knowledge about protected areas, animals and plants, and play various games. Next year we would like to add to this project so that the participants could try to produce 'recycled' paper or look at 'soil animals' through microscopes.

Throughout the year we visit schools in the region of Šumava NP, and the rangers inform pupils about our protected area.

11.5 Co-operation with the Bavarian Forest National Park

- Šumava NP is situated along the border with the Bavarian Forest NP. This location offers many possibilities for co-operation with the German National Park.
- A joint project '*Nature knows no borders*' was finished in 1994. On both sides of the border 3 nature trails have been built, with many information panels. The first nature trail – '*The Changing Landscape*' focuses on the cultural landscape and nature. The nature trail '*The Cleared Landscape*' presents the beautiful countryside as it used to be. The third trail, '*Forest*', introduces the problems of the relationship between man and nature. The information panels are devoted to the differences between managed and natural forests.
- An information centre was also established next to the border, where all the information is in both the German and Czech languages. In the summer months the Šumava NP bus goes to Kvilda from this point. Within the framework of this project, information material was prepared about places for visitors to go to.
- A new border-crossing at Gsenget was opened in the year 1997. Both administrations co-operate on information provision in this area. Information panels were installed next to the borders. We will continue developing this place.
- Other co-operation began in the year 1997 when the bus systems of both NPs were connected. The Czech 'Park-and-ride across Šumava NP' and the German 'Igel bus' attracted 57 000 passengers last year. Thanks to this system, visitors, can visit the best places in both national parks.
- A joint programme '*Nature through Artists' Eyes*' was realised this year. This project provides nature excursions in the company of various artists. The participants can learn about the aims and problems of nature protection. The people can meet painters, sculptors, writers, musicians or photographers. Some of the programmes are organised with the Czech artists. The titles are, for example: '*The Old Trees of the Bavarian Forest NP*'; '*How Real is Reality?*'; '*The Mysticism of a Natural Forest*'; '*A New Life for Dead Wood*'; '*Forest Book*'; '*Nature on Paper*', etc.
- In the region next to the borders at Bučina a joint project for elementary school children – '*Adventure in the wonder-forest*' took place. 3 groups from Germany and 3 groups of Czech school children took part in this project which lasted one week. The children made new friends and improved their knowledge of the German language. After a short introduction, the participants were divided into small groups of 4. In every group there were Czech and German children so they had to help each other with translation because some task were only in Czech or

German. They had to solve various tasks which the rangers of Šumava NP or Bavarian Forest NP had prepared.

- Next to the Železná Ruda border-crossing we have started to build a new information centre in the former railway station. Soon it will be a very good starting point for tourists.
- The Šumava NP Administration is preparing a new joint map for both national parks, where cycle and walking trails will be introduced.

In future we would like to organise joint camps, but at present we do not have enough accommodation or facilities available.

12. The Work of the EE Centre at Neusiedel National Park

Andreas Zahner, WWF Austria

Andreas talked of the work of the EE Centre at Neusiedel National Park, especially the 5 day camps organised for children aged 8-12. He referred to 3 goals set out for the experience:

- i) To create awareness
- ii) To increase knowledge
- iii) To achieve personal attachment and commitment to nature

In order to evaluate the experience qualitative feedback was obtained on the children's experiences and their perceptions. This involved interviews and observation and programmes were adapted in the light of the feedback obtained. A manual for future leaders had been produced.

13. Learning About Nature through Direct Experience - A Pocket-Lab for Environmental Education

András Victor ELTE Teacher Training College, Hungary

13.1 Introduction - A Pupils' Kit for on-site Environmental Experiments

You are only likely to reach your environmental education goals if the children come into personal contact with Nature and are enriched by 'joyful experiences'. There are several ways to get children closer to Nature, and there can be several kinds of 'joyful experiences'. They belong to two major types of EE:

- 1) the intellectual-analytic view, and
- 2) the emotional-holistic view.

I do not want to set one method against the other; both have their own roles. I appreciate both the intellectual and emotional approaches, and I do not want to make any difference of rank between the holistic and analytic ways.

The tests outlined below clearly show that the Pocket-Lab is mainly “scientific” - an intellectual and analytic means of learning (admitting the fact that to learn interesting scientific facts, and to stare at them with admiration, often implies a deep emotional impact as well). The Pocket-Lab has an integrating role as well, since it regards Nature and Science as a seamless robe. It pays attention to all living and non-living creatures in our environment, and investigates them by combining physical, chemical and biological aspects.

The “philosophy” behind the Pocket-Lab is:

- A person will be more inclined to save Nature if he or she likes it
- The chances of someone 'liking it' are greatly increased if he or she knows it.

So, the very first step of this kind of EE is to gain knowledge, but we also want to give the students the joy that comes from direct experience and the inspiration of hands-on activities. Knowledge by itself can hardly give rise to educational outcomes, but (environmental) educational method has no foundation without concrete knowledge.

13.2 How do we use the Pocket-Lab?

The usual way of learning science is to take “Nature” – i.e. natural materials of different kinds – into the laboratory. This is a scientific requirement for providing controllable circumstances in order to get exact results. However, I believe that, sometimes at least and for educational purposes, we should turn this situation up-side-down and take the lab to nature rather than nature into the lab.

So, we go out into a wilderness area and make investigations and carry out experiments using our Pocket-Lab. Typically, we are camping or hiking, a situation in which we enjoy being close to nature. We admire the colours and aromas; we make friends with spiders walking and grasshoppers jumping in the grass; we watch birds with binoculars; learn the names of plants; pick medical herbs. The Pocket-Lab tests that we do are carried out there and then – because we have come across the

materials to be investigated (e.g. a molehill = sample of soil; a pool = sample of water; a wild rose bush = source of vitamin C).

So, we use the Pocket-Lab on the spot, in the field or wood. Thus, the kit must be small, light and not too fragile. The portability of the kit determines its form and contents. Everything in it, as far as possible, must be small - the chemical reagents are in small plastic eye-droppers to avoid breakage and spillage of the reagents. We do not use funnels for filtrations but, because they take up less room and are not so fragile, we use perforated test-tubes instead. A tourist-bag sized 25x20x12 cm can hold the whole kit. (Of course, you may put it in a bigger box made of wood or plastic – it would be more elegant but not necessarily better!)

The Pocket-Lab is for children - mainly aged 12–15, because they have already learned some physics and chemistry. However, it can be used successfully by younger ones too, omitting some of the chemical aspects. Even elementary school children can do all the tests, but obviously they only learn the phenomena without the scientific explanation. But this does not matter at all, it is the normal way that a small child learns. I know from experience that 4 or 5 year-olds can work with this kit, and they can concentrate on this kind of 'play' for more than an hour. Of course, they need an adult's help.

There is also a work-book for the Pocket-Lab. The original Hungarian version provides nearly 50 tests (with instructions for the experiments and pages for recording observations). It gives explanations of the phenomena and some interesting back-up reading as well. (The English version is a little shorter, containing fewer tests and the instructions only.)

Older children can be left to use the Pocket-Lab and work-book on their own. Because of the size of the Pocket-Lab 5-6 children can usually work with one kit. But it is best if all of them have their own work-books.

13.3 The content of the Pocket-Lab

Chemical reagents

Griess-Ilosvay reagent	10 cm ³	Fuxin-solution	10 cm ³
AgNO ₃ (0.1 M)	10 cm ³	Lugol-solution	10 cm ³
HCl (2.0 M)	10 cm ³	Liquid detergent	10 cm ³
KMnO ₄ (0.1 M)	10 cm ³	Lime water	10 cm ³
KSCN (0.1 M)	10 cm ³	Cooking oil	10 cm ³
CH ₃ COOH (2.0 M)	10 cm ³	Alcohol (ethanol)	100 cm ³
NH ₃ /aq/ (2.0 M)	10 cm ³	Ascorbic acid	10 g
NaOH (2.0 M)	10 cm ³	Zn (pieces)	
CuSO ₄ (1.0 M)	10 cm ³	CoCl ₂ paper	

Tools and materials

Test-tubes: 5 large
5 medium (perforated at the bottom) and
5 small

Corks	Box of matches
Tube-nipper	Pincers
Filter-paper	Small mortar and pestle
Aluminium-foil (20x20 cm)	Petri-dish
Cellophane (20x20 cm)	Glass beakers (25 cm ³ ; 50 cm ³ ; 100cm ³)
Universal pH paper	Syringe (plastic; 10 cm ³)
Rubber-bands	Water squirt (0.5 l)
Plastic-bags	Spirit-lamp
Wooden sticks	Clear sticky tape (Sellotape)
Cotton-wool	

13.4 Some remarks on the reagents and tools

A) About the chemical reagents

Most chemical reagents in the kit are very common, easy to find in any school's chemical-collection, and the solution concentrations are usual too. (But there are some "less-common" reagents as well.)

- i) The Griess-Ilosvay reagent is used in analytical laboratories for indicating NO_2^- ions (and NO_3^- indirectly). It may be available from public-health water-monitoring labs. It would be a bit of a loss if you omitted this reagent, because the pollution of water by nitrates (and perhaps nitrite) is one of our most dangerous environmental problems.
- ii) The KSCN solution is used for testing Fe_3^+ ions. As we only use it for one test (it is also poisonous) do not worry if it is omitted from the kit.
- iii) Fuxin-solution - it is not important whether we dissolve just the fuxin or other colour compounds. This solution is a simply a 'model' of polluted water, so we may use e.g. inks instead. The only thing is that the 'pollutant' should be colourful and not too reactive.
- iv) Lugol-solution is the common name of I_2 -solution with a little KI which is well-known in biological laboratories. It does not matter of what concentration it is.
- v) For detergent, we use normal washing-up liquid, diluted with a small amount of water before filling the dropper.
- vi) The lime water is weak $\text{Ca}(\text{OH})_2$ solution. You have to make-up a fresh solution quite often because it reacts with CO_2 in the air.
- vii) We need more alcohol than the others, because we use it for extractions and also for burning in the spirit-lamp. It does not need to be high quality alcohol.
- viii) Ascorbic acid is in other word crystalline vitamin C. You can use vitamin C pills instead (sold by drugstores) but remember that the most of the pill is 'filler' only.
- ix) The CoCl_2 papers are used to indicate vapour (water). How can we prepare them?
 - 1) in a beaker glass make a nearly saturated solution of CoCl_2 ;

- 2) cut a sheet of filter paper into pieces (5x5 cm) and put them into the solution;
- 3) take the pieces (now they are pink!) out and lay them out and let them get dry;
- 4) dry the wet pieces completely with a hair-drier (you can check it as it turns dark blue); and
- 5) immediately put them in a plastic bag in order to avoid moisture in the air. You should dry them up repeatedly before each use.

B) About the tools and materials

The tools and materials are readily available or may be made by yourself.

i) We use three different size of test-tubes that can slipped one into other in order to save some room. It is important that the medium-size (i.e. normal) tubes fit exactly into the big ones and have a cca 1 mm diameter hole at the bottom end. We can make a very simple and practical filter device if we put a little cotton-wool in the bottom of the perforated tube (and press it down by repeatedly dropping a smaller tube on it) then slip it into the big one. If necessary you can speed up the filtration by putting the orifice of the tube into your mouth and blowing.

How to perforate a tube.

- 1) hold the bottom of the tube in a high-temperature Bunsen-fire;
- 2) wait until it is red-hot;
- 3) gently push a hard wire (or a knitting-needle) through it from inside;
- 4) pull out the wire and break the little "bill" off;
- 5) hold the perforated area in the flame for a short time in order to melt any hair-cracks.

b) We use universal indicator paper ranging from pH1 to pH11. Having got some experience you can read even half-units, so it is satisfactory for our purpose.

c) The porcelain-mortar we use is a small (pharmaceutical) one - very light-weight. It is an essential item, needed for crushing the materials in several tests.

d) The syringe we use is a plastic one-way medical one (but of course we use it several times). It is only for volume-measurement so there is no need for needles.

e) When going for a hike we take water in a plastic bottle of the type used in chemical laboratories and called a "water-squirt". It contains about half a litre of distilled water - enough for a dozen tests if used sparingly. A practical advantage is that the water does not flow out unless we press it - even if the bottle is laid on its side.

f) As a spirit-lamp, we use a small drop-bottle (the same size as those in which the reagents are carried i.e. of 10 cm³) but this one is made of glass. Pour some alcohol in, and put a glass (or metal) cylinder, with a wick (e.g. a shoe-lace) pulled through, into the orifice of the dropper. It can even be hand held. Having used it, blow it out, take the wick out and pour the alcohol (if there is any left) back into its container. This device has an advantage over the normal spirit-lamps as it is much smaller and not so fragile.

13.5 Experiments and Tests

A. Plant materials

1. Glucose-test ("silver-mirror")

- a) Squeeze liquid from any fruit or leaves, and filter it in a test tube.
- b) Pour AgNO₃ -solution in another tube and add NH₃/aq/ until precipitation dissolves
- c) Mix a) and b). Heat it.

2 Starch-test

- 2.1.a) Halve a potato, sunflower-seed, hazelnut etc.
- b) Drop Lugol-solution (KI + I₂) on it.

- 2.2. a) Pound grain or seeds (in the mortar). Add water and boil.
b) Filter it. Drop Lugol-solution in it.
3. Oil-test
- 3.1. a) Halve a nut, acorn, sunflower-seed and rub it on a piece of white paper.
b) Try to read a newspaper through the grease-spot.
- 3.2. Volatile-oil
- a) Fold some orange/lemon-peel (colour side outside!).
b) Press it against a burning candle.
4. Protein-test
- a) Pound grain. Add water. Filter it.
b) Drop NaOH-solution and CuSO_4 -solution in it.
5. Colouring matter in the leaves
- a) Crush fresh leaves (in the mortar) in alcohol. Filter it.
b) Dip a stick into solution and touch it to a filterpaper.
c) Repeat b) several times. (Touch it on the same point!)
6. Vitamin-C test
- a) Crush fruits or leaves (with water). Filter it.
b) Add diluted KMnO_4 -solution drop by drop.
7. Oxidizable colouring matter in plants
- 7.1. a) Squeeze some drops from the green skin of a walnut onto a white or transparent surface.
b) Wait until it has changed.
- 7.2. a) Cut an apple in half.
b) Spread vitamin C (ascorbic acid) on one of the cut-surfaces.
c) Wait and compare the surfaces.
8. Tannic-acid test
- a) File some oak bark; put the filings into water and boil it. Filter it.
b) Drop HCl -solution in it.
c) Drop NaOH solution in it until it changes.
9. Anthocyane-test
- 9.1. a) Scratch a red petal (e.g. of a rose).
b) Drop NH_3/aq / then HCl solution on it.
- 9.2. a) Crush red petals or fruits (in water). Filter it.
b) Drop NH_3/aq / in it.
c) Drop HCl -solution then NaOH -solution in it.
10. Acids in plants
- 10.1. a) Halve an apple, cucumber, crab-apple, pear etc.
b) Press universal pH paper to it.
- 10.2. a) Squeeze liquid from any fruits or leaves.
b) Dip pH paper into it.
11. Evaporation by plants
- 11.1. a) Pick a leaf. Put it between two pieces of CoCl_2 paper.

- b) Put the leaf with the cobalt-papers between two sheets of a plastic-file for a minute or two.
- c) Check the change of colour on both sides.

- 11.2. a) Cut off pieces of cellophane (3x3 cm).
 b) Put one on a big leaf – upper side.
 c) Put another piece on a leaf – underside (but turned up).
 d) Compare the curvings.

B. Animal materials

I. Horn-test by burning

- a) Hold a little piece of hair, feather, wool, nail etc. in a flame with tweezers.
- b) Identify these by smell.
- c) Control-test: burn cotton-thread or polyester etc.

2. CaCO₃ -test

- a) Drop HCl -solution on a piece of bone, shell, antler etc.
- b) Watch and listen.

3. Compare bone with chitin

Materials: a piece of bone + first wing of a (dead) beetle.

- a) Drop HCl-solution on both.
- b) Heat both in flame (by tweezers).

C. Soil-tests

I. Soil-components

- a) Half fill a test tube with soil and add water (not to the brim).
- b) Shake it hard until complete dissolved.
- c) Put it down and wait.

2. Air in the soil

- a) Put a little cotton-wool in the bottom of a test tube perforated at the bottom end.
- b) Put some soil on it (3-4 cm) and press it down lightly.
- c) Fill a syringe with water.
- d) Drop water drop by drop on the soil until the first drop emerges out below.
- e) Read the syringe and calculate volume-rate: gross/net.

3. Does the soil hold water?

- a) Half fill a test tube with soil and press it down lightly.
- b) Add water to make it wet.
- c) Fill the same tube fully with dry soil and mark where the dry and wet soil meet.
- d) Check it after an hour.

4. Does the soil suck up water?

- a) Put a little cotton-wool in the bottom of a test tube perforated at the bottom end.
- b) Half fill this tube with dry soil.
- c) Stand it vertically into a vessel containing water (1 cm).

5. Does the soil absorb water?

- a) Put a little cotton-wool in the bottom of a test tube perforated at the bottom end.
- b) Put some soil on it (after pressing: 2 cm).

- c) Add fuxin-solution drop by drop until first drops come out below.
6. The pH of soil
- Put a little cotton-wool in the bottom of a test tube perforated at the bottom end.
 - Put some soil on it (3-4 cm); do not press.
 - Pour distilled water into the tube.
 - Test the first drop coming out with universal pH paper.
 - Check the colour of the pH paper after twenty seconds. Has it changed colour?
7. CaCO_3 in the soil
- Put some soil in a glass beaker and press it down hard.
 - Drop HCl solution on it.
 - Watch and listen.

D. Water-tests

1. The pH of water
- Take samples from different kinds of water-source (lake, pond, spa, swimming-pool, river, tap, well etc.).
 - Test these with universal pH paper.
2. The oxygen-consumption of water (for an indication of organic pollution in it)
- Half fill a test tube with water.
 - Add one drop of very dilute KMnO_4 solution.
 - Shake it well and wait; if the colour disappears add another drop.
 - Repeat c) and count drops until the colour remains.
3. Chloride ions in the water
- Pour some water in a test tube (1-2 cm).
 - Drop AgNO_3 -solution in it.
4. Iron in the water (Fe_2^+ ; Fe_3^+)
- Pour some water in a test tube (2 cm) and add two drops of HCl solution.
 - Add one drop of very diluted KMnO_4 -solution.
 - Wait until its colour disappears.
 - Add two drops of KSCN solution.
5. Nitrite-pollution in water or soil
- Pour some water (or soil sample) in a test tube (2 cm).
 - Add ten drops of Griess-Ilosvay reagent.
 - Heat it (if necessary).
6. Nitrate-pollution in water (or soil)
(if the nitrite-test was negative)
- Pour some water (or soil sample) in a test tube (2 cm).
 - Add some drops of CH_3COOH and a piece of Zn.
 - Wait about five minutes and add ten drops of Griess-Ilosvay reagent.
7. The surface-tension of the water
- Fill a shallow vessel with water.
 - Put a little coin (made of Al) very carefully on the water-surface.
 - Drop some liquid detergent into the water and wait.

E. Air-tests

1. Dust in the air

- a) Cut off pieces of clear sticky tape (Sellotape) (2-3 cm each).
- b) Go to various places and stick the Sellotape-pieces on leaf surfaces.
- c) Pull the Sellotape-pieces off and stick those on a piece of white paper.

2. Vapour in the air

- a) Put a CoCl_2 -paper in your pocket.
- b) Check the change of its colour and make comparisons:
 - morning and evening
 - sunny and cloudy day
 - northern and southern slope
 - in the forest and cropland etc.

3. CO_2 in the air

- a) Pour Ca(OH)_2 -solution in four small test tubes (1 cm each).
- b) Fill two plastic-bags with fresh grass or leaves and fasten those (by rubber) onto tubes 1. and 2.
- c) Put tube 1. in the sun and tube 2. in the dark.
- d) Breathe out into a plastic-bag and fasten it onto tube 3. (In the sun.)
- e) Tube 4. is the control. (In the sun.)

14. Educating The Educators : Content, Context And Competence

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14.1 Introduction

This paper begins with an assertion of the premise around which this conference is organised: that human learning is as important as a focus for protected area management as the conservation of biodiversity and ecological processes. If protected areas are to be more than 'islands' of biological and landscape diversity in a sea of environmental and social deterioration, then they must be bases to be looked out *from* as well as looked *into*. Protected areas are not just *ends* in themselves - they are also a *means* whereby we learn better to manage both nature and our relations with nature (and perhaps even our relations with each other) in the wider environment.

14.2 Learning contexts in protected areas

Learning in protected areas takes place in a variety of contexts, formal and informal.

- The significance of school visits and courses has been promoted by the increasing recognition of the importance of practical, field-based studies in the curriculum. Dedicated teaching facilities, sometimes employing full-time teachers, are frequently provided in protected areas by managing authorities or other organisations¹.
- The research function of protected areas is another vital aspect (since they represent relatively undisturbed and/or controlled ecosystems as well as cultural archives). Many protected area staff are actively engaged in their own research projects as well as collecting data for others.
- Informal learning by visitors, is a third dimension of learning in protected areas. Often (though not necessarily) this is facilitated by on-site interpretation, although in practice much of what passes for interpretation in protected areas is narrow and concerned more with visitor management, organisational promotion or mere income generation.

Associated with the recreational function of protected areas are a host of other actors – from tour operators to writers of guidebooks, whose attitudes and behaviour are critical influences on the protected area resource and the way it is used².

A further dimension is participatory learning by local residents and communities. Hopefully (but not necessarily) this is a positive experience and is the outcome of active involvement in the processes of strategic policy-making and active management of those areas. This is not a simple matter - indeed, it can be one of the biggest challenges for protected areas and, taken seriously, can undermine some persistent misconceptions regarding the function of protected areas³. Sometimes characterised as a 'learning web'², these learning activities do not in themselves form any kind of integrated system; however they all need to be seen as integral aspects of effective protected area management.

In all these areas there are lessons to be learned from participatory education programmes in developing countries⁴. We are still some way from realising the aspiration expressed in the Belgrade Charter of providing "every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment"⁵. We are further still from forging a society where everyone has the motive or wherewithal to do so.

'Learning' means much more than a unidirectional transmission of information - the passive acquisition of knowledge. The best learning about the environment takes place in the environment and is for the environment (Figure 1). It should concern itself not just with the natural and cultural heritage resource, but also with the people - past, present and future - who use and value it, as well as with the political and economic system in which it exists. It involves not just the acquisition of knowledge but also of competence (and commitment). It should be an interactive process whose objective is to secure the long-term future both of protected areas and of the wider environment within which they exist. Its outcomes are the development of awareness, understanding, and ultimately, concern and action on the part of managers, local residents and the public at large.

A reappraisal of the role of protected areas in the context of 'the learning society' is timely and appropriate. An emphasis on quality is valuable because it focuses on learning outcomes as well as on educational inputs. Whether in the context of formal taught classes, informal interpretation for visitors, or the participation of local residents in management, we need to ask: 'what, for whom, by whom, and why?' Quality learning, in protected areas more than anywhere else, means not merely knowing more about the world, but wanting, and knowing how, to change it.

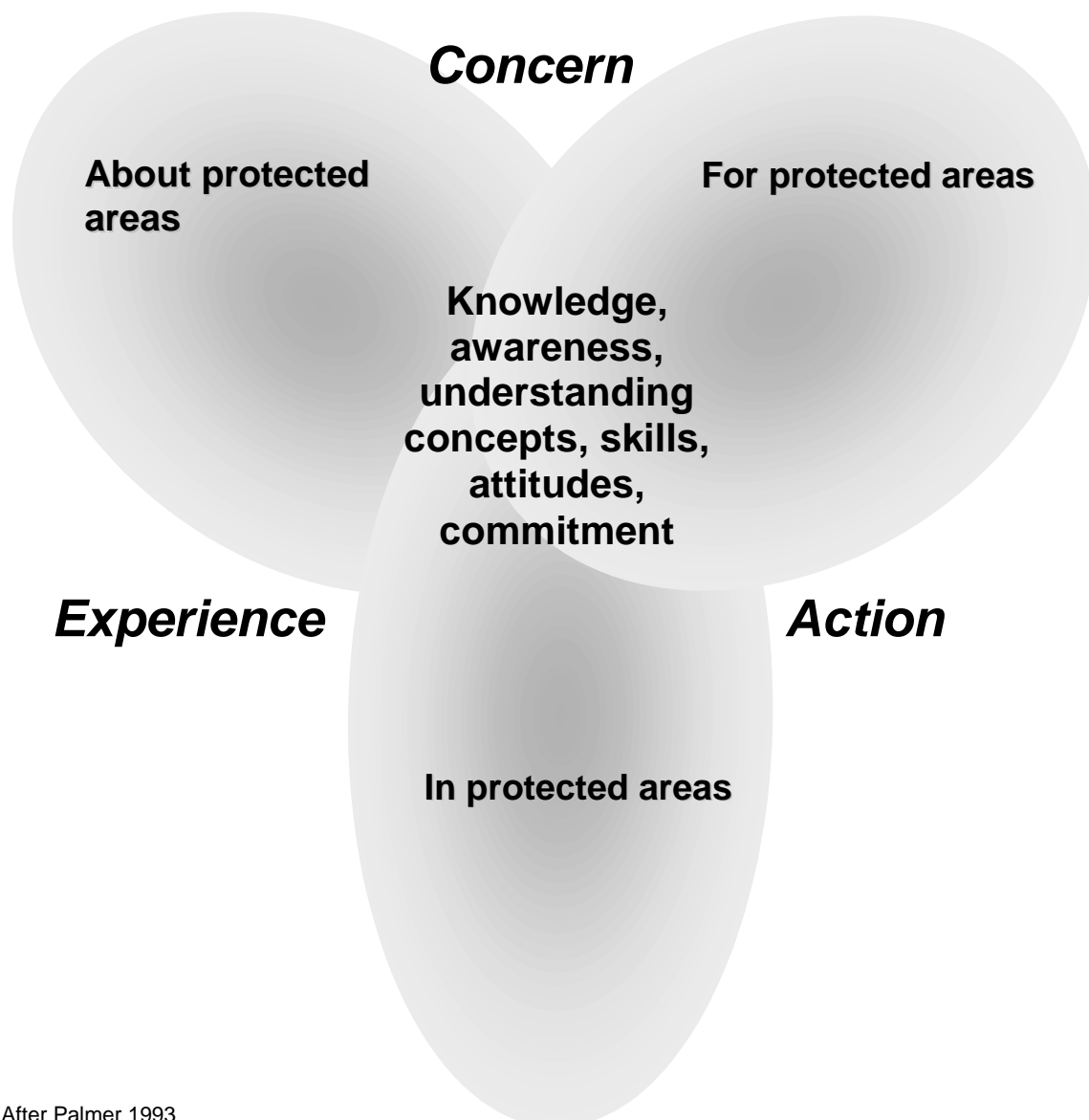
14.3 Educating the educators

The facilitation of learning (in all its dimensions) should be conceived as a primary function of protected areas, not just an optional add-on. It should be a part of the work of all protected area staff irrespective of their job title and primary function. It is not just the task of those primarily concerned with research, education, visitor interpretation or public liaison. For this to happen, staff also have to learn about:

- the resource in order to manage it more effectively
- how to transmit this understanding to visitors and local residents in order to secure their own co-operation and commitment
- an increasingly complex legislative and socio-economic system and how to use (and where necessary change) it.

Qualified, competent and motivated staff are essential to quality protected area management: 'educating the educators' is therefore critical.

Figure 1: Learning in protected areas: *about, in and for* the environment



After Palmer 1993

The importance of training is widely recognised among both professionals and their employing bodies as central to quality protected area management⁶. In practice however, the accessibility and content of training for protected areas is constrained by a multiplicity of interrelated factors. Limited resources are one. Environmental protection invariably suffers when economic development is a priority, and, when cash is limited, training may be seen as a luxury.

Resources are not the only factor however. Nature conservation and protected area management are relatively new intellectual disciplines. They are also recent fields of significant employment, lacking in definition and coherence. They have yet to be recognised as a science and are often seen as subsidiary areas of forestry or ecology (or, in other contexts, of leisure and amenity or tourism management).

Nature conservation and protected area management are not yet recognised as professions in their own right. In general, there are no clear entry points, recognised

qualifications or career pathways. Its practitioners come from widely varied backgrounds, are geographically dispersed and often poorly paid. Most countries do not have any recognised professional institutions for nature conservation and protected area staff.

Conservation sites and protected landscapes themselves are diverse areas. Moreover, their designation and management often has multiple purposes in which biodiversity (species and ecosystem) conservation is increasingly linked to the generation of a range of social as well as environmental goals, including the promotion of sustainable tourism and local economic development. In all these areas there is an *"extraordinary diversity of approaches to the conservation of nature across Europe from one country to another"*⁷. All this places additional importance on quality pre-professional education and in- service training.

14.4 Quality and competence

Quality assurance may be defined as *"all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality"*⁸. Much professional education and training, like site-based educational and interpretative provision itself - has been traditionally judged by the quality of inputs, attested by peer appraisal, rather than by any systematic monitoring or evaluation of outputs. Many staff entering employment at professional and managerial level are well educated but poorly trained. In Europe there is now increasing emphasis on defined occupational competencies.

Competency refers both to the specialist practical and/or technical skills specific to a particular job and also to the 'generic' (interpersonal and organisational) skills that are vital to all management. However even where professional courses (for example, in forestry or planning) address issues to do with the management of protected areas, they are often lacking in providing the practical competencies required of the effective protected area manager.

In most European countries, professional training programmes validated by the state or by professional institutions have replaced apprenticeship systems. At sub-degree level the most obvious influence of such 'quality' approaches is in the development of nationally recognised vocational qualifications (NVQs). However, although NVQs seem to have been widely accepted in industries such as catering and construction they have had little or no impact in environmental conservation. One reason is undoubtedly the complexity of protected area management at all levels, as well as the motivations of those who work in the area. Many of those tasks (for example forestry operations) for which precisely specified procedures are most appropriate, are in any case covered by health and safety legislation or other regulations. However most of the work of protected area managers cannot be so precisely specified.

It is arguable that competencies such as writing a management plan, devising an interpretative programme, or liaison with local communities, cannot be easily reduced to the simple measurable outcomes required for currently fashionable approaches to quality assurance. Many staff anyway enter protected area management because in addition to their commitment to conservation they are also attracted by the relative freedom and autonomy involved in such work, and feel this would be compromised by unduly prescriptive arrangements.

14.5 Pre-professional education and the curriculum

Quality approaches in the formal educational sector have already begun to have a significant both at school and university level. For example, European university courses are now increasingly required to have clear definitions of course objectives and outcomes, monitoring and appraisal systems as well as clear audit trails so that procedures are open to external scrutiny. However quality assurance procedures have only indirect bearing on the content of such courses which are still determined largely by convention and on the competence and research interests of teaching staff concerned.

One recent phenomenon, particularly apparent in UK and some other western European universities, has been the proliferation of first-degree programmes in environmental management. The subject is fashionable and popular with students. Unfortunately jobs in the area are few, and students produced by such courses often ill-equipped for them. Some students emerge from their degree studies with only a superficial training in basic techniques (for example in taxonomy) barely able to identify even the most common animal or plant groups. The result has been a surfeit of poorly trained graduates and a shortage of individuals with 'traditional' key skills and understanding. By contrast, university provision elsewhere is still characterised by conservative and inflexible traditional subject curricula. These impede the development of interdisciplinary courses, particularly at an advanced level, and make it even more difficult to establish nature conservation and protected area management as recognisable disciplines in their own right.

We believe that full interdisciplinary environmental degree programmes are generally not appropriate at undergraduate level, where they are associated with a significant dilution of content in individual subject areas. A sound disciplinary base is required in order for students entering environmental conservation to possess the basic graduate level understanding and skills required to contribute to the collective expertise and competence of an effective team. Beyond this, protected area management also requires a maturity of outlook and experience of the 'real world', and the ability to synthesise and to integrate knowledge from disparate subject areas in order to make a significant contribution to professional policy planning or implementation. This is best derived from a period of employment at any level, not necessarily in conservation.

At masters' level however, interdisciplinary courses provide a way of building on existing undergraduate training and work experience. They make it possible to link disparate areas of knowledge and to provide opportunities for complementary courses, which can broaden understanding and provide specific competencies, particularly in management skills that are seldom covered at undergraduate level. Especially where, as in Europe, an increasing proportion of the working population already has some higher education, there is a growing need for part-time postgraduate level training in natural heritage protection and protected area management, linked to formal masters' awards for appropriately qualified students.

14.6 In-service training

'Educating the educators' should not stop once staff are in post. Quality training combined with formal accreditation can help to establish the coherence of protected area management and to raise its profile and status as a profession and as a discipline, by contributing to the establishment of common standards and recognised qualifications. Training is an essential component of professional motivation and career satisfaction, and can help strategically to realise the potential of protected

areas as multipurpose tools for nature protection and ecologically sustainable development.

Much in-service training provided by employers is narrowly vocational, focusing on basic practical skills of estate management and often related to (increasingly stringent) EU requirements, for example, as regards health and safety. In some countries an attempt to formalise the skill requirements of conservation staff has been made, by establishing national structures of vocational qualifications (for the UK⁹).

Less instrumental forms of continuing professional development (CPD) consists of short (2-5 day) courses on particular topics such as management planning, visitor management, interpretation, conservation law etc. offered usually on an open market by specialised training providers. The courses themselves seem generally to be provided on an ad hoc basis, in response to perceived demand:

- They are often constrained by available teaching expertise and/or resources.
- They are rarely integrated into any co-ordinated training programme.
- They are seldom part of any structured provision leading to recognised professional qualification.

Much activity at national and international level consists of conferences and seminars, attended (perhaps by default) mainly by senior management. Conferences and seminars and other forms of 'networking' amongst senior staff are of course useful both in widening perspectives and establishing common values, usually implicit, amongst a peer-group community at this level.

Such opportunity is offered less frequently, however, to those at lower levels of the hierarchy (tomorrow's senior managers) for whom it would, arguably, be most valuable. For such staff, the lack of definition of protected area management as a discipline and profession is compounded by the lack of 'on the job' training opportunity. Externally provided courses may be unavailable; time is always at a premium; encouragement or financial support for training may not be forthcoming (many managing organisations have neither training policies nor professional development budgets).

14.7 International collaboration in postgraduate education and training

Conservation and protected area management needs to be established as a recognised and adequately resourced academic discipline, and as a reputable and appropriately rewarded profession, in its own right. For this to happen there needs to be provision of formal validated pre professional education and in- service vocational professional training at appropriate levels, based on curricula which transcend narrow sectoral and national boundaries and which involve participants from more than one country¹⁰.

This will not happen overnight, but a start has been made through a number of recent initiatives. Existing European exchange programmes for protected area staffs should help to encourage greater understanding of the diversity of protected areas and their management and spread concepts of 'best practice'. So far however these initiatives have not been part of any co-ordinated programme of European curriculum development. They have not included any systematic occupational mapping or training needs analysis. Neither is any formal accreditation available for participants.

The development of collaborative in-service part-time accredited training programmes, such as 'twinning' of the University of Ljubljana MSc Natural Heritage

Protection and the London University MSc Protected Area Management (Appendix A) is one recent development. It could contribute towards establishing common curricula and recognised occupational qualifications at a higher level. This would help meet some of the goals of the CNPPA/ FNPPE Action Plan¹⁰.

14.8 London-Ljubljana learning links

The London / Ljubljana programme represents a 'bottom up' approach in which training provision and agreement on curricula and quality standards will evolve organically, yielding concrete outcomes of actual courses - and competent students - from the start. It is a model, which could be in principle extended, on a flexible and experimental basis, to any country where in-service training or postgraduate courses have been or could be established.

The London / Ljubljana initiative has come about because of the remarkable similarity between two programmes established independently at each university. The programmes are each, to our knowledge, unique respectively in western and east-central Europe, in providing part-time masters' level study and qualification in natural heritage protection and protected area management.

Both are each highly flexible, modular, interdisciplinary, competence based programmes. They represent an experiment in providing pre- professional and in-service training for managers, teachers and researchers in protected areas, accommodating conflicting requirements of content, and facilitating personal and professional development within a formal part- time award-bearing Masters' level course.

Although developed in very different contexts, the programmes demonstrate a remarkable degree of congruence. Both are two-year, part-time schemes in which teaching is arranged so that students can take part wherever they live, whilst still carrying on their jobs. Both awards are arranged around 'compulsory core' courses. In Ljubljana teaching takes place on Thursday afternoons and Fridays with fieldwork on Saturdays. In the London course, home study is combined with weekend (Friday and Saturday) meetings in London once a month to which students travel from all over Britain and Ireland. Both country programmes include an intensive week's residential summer school between the first and second year (in the Ljubljana course this is held every year in a different foreign country).

In addition to the compulsory 'core course', MSc students on both programmes elect to take optional 'specialist modules' from a wide range of subjects in which, again, there is also a high degree of overlap between the two institutions (Figure 2).

There are, of course, significant differences in the two programmes. The Ljubljana MSc, launched in 1996, is a unitary course with participation largely restricted to registered MSc students. Admission criteria require students to have a good understanding of a foreign language (usually English), as well as average undergraduate coursework grades of 80%.

The London core course was launched in 1990 as the Diploma in Countryside Management. In 1995 it became a Masters' degree through the addition of optional MSc modules; the Diploma remains as an optional exit for students who are unable for whatever reason to take the full MSc programme. Entry to the MSc requires a minimum second class honours degree in a cognate subject. Selection for the Diploma, however is based on work experience (a minimum of three years' professional experience at an appropriate level) and personal qualities; students

without a first degree may proceed to the MSc if they receive at least Hons (II) grades in their Diploma.

University of Ljubljana MSc Natural Heritage Protection	University of London MSc Protected Area Management*
<p>Compulsory courses: 1) Natural Science aspects, 2) Sociological aspects, 3) Management aspects of Natural Heritage Protection. 3 x 110 = 330 hours</p> <p>Weekly meetings (Thursdays and Fridays) with fieldwork at weekends, plus a foreign summer study tour between years 1 & 2</p>	<p>Core Course; Diploma in Countryside Management includes blocks on ecological management, agricultural policy & rural sociology, protected area & nature conservation law &c. 240 hours</p> <p>Monthly weekend (Friday and Saturday) meetings plus a residential field summer school between years 1 & 2.</p>
<p>Plus 4 elective courses. Examples:</p> <ul style="list-style-type: none"> •Ethics of natural heritage protection •Cultural heritage protection •Cultural landscape protection •Geological natural heritage •Karst natural heritage •Subterranean Karst •Spatial-ecological monitoring and landscape information systems •Agricultural systems •Wildlife management •Protection of crop plants/ domestic animals •Tourism and natural heritage protection <p style="text-align: right;">4 x 20 = 80 hours</p>	<p>Plus 5 elective courses. Examples:</p> <ul style="list-style-type: none"> •Environmental ethics •Archaeological and cultural heritage management •Earth heritage conservation •Coastal Zone Management •Ecological survey and monitoring •Site management planning •European environmental law and policy •Environmental communication. •Sustainable tourism and tourism management <p style="text-align: right;">5 x 40 = 200 hours</p>
<p>Plus Individual supervised masters' thesis</p>	<p>Plus Individual supervised masters' thesis</p>
<p>Taken from the course prospectus from each award (available on request from the Biotechnical Faculty, University of Ljubljana and the Centre for Extra-mural Studies, London University).</p>	<p>* A second MSc Heritage and Environmental Interpretation is based on a parallel core course (the Diploma in Environmental Education and Heritage Interpretation and a shared sub-set of specialist modules</p>

Figure 2: Comparison of the University of London MSc Protected Area and the University of Ljubljana MSc Natural Heritage Protection

The basic congruence between the two programmes (and the common interest in protected area curriculum development on which they are based) have provided the basis for inter-university collaboration in higher-level continuing professional education and training, supported by the British Council and the Slovene Ministry of Science and Technology through ALIS (Academic Links and Interchange Scheme).

One key element is a programme of collaborative curriculum development including joint provision of specialist modules. The first intake of Slovene MSc students spent a week's study tour in 1997 in Britain's Peak District National Park as part of their first year studies. Individual students have also participated in the London University module in European Environmental Law and Policy (held October 1997 in London and Brussels) and in Management Planning (held in March 1998 in Ireland, in collaboration with the Irish Conservation Education Trust and University College Dublin).

The next stage, our first joint training module, is to be held in Slovenia in October 1998 on the theme of **Earth Heritage Conservation**. This topic was chosen because although Earth Heritage conservation is a relatively new field of conservation practice, it already features as an optional module in the MSc programmes of both universities. Last year's UK - based course held in October

1997 at Losehill Hall in the Peak District National Park has already demonstrated considerable interest from UK conservation agencies (participants were seconded from English Nature, the Countryside Council for Wales and the Northern Ireland Department of Environment).

A particular feature of the proposed collaborative courses (which already applies to all London MSc modules) is that they will individually double as specialist professional training courses and may be attended by non-MSc participants. This mix of MSc students and 'outside' participants has been found to have a number of benefits, not least that of ensuring that the specialist modules are highly focused on outcomes and skills relevant to professional needs in protected area management. Although the forthcoming joint London / Ljubljana course will consist largely of registered MSc students, a small number of places will be reserved for 'outside' individuals taking the course for professional development.

As to the future, further joint modules currently under discussion for 1999 include a week-long course in **Sustainable Tourism** (to be held in Slovenia) and another in **Financial Planning and Project Management** (to be held in the UK). All these courses will have a dual role; they will function as specialist modules for the masters' degree programmes of the universities involved, but they will also be offered independently as professional training courses for existing and aspiring protected area staffs from anywhere in Europe. It is hoped that wherever possible, these joint courses will become a regular, annual feature, 'cycling' between Slovenia, the UK, and any third or subsequent partner of the collaboration.

14.9 The protected area curriculum

We hope that this initiative will be seen as a significant response to the call for curriculum development, course provision and the establishment of agreed standards in protected area training, management and research, made in the CNPPA/ FNPPE Action Plan¹⁰. A problem hitherto is that discussion on training provision and university degree curricula has often been in the abstract and seldom matched by action 'on the ground'. We have felt it a better approach that training programmes and agreement on curricula and quality standards evolve organically, 'bottom up', yielding concrete outcomes of actual courses - and competent students - from the start.

Collaboration has forced us to articulate more clearly and to re-examine some of the implicit curriculum assumptions of our respective courses. Traditionally, protected areas have been seen as primarily a protective tool and training has emphasised *management of the resource*; the manipulation and monitoring of species and ecosystems.

The emerging (post- Rio) people-centred view of protected areas increasingly asserts the equal importance of managing *for people* including the realisation of the educational - and economic - role of protected areas. Managers are likely to be ineffective, however, if they are not also able to *manage the system* (and, where necessary, to challenge and to change the system) within which the resource and its users exist. This perspective has informed the present curriculum of both MSc programmes and we are anxious that joint modules should also cover all three areas. Collaboration also raises issues to do with the relation between *core knowledge* and *practical competencies* in each subject area (see also¹¹).

We are also conscious of the need not just to ensure that the courses meet the standards required of masters' level work but that they are appropriate to particular groups of staff. Whether they work at the *practical level* as estate staff or volunteers, in *junior to middle management* as wardens, guides, or specialist conservation staff) or at *senior management* level (e.g. as National Park Directors) it is important to get a right balance between practical skills, professional knowledge and skills and managerial ability. Our courses will be targeted at middle management (tomorrow's senior staff) and above. Such staff have a need for the broadest understanding of the resource and its social and political context, as well as competence across a broad range of generic (e.g. people, organisational, financial and site) management skills.

The length of the joint courses has meant that we have had to be highly selective (and somewhat arbitrary) in respect of content, and level, and highly pragmatic in respect of the balance between lectures, seminars, group-work and practical field exercises. Our ambition is of course to 'get it right' first time, but failing this, we are confident that we can improve the quality of student learning at the same time as we develop our own understanding of what is required, as the course programme develops.

14.10 Occupational mapping and training needs analysis

It is clearly important however that the development of education and training should not merely be the result merely of *ad hoc* initiatives but should be informed by a broad consensus of what is needed. They should also rest on a secure knowledge base regarding the needs of conservation and protected area staffs. A cross-country survey of educational providers with respect to the relevance and relation of existing course provision to the needs of protected areas would also be valuable. This would require a formal and well-founded initiative on the part of one of the major international or European conservation agencies. Occupational mapping and training needs analysis to identify the core knowledge and key skills in protected area management was one of the proposals of the FNNPE / CNPPA *Parks for Life* Action Plan¹⁰.

So far, however, no initiatives have yet been taken in this area. In their absence it is proposed that one outcome of the London - Ljubljana collaboration will be the initiation of a pilot research project involving two or three countries, which could be subsequently extended elsewhere in Europe. This will include functional analysis of protected areas (looking at their objectives and what they achieve, locally and nationally), occupational mapping (to examine the management structures, numbers and roles of staff in each area) and some preliminary training needs analysis. The latter will include examination of the existing qualifications and skills of protected area staffs, the existing national provision of training opportunity (where it exists), and the need and potential for new (and possibly collaborative, inter-country) training courses (which could form part of university degree courses) in each area. Again, such a pilot project could be extended to additional countries.

14.11 Conclusion

Advice, comments or offers of further collaboration in any of these areas will be welcome. It is hoped that partners from other European countries (NGOs and research organisations, as well as educational providers) may wish to become involved in this project. An organisation such as CNPPA or FNPPE (which has indicated its own desire to "... select and support a network of key educational and training institutions and projects to develop and supply training and qualifications at different levels." ¹⁰ might wish to be involved in some way.

One possibility would be for national institutions to establish broadly based core training provision, appropriate to their own specific needs and circumstances. This would be aimed primarily at their own nationals, and would carry appropriate certification. On top of such a 'core course', a programme of specialist modules could be made available through collaboration between providers. These could be available internationally and would lead to internationally recognised validation, perhaps by a consortium of universities under the auspices of the FNPPE or CNPPA. Students would be encouraged to take at least some of the modules elsewhere than in their home country, either on an open enrolment or a student exchange basis. It is hoped that external (e.g. TEMPUS/ SOCRATES) funding may be secured to cover the additional set-up and travel costs associated with the initiative.

There is now both the need and the opportunity for training providers to get together across national boundaries with a view to collaboration in course provision. In this way, scarce resources can be used to best effect to achieve a 'multiplier effect', linking the efforts of the many organisations which are currently providing training at a national level and providing the possibility of formal university accreditation for participants. In the longer term, proper, internationally recognised curricula and agreed training standards developed by a network of collaborating institutions will be one of the factors that contributes to putting protected area management, teaching and research, academically and professionally, "on the map".

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VII Ideas from Different Discussion Groups.

15. What is Wanted From a Post Conference Product?

(Prepared from brief notes taken during the discussions and plenary session)

The main recommendation from the conference is for the production of a 'tool box' for of ideas and methods for use by anyone wishing to evaluate the effectiveness of education/communication programmes in protected areas. The output from various workshop sessions held as small groups are summarised below. It should be noted that some of the flip chart summaries have been combined in order to avoid duplication where the same ideas were put forward by more than one group.

Flip Chart Summaries from Discussion Groups

WHAT ARE THE GOALS OF THE TOOL BOX?

- To improve environmental education and communication in protected areas.
- To support those responsible for EE and communication in protected areas.
- To identify appropriate quality criteria.
- to suggest evaluation methods for assessing whether the selected quality criteria have been achieved.

WHAT SHOULD THE TOOL BOX CONTAIN?

- A directory according to themes of the participants – to facilitate networking and exchange of information.
- Background research papers to help select the quality criteria that could be used.
- Paper on how people learn (useful to EE) e.g. analysis of learning frames (- fear, fight or flight; right and left side of the brain (rational and intuitive).
- Definitions of quality (different approaches).
- Paper on how to prepare sound questionnaires (need to pilot).
- Criteria to evaluate the effectiveness of the communicators.
- Criteria to evaluate the self-education of the participants.
- Criteria to evaluate the benefits to nature conservation.
- Examples of indicators of emotional and reflective outcomes (affective domain) using measuring tools such as smiley faces and sense of responsibility gained.
- Tools for use when making assessments - simple, cheap, quick, e.g. simple to use evaluation sheets and other evaluation tools (examples of each) – written; photography; video; tapes; observation; long term tracking.
- How to identify target groups and examples of educational goals and particular group needs

NB. Strategies and measuring tools would have to be appropriate. Different sets of quality criteria are needed for use with different stakeholders because their aims can be different, eg: visitors to protected areas; educators; sponsors (internal and external); project managers. However, the quality criteria must also be relevant to the conservation goals of the protected area.

USEFULNESS - list of contents

1. Examples
2. Principles
3. Methods
4. Evaluation criteria ** important
5. Logical thinking / systematic
6. PPP
7. Structures - how to conceptualise
8. How to create your own criteria for quality and apply them for your own purposes
9. Evolution of the educative process from environmental educator to facilitator (self-teaching) and the evaluation of this.

WHAT FACTORS SHOULD BE CONSIDERED WHEN SELECTING QUALITY CRITERIA FOR SUCCESSFUL COMMUNICATION IN PROTECTED AREAS?

- Short-term effects versus long term effects / impacts.
- Process versus product
 - Iterative / cyclic / cumulative
 - Involving / consensus.
- Objectives
 - Defined, appropriate, achieved.
- Target Audience - Stakeholders
 - Defined, understood, appropriate, achieved.
- Site
 - Context, condition, criteria.
- Organisation
 - Resources, expertise available.
- Internal congruence, consistency
 - Learning theory, methodology, outcomes
 - Teamwork, organisation
 - Wider social, political considerations.

HOW CAN QUALITY CRITERIA INFORMATION BE GATHERED?

- Data on visitor numbers and income return visits, visitor profile, age, ethnicity, class.
- Information feedback - visitor books, post-it stickers.
- Uptake of information – amount of information material, leaflets purchased or taken from distribution points.
- Numbers participating in programmes and activities.
- Visitor observation - tracking, residence time, engagement, interpretation.
- Questionnaires (written, oral) facts, feelings.
- Games, workshops at end of programme, competitions.
- Parental, peer responses.
- Press coverage, clippings, content analysis.

WHAT ARE THE PITFALLS AND TRAPS IN EVALUATION?

- Remembering that education and communication are 'Dialogue' not 'Indoctrination'.
- Not asking the right questions.
- Questions asked in evaluation questionnaires can be adequate for some contexts and not for others (cultural differences) i.e. questions can be correct for some places and not in others.
- Collecting only one kind of data e.g. 'facts' from questionnaires but ignoring behaviour.
- Educators and communicators not learning from the evaluation process, i.e. not using the results - feedback from information gathered.
- Not understanding the target groups / stakeholders and their needs.
- Forgetting the importance of involving public.

WHAT CAN WE MEASURE?

- Process versus product, e g. involvement of local communities, staff involvement / satisfaction.
- Have visitors changed their behaviour?
- Has vandalism been reduced?
- Have objectives/ goals been achieved:
 - for nature conservation?
 - relating to self-education?
- Environmental quality criteria include the fact that you do not have to go to a Protected Area to study the environment

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