

Scottish Workshop on Developing Learning Landscape Partnerships

K.L. Blackstock, A.J. McKee, D. Anderson, P. Ciucci, J. Dick, L. Meagher, R. Pakeman, M. F. Price, S. Pritchard, C. Ritchie, P. D. W. Timms, H. Trench, Z. Végvári and K. Velandar



Executive Summary

This report describes the discussion and outcomes of a workshop held in Edinburgh on 28th April 2014, bringing together academics and protected area manager representatives, from Scotland and Europe. The workshop aimed to share ideas about how to develop learning landscape partnerships to ensure protected area management makes use of research more effectively.

The workshop was funded by the Macaulay Development Trust and built on research undertaken in the Scottish Government Environmental Change Research Programme 2011-2016 and the previous programme 2006-2011. We have acknowledged the contribution of our participants through making them all authors on this report, as it represents a synthesis of the knowledge that was shared and generated at the workshop.

In preparing for the workshop, the James Hutton Institute facilitators devised a model of partnership working from the academic literature, which was then reviewed and revised based on the workshop discussion. The workshop identified principles of good practice in knowledge exchange between research and protected area management to create so-called 'learning landscapes'. These principles include: sharing knowledge through active methods such as walks/drives and informal conversation ('walk and talk'); the use of visual aids (e.g. maps and diagrams); convening an advisory or steering group; blogging; consultations using questionnaires; information sharing; lectures to undergraduate and MSC courses; written research briefings to the public; networking at topic-focussed workshops; and sharing information through case studies.

Further discussion considered the existing knowledge gaps, where research could contribute to the management of protected areas in Europe and beyond, in particular with a focus on climate change. Eight 'clusters' of knowledge gaps were identified, thus:

1. Perceptions, attitudes and behaviours
2. Socio-economic mechanisms to consider impact of mitigation & adaptation
3. Working beyond the boundaries of protected areas
4. Impacts of climate change on biodiversity
5. Systems Approaches
6. Planning Processes
7. Evaluating the role of Protected Areas
8. Monitoring and Data-sets

The workshop concluded with reflections on the main lessons and gaps discussed, and the next steps in developing 'learning landscapes' in Scotland. It was agreed that a focus on landscape-scale management organisations was maintained to ensure the appropriate audience were targeted with the resulting recommendations as these organisations have the potential to act as important knowledge intermediaries between researchers and local communities or individual land managers. The report presents a revised model for partnership working for developing learning landscapes based on the workshop discussions. Further research gaps (in addition to the eight clusters) include the need for better research to evaluate protected area management; to research the role of social interactions for successful networks and partnerships; and the appropriate processes to elicit the 'right' research questions.

The workshop discussion and literature review contributed to a revised model and draft recommendations for guidance for developing learning landscape partnerships. In summary, these recommendations include the need to agree partnership type, goals and benefits; the need for institutional support and resources; and the need for the 'right' people with multiple perspectives. There is also a need to identify shared priorities and understand motivations between researchers and protected area managers, as well as to agree roles, methods and data sources, and for research output to be accessible and provided in the 'right' format.

The revised model and the draft recommendations will be further tested at a European workshop to be held in September 2014, involving 12 pairs of academics and protected areas managers from across Europe, and the outcomes of both workshops presented during the EUROPARC annual conference. It is intended that the final output will be distributed to all participants and that EUROPARC will make recommendations to the European Commission. In Scotland, it is suggested that existing partnership arrangements are reinvigorated through a 'stock-taking' process, in order to: address data sharing; engage with existing research programmes; and establish research priorities for the next research funding cycles. All relevant networks interested in these outputs should be made aware of the outcomes of this workshop, including CAMERAS.

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1: Introduction

This workshop was held on 28th April 2014, at the Carlton Hotel, North Bridge, Edinburgh. The workshop discussed ways to develop learning landscape partnerships and how best to set up partnerships between local research organisations and protected area managers, so that research is relevant and easily used by managers to deliver multiple policy goals (nature conservation and beyond, including rural development and ecotourism). The objectives were to:

- Share ideas about how to develop learning landscape partnerships to ensure protected area management makes use of research more effectively.
- Support existing European and Scottish partnerships using these insights.
- Further develop these insights at a EUROPARC workshop in September 2014 and the EUROPARC conference in October 2014.
- Enjoy the space to think with stimulating company.

The workshop drew on the experiences of Scottish academics and protected area managers, aided by some reflections from European participants already experienced in such partnerships. Participants represented: Cairngorms National Park Authority, Edinburgh Napier University, EUROPARC, Hortobágy National Park Directorate, James Hutton Institute, Macaulay Development Trust, the Royal Society for Protection of Birds, Scottish Natural Heritage, University of Rome, and the University of the Highlands and Islands.

These participants included academics from a range of social and natural sciences, and protected area managers working across Scotland on regional or landscape-level protected areas. The workshop was kept deliberately small, to foster small group dynamics, but obviously there were many other participants who could have been invited, or were invited but unable to attend. This report summarises the responses of these participants to a 'model' of factors effecting learning landscape partnerships derived from published literature. Their responses provide some provisional conclusions that will be further debated with European participants (see next steps).

The workshop was funded by the Macaulay Development Trust and built on research undertaken in the Scottish Government Environmental Change Research Programme 2011-2016 and the previous programme 2006-2011. We have acknowledged the contribution of our participants through making them all authors on this report, as it represents a synthesis of the knowledge that was shared and generated at the workshop.

2. Why do we need learning landscapes?

Carol Ritchie, from EUROPARC, placed the workshop in context by explaining why EUROPARC were interested in the issue. EUROPARC is an umbrella organisation with around 400 members in 36 countries representing a wide variety of protected areas including regional and national parks, and others designated by European Union policies (e.g. Natura 2000). EUROPARC aims to improve the conservation status of Europe's shared natural heritage, which is particularly important given that the 2020 biodiversity targets are unlikely to be reached and therefore natural heritage continues to need a concerted effort in terms of its protection, and where necessary, restoration. The objectives of EUROPARC can be summarised as: protect more, involve more and invest more (and/or better as one participant suggested).

As recognised by the IUCN, protected areas are complex phenomena but essentially represent 'people' and 'places'. Therefore, protected area management includes activities such as biodiversity management, landscape management, sustainable tourism and other forms of economic development, and environmental education. Thus, protected areas have multiple objectives and their managers have to balance their responsibilities to biodiversity protection with the need to sustain rural economies and communities. They need to balance meeting statutory targets with social preferences and local communities' acceptance of change. Furthermore, protected areas require adaptive management at the landscape scale involving multiple stakeholders, due to the unpredictability of future changes driven by things outside their control, such as climate change or economic conditions.

The European Commission is very interested in sharing good practice through networks to ensure that protected area policies are well implemented and achieves its sustainability objectives. Very often members of EUROPARC lack information on which to make decisions, and/or do not receive

useful feedback from research undertaken within their protected areas. Increasingly, funding for protected areas is tied to results and illustrating the impact of the funding, but protected area managers lack evidence for their actions or to evaluate the results of such actions. Furthermore, protected area managers are often a source of good local knowledge about people and places within their protected areas, which can greatly enrich research in these areas. Research - from monitoring ecosystems through to understanding visitor perceptions – is needed to support many aspects of protected area management (see Section Five).

During the workshop, there was a recurrent discussion regarding definitions of the ‘protected area manager’, as a number of participants highlighted the importance of working with land managers and local communities who directly manage, or influence the management, of protected sites. However, the workshop focussed on building relationships between EUROPARC member organisations, that manage landscape or regional level protected areas, and have organisational objectives focussed on protected area management.

Of course, protected area management is an example of multi-level governance, involving a range of stakeholders from international organisations through to individual protected site managers. Furthermore, ‘protected area managers’ such as Scottish Natural Heritage, Cairngorms National Park Authority or RSPB could not manage their sites without the contribution of many other organisations and individuals. There may be merit in building relationships between researchers and these other organisations and individuals. However, we also believe that EUROPARC member organisations already act as intermediaries between researchers and these stakeholders, so the focus of this project is to make this intermediary role as effective as possible.

3. How might we develop learning landscapes?

This section presents the results of a literature review that assessed what scientific publications suggest makes for effective research-user relationships and feedback on this review received from the participants. The two sets of inputs have been synthesised to provide some provisional ideas to discuss further.

3.1 View from the Literature

Overall, the literature suggests that there is a problem with the way that researchers’ insights and expertise are integrated into protected area management and that research too often fails to tap into manager’s scientific, administrative and lay knowledge. The requirement for research to show ‘impact’ alongside many researchers’ desire to make a practical difference is driving increased attention to improving knowledge exchange between these two sets of stakeholders. Overall, the literature highlights that accumulation of knowledge is not enough to protect our natural heritage and more attention to how this knowledge is used is required.

We can learn from the vast literature on **partnership working**. In brief, the main elements to consider are:

- Shared objectives and vision for final output/outcome
- Recognise different motivations and reward mechanisms
- Shared understanding of problem and philosophy of how to fix
- Trust, equality and acceptance of constructive conflict
- Frequent and two-directional communications

- Willingness to take risks and change
- Willingness to cooperate not compete
- Resources and time
- Freedom to fail
- Need strong leadership, humour and passion

We can also learn from the vast literature on **learning and knowledge exchange**. An essential issue to address is whether these learning partnerships should have instrumental objectives (supporting specific management actions) or normative objectives (supporting wider aspects like capacity building or empowerment); as this choice will determine which processes are most likely to deliver the desired outcomes. Learning has multiple dimensions (single loop for individuals; double loop in social groups; triple loop for institutional change), which makes knowledge exchange a complex social process that deserves more attention. Much of this literature suggests that new modes of research are required - best described as problem focussed research drawing on multiple sources of knowledge. However, there is still a role for 'traditional' science.

Building on these two literatures creates a specific focus on how to ensure **research has 'impact'** - generating impact is more likely when knowledge is generated:

- At the right time and scale for issue at hand (salience)
- With individuals who are trusted and respected (credibility)
- In a process that is transparent and rigorous (legitimacy)
- When research outputs are concise, accessible and easy to understand
- When the outputs are actively disseminated to a specific audience

All of these are easiest to achieve through a process that is a partnership not a transfer. Coproduced knowledge should be scientifically valid; socially robust and policy relevant. Co-produced research is often more accurate and likely to make a difference, but risks being seen as regarded as less objective or not innovative by other researchers. Furthermore, co-produced knowledge takes time and requires management input – and still might not give 'the' answer!

There are tips on the most appropriate **tools and approaches** within the literature:

- The form and content of each stage of research affects the utility of results
 - These stages include: research design, prediction/modelling, data collection, implementation and commercialisation, networking, training, and dissemination
- Distinguish whether a project is using either inductive, experiential, learning-by-doing or deductive, scientific experiments or models
- Plan for and fund implementation, monitoring and evaluation of research results
- Both managers and researchers need to build capacity in conflict resolution; collaboration and systems thinking

A specific aspect to consider is **data management and sharing**:

- Awareness of what has been done, why and if this is transferable
- Coordination of multiple sources of knowledge
- Access to data, meta-data and findings

- IPR and copyright issues
- Quality assurance: confidence in data
- Validity & peer review
- Sharing interim findings
- Uncertainty and partial answers

Finally, **institutional support** is required:

- Recognition of different ways of being a ‘good’ scientist
- Recognition that learning is part of being a ‘good’ manager
- Willingness to allow risk to reputation
- New knowledge is a foundation for change but the following are also needed:
 - flexible incentives, planning and regulatory regimes that respond to new knowledge and ideas
 - new technologies and markets to implement ideas
- Understanding of the influence of other actors in the system e.g. funders, auditors, board-members

These insights were combined into a draft ‘model’ for discussion (see Fig 1 below).



Figure 1: Draft model summarising the factors required for Learning Landscape Partnerships

This formed the basis for the rest of the morning’s discussion.

3.2 Comments from Participants

3.2.1: General Comments

First of all, we discussed whether there was always a need for a partnership. There are different levels of partnerships from coordination to full collaboration. Given the diversity of form, function

and size of protected areas, it is likely that their research needs may differ, which will mean they may need different forms of partnerships. Examples of protected area research range from long-term research projects on SNH managed land through to students doing one-day fieldtrips to protected area sites. This workshop was focussed on larger-scale protected areas where management organisations saw added value in long-term collaboration between researchers and themselves. The focus is on protected area management *organisations* (e.g. SNH, CNPA) rather than individual knowledge brokers as these organisations provide formal links with broader stakeholders and land managers. The unanswered question posed during the workshop is whether the fact that a landscape is a protected area, influenced the type of partnership required.

Some felt that sharing knowledge and learning across different topics and places is positive for their organisations. The organisations gain status and prestige from working with researchers and inspiring other parks. However, we have to consider if this can be generalised across different cultures and settings. We are privileged in Scotland as it is possible to influence change here, whereas in other countries, politics can have a more negative influence on partnerships or there are a lack of formal mechanisms, e.g. park management plans, that allow organisations to be held accountable. There are different perspectives on protected area management; in some countries national agencies or protected area organisations are not people-orientated.

There was a general discussion about the institutions designating and managing protected areas. Legislation may be a barrier, as little legislation contains the means of changing or adapting prescriptions (e.g. changing Natura 2000 lists), which makes them unresponsive to the dynamics of changing ecosystems and species populations.

There was some discussion regarding whether protected areas were the right focus for the objectives of the workshop. We discussed how this was part of the outward-looking role of protected areas – to use protected areas to transfer lessons to a wider scale. Thus, protected areas are a lens to consider how to support learning landscapes. Protected area management organisations can provide models of good practice and act as repositories of knowledge.

3.2.2: Right People¹ to Form Learning Landscape Partnerships

What often motivates people to join a partnership is to get easy access to existing networks, in order to avoid replication and save society money. It also allows you to answer questions that you could not answer without the partnership. The network allows you to know where to go to get the answers you need.

There is an opportunity to use students and student projects more effectively in these partnerships. This requires mechanisms to link projects with management needs such that they are high quality

¹ There was discussion about how to involve land managers in these partnerships, and their motivations for joining such partnerships, but these relationships are not central to the model under discussion. Non-conventional, grass-roots NGOs are often pressing academics for answers alongside the more formal NGOs, and these represent another set of stakeholders to consider.

training opportunities and provide targeted information for management. Better use of university Alumni working for protected area organisations would help link research and protected areas. However, we are missing a network of researchers on protected areas to mirror the EUROPARC network.

There was discussion about who could, and how to, identify the 'right' people to build these partnerships as this can be a subjective issue – criteria to help select them might include risk-takers; problem solving attitude; interactive and communicative; willing to cooperate; openness of mind-set; enthusiasm, passion; willingness to share; linkages to other levels (up and down; other organisations and stakeholders). The right people must be accountable and they must be interested in 'getting results'.

Getting the 'right' people might also be an outcome in itself as peer learning, e.g. from one protected area manager to another, is powerful and can ensure that experience and knowledge is passed on.

There is a link to Institutional Support here, as institutional processes and incentives can ensure we get the 'right' people or might promote the 'wrong' people who are not well suited to partnership working. Also, without institutional support, researchers can find it hard to find 'ears to hear' scientific results and managers who will make the time to discuss the implications of their findings.

3.2.3: Shared Priorities and Goals

Participants used metaphors such as marriage to argue that functional relationships have to indicate how all parties will benefit. However, some organisations are happy to support research that contributes to public benefits, even if it is not directly applicable to them, when it is public money (grants) that pays for the site management.

It can be difficult to agree shared priorities. Increasingly protected area management needs 'transdisciplinary' research that draws on all forms of knowledge not just formal scientific research. However, it is difficult to get researchers to build on existing research as doing this is not seen as innovative, and therefore affects ability to win research funding and publish results. Scientists often have different motivations for research compared to managers and whilst they may start engaging with a protected area issue, they may end up changing their focus, or not engaging sufficiently such that their results have impact on management.

Researchers may not realise the balancing act required of managers. Both researchers and managers have many different goals and distractions. There are different priorities depending on the timescale in which the results of research are needed. Often new research requires planning and won't deliver for some time; but managers may need answers in a month or two. The latter is about 'data-mining' what is already available, but this is not innovative research.

However, there is also a perceived risk of agreeing shared priorities, as these may not correspond with organisational or policy objectives and the findings may not support a policy direction. Indeed, research results may threaten the status of a protected area or implicitly critique a protected manager. Furthermore, high quality scientific answers may not always be directly relevant to the specific manager's needs. The counter argument is that 'innovation is not everything' and more relevant science might be as rewarding as the most innovative.

There is an important distinction between benefits accruing to society or the government and the benefits accruing to an individual or organisation. Ideally, we need to design ‘win-win’ partnerships in which these different beneficiaries align.

The discussions hinted that identifying priorities and goals was not a discrete step to take once but needed constant communication to keep people informed of progress and to ensure that the shared priorities were still valid.

3.2.4: Agreed Roles, Methods and Data Sources

Internet and social media should help us capture what is out there and what has been done to date, but research on many relevant issues for protected area management has not been shared or is not known about within the EUROPARC community. Scotland is a small country so there should be ways to link together existing research and research needs together, e.g. Coordinated Agenda for Marine, Environment, Rural Affairs Science (CAMERAS) to align government bodies’ research needs with the main research providers they fund.

Some participants argued that managers often manage sites without proper data and use old-fashioned assumptions about natural processes. In order to really practice evidence-based management, there needs to be EU wide quantification of the current situation, using consistent criteria across the EU, so that trends can be properly monitored. Protected Area managers need to know what happens over the long term; but often researchers can’t get funding for long term and consistent monitoring programmes. There is a huge need for comparative methodologies and common data collection practices across Europe. Within the UK, the joint IUCN-WCPA working group is developing a pan-UK categorisation for designated site evaluation, and the EU ‘Inspire’ Directive on spatial data should help ensure that sufficient meta-data are available to do comparative analysis. Researchers are getting recognition for creating data-sets as well as for publishing the results from these data so there is more motivation to share data.

Another method of collecting data is citizen science, as volunteers can assist with protected area management research partnerships. Citizen science is not only about data collection but also about raising awareness of the issues.

Some argued that protected area managers do not know what their research needs are as they lack knowledge (especially up-to-date knowledge). We are relatively information-rich in Scotland, but many other countries have far less capacity to plan and manage protected areas. Deciding what knowledge is of value for protected area management is a big challenge and needs support. The process of framing questions is very difficult and there needs to be a structured dialogue with researchers to ensure that they address the ‘right’ questions.

There is insufficient evaluation of protected area management objectives and outcomes; more research is needed on how to do this type of evaluation, including the social aspects such as the degree and type of managers’ contacts with members of the public. Many felt that we lack sufficient understanding of the dynamism of the whole system, particularly as research questions and policy drivers change. We need to recognise and track these changes, including trying to establish when and how research is contributing to these changes. We need a long-term repository of formally recorded knowledge alongside informal relationships that help us to digest and use this information.

Participants pointed out that making data public can be problematic when it could be (mis)used in management decisions (e.g. when a conservation activity looks like it is not 'cost-effective' according to some calculations and is therefore discontinued).

An issue straddling this section and the next is public perceptions of protected area management. Often the public assume the habitats and species that are 'there' is what is 'right' as they are not informed about the potential to restore protected landscapes to even better ecosystem health. Therefore, part of a learning landscape should be about educating the public about protected area management so they can participate in its evaluation.

3.2.5: Institutional Support

Participants recognised that partnership building takes time and effort and to be seen as legitimate to a senior manager who has to sign off activities that allow researchers and managers to spend time building relationships and implementing findings. Interpersonal relationships are the 'oil' for the machine: informal, long-term relationships are essential to support day-to-day management decisions. Active cooperation is required, which takes time and commitment. Person-to-person links are essential elements of a long term partnership – one can't link to a 'community' or a 'region'. Partnerships work when individuals connect as people (e.g. at social events like a ceilidh). However, the public see money spent on 'networking' as a waste so it is difficult to promote this. This could be an element for social research which could illustrate the value of these activities.

It is important to ensure that learning relationships are 'up-scaled' from the solely personal to institutional relationships as people move jobs; relationships between institutions are vulnerable if there is only a relationship between two individuals. For partnership to work it needs support at the 'right' (i.e. senior) level.

There is a need for principles/guidelines that can be adapted for use in different organisations. However, others felt that effective partnerships require incentives or possibly regulation to encourage better protected area management based on scientific insight, as the development of such partnerships would be too patchy if we rely on voluntary guidelines. For example, providing geo-spatially comparable data needs to be supported with additional funding as it is more expensive and time-consuming to do than just designing the method to suit the particular project.

The partnership activities need to be structured to ensure requirements are met (e.g. students are learning new skills; researchers can publish their papers, etc.). It is often impossible to ensure that there are specific and tangible impacts on practice from research; the impacts are often intangible changes in individuals' knowledge and perceptions.

Funders need to be educated about what kind of impacts can be expected and that partnership often costs more (at least in the short term). Funders also need to incentivise working together to solve EU wide problems; and to facilitate research that illustrates the 'costs' of not protecting these areas. The impact agenda for research funding is an opportunity, but currently is limited in how well it rewards or incentivizes individual UK researchers.

3.2.6: Sufficient Time and Resources

Often a great deal of time and money are needed to engage the 'right' people, agree priorities and collect the 'right' data before any evidence can be presented. Therefore many participants argued

that this step should be moved to the beginning of the model. However, agencies/NGOs are already hugely stretched and lack resources, which means that while they recognise the need to build bigger partnerships to pool resources, they do not have much resource to build the partnerships themselves. However, there is now funding available for knowledge exchange from Scottish and UK funding councils; and organisations like Macaulay Development Trust and EUROPARC. Time and resources are key elements of institutional support. Partnerships need to have sound financial arrangements in order to achieve their outcomes in terms of protected area management.

3.2.7: Accessible Output in the right format

There was some discussion about what was an accessible output but, in order to be accessible, an output needs to be easily disseminated. The move towards 'open access' journal articles and data-sets is an opportunity for protected area managers to gain access to existing information and data. Research needs to conclude with clearly identified management actions that have been developed in discussion with the managers themselves, so that they are more likely to be implemented. Some felt it was also important to have quantified results. The existence of the web and other social media is an opportunity to increase access to data and information although many protected area managers do not use these to communicate, but prefer emails or paper copies of reports and papers. There is an issue of how to manage the volume of information and how to digest what is relevant to a particular issue. Intermediaries like EUROPARC, which sort and digest information, are useful here. Small workshops are really useful to get this kind of dissemination going. Further information on good practice can be found in section 4 below.

4. Good Practice in Knowledge Exchanges for Learning Landscapes

The snowballing process generated 60 different comments, which were combined during the snowballing exercise. The 'top ten' were discussed in plenary (see below).

4.1: Walk/drive and talk: this is informal way of seeing and hearing (often) practical and focussed examples at specific sites, so it is often a good way to engage land managers in peer-to-peer learning. However, it generates logistical challenges such as coping with bad weather, accessibility issues, what you can cover in one place on foot (or by car), and how to record the information being shared and generated. There is a general challenge that applies to other methods as well as this one: who chooses who talks and about what topics?

4.2: Use of visual aids (e.g. maps and diagrams) for an interactive discussion to engage the public. The point is to use the visual aid to get people talking about what it means. It is good as it covers different learning styles. It does require some skills in interpreting visual information, but this should be part of the discussion. It is time-consuming and can be expensive or require expensive equipment.

4.3: Convening an advisory or steering group to advise on the process from choosing research questions to dissemination of results; and to help with designing and implementing the project/partnership communication strategy. It is a good way of linking the partnership into a wider network. However, not all will participate as you wish and the same problem, of who chooses who joins, arises. You need people with open-minds and those who will focus on the collective best interests, not the interests of their own organisation. The more formal these groups become, the more costly and inflexible they can be, so that they can be a hindrance to effective partnerships.

4.4: Blogging can be a good way to explain a project and raise awareness in multiple stakeholder groups and to link together potential partners. If you link the blog to Twitter then it can be responsive and act as a dialogue. It is quite top level and just a snapshot, but can quickly disseminate information. Some stakeholder groups (e.g. young farmers, protest NGOs) use social media a lot, but EUROPARC research has found that many protected area management organisations do not use social media, so it cannot be the only source of communications.

4.5: Consultations using questionnaires can provide PA managers with a lot of information about what people want or think about a protected area. They can help to arrive at shared priorities, and are inclusive, as anyone can contribute, therefore also transparent and democratic. They also help management approaches to be developed on a topic, not 'agenda' basis. However, there can be information overload, or under-load where there is little response. Either way, it is not always easy to determine the consensus approach without a specific prioritisation process within the consultation.

4.6: Information sharing or developing an archive. This can be virtual (i.e. a web-based searchable database of project outcomes), such as the FP6 'mountain.TRIP' project, or in a library, like the EUROPARC archive at Klagenfurt University. An archive allows people to build on what has been done. However, just because things have been done before does not mean that new research is not needed, as ideas about a topic change. Archives need physical space or ICT infrastructure, which are expensive. They also need to be well-designed by an information technology expert, so that the databases are easily searched and the archive is properly maintained.

4.7: Lectures to undergraduate and MSc courses can help to identify future research projects and provides direct communication between researchers and NGOs. But it is intensive, requiring preparation and attendance time to reach a small audience.

4.8: Written research briefings to the public. This is one –way, passive communication, but it can be very useful. However, it requires the managers and researchers to agree a common message first (this applies to all forms of dissemination whether written or verbal). Written briefings can also be educational material also used in university teaching.

4.9: Networking at topic-focussed workshops. These are ideal for managers who will not read papers or briefings. You can use vox pop (i.e. gathering opinions of members of the public informally, such as in the street), poster presentations at wine receptions, or speed presentations to share research highlights. You can use them to agree guidelines and ways to take the research findings forward. However, they are expensive and time consuming to organise and it can be difficult to get the right people to attend. EUROPARC has done case studies of how to get attendance at workshops. You also need funding to run them.

4.10: Sharing information through case studies can be a powerful way to stimulate peer to peer learning.

Further suggestions and comments on good practice in knowledge exchange for learning landscapes are summarised in the following Table 1.

Table 1 Further Mechanisms and Comments on Good Practice in Knowledge Exchange for Learning Landscapes

Mechanism	Comments
Face-to-face Networking Events for discussion of results and what they mean; and develop guidance on what to do next	<ul style="list-style-type: none"> • Personal contacts at workshops and seminars. • Poster and wine receptions for researchers to explain and discuss their work. • Topic-specific local workshops with stakeholders. • Snap-shot presentations at forum (stakeholder) events that encourages individuals to follow up in more depth. • Small workshops to share reflections on process and on what findings mean for stakeholders (e.g. Park Authorities, land managers, local communities). • Well-designed and well-facilitated face to face processes. • Share insights about common place but going beyond usual topic or comfort zone.
1:1 Discussions	<ul style="list-style-type: none"> • Meetings should last at least as long as a cup of coffee – often rushing to get things done is counterproductive. • Inviting managers out of the office and into the hills – discussion lasts as long as it takes to climb the hill, and both enjoy the setting and discussion.
Free consultancy/advice	<ul style="list-style-type: none"> • ‘I gave free advice to Park Administration and Local NGOs on management and conservation issues relating to their research activity’.
Awareness-raising educational resources	<ul style="list-style-type: none"> • The LIFE project translated general information into locally specific implications for particular places to raise awareness with these publics.
Website to pre-advertise research contracts and needs	<ul style="list-style-type: none"> • To raise awareness of what knowledge gaps are going to be transformed into contracts; to complement the compendium of research already done.
Stall at local events	<ul style="list-style-type: none"> • Present results (via poster or diagram) at a local event attended by stakeholders
General Comments	<ul style="list-style-type: none"> • Develop a communication strategy to link people, process and products and tailor outputs to relevant audiences. • Frame discussion from protected area managers’ perspectives. • Sharing about processes as well as findings; designing and framing research as well as sharing progress and results to date not just final results. • Making information accessible in different languages, providing translations at conferences and events; but also provide multi-lingual summaries and full reports. • Use word-of-mouth, long established contacts and relationships.

5. Knowledge Gaps for Learning Landscapes under Climate Change

The exercise was introduced as an individual brain-storming process “In the context of protected area management under climate change in Scotland/Italy/Hungary/Europe² what are the top 5 knowledge gaps that need to be filled?” Participants then clustered their 47 post-it notes into common themes, providing a narrative as they went.

² As was relevant to the experiences of the participants from Scottish, Italian, Hungarian or European Organisations.

5.1 Cluster 1: Perceptions, attitudes and behaviours

This was around how communities, organisations and institutions might understand and respond to messages about climate change mitigation and adaptation in protected areas. Specific topics were:

1. Managing community expectations/wishes for protected areas (PA) in light of climate change (e.g. managed realignments).
2. Mechanism to engage local people in research – understand appropriate adaptation and mitigation strategies.
3. Societal/institutional recognition and investment in the role of PAs in climate change mitigation – what are current perceptions – knowledge gaps and how to change or inform.
4. People's behaviour – shifting culture/behaviours what works and what doesn't – how do people react?
5. Understand public/stakeholder responses to changing baseline. Understand acceptance/non-acceptance of change.
6. Stakeholder understanding of future landscape change due to climate change.

5.2 Cluster 2: Socio-economic mechanisms to consider impact of mitigation & adaptation

This was about either change to existing mechanisms or what methods and tools were needed to consider the impacts of mitigation and adaptation. Specific topics were:

1. Carbon storage potential and calculations for biotypes and protected areas.
2. Cost-benefit analysis of international cooperation to mitigate climate change.
3. Conflict between user-groups as climate change alters the environment (but also regardless of climate change).
4. Adapting agri-environmental subsidising systems to climate change.
5. Impact of alternative technology structures on scenery in relation to tourism potential and enjoyment of the countryside for local people.
6. Flood management potential of managed realignment around the Forth, creating a more climate resilient landscape.

5.3 Cluster 3: Working beyond the boundaries of protected areas

This was about how protected areas are defined and bounded; how they might change if different criteria were used; and how they fit into the wider landscape. Specific topics were:

1. Research on the full suite of ecosystem service indicators when looking at adaptation and mitigation of climate change.
2. What would be the costs and benefits of extending the protected areas approach to important ecosystem service areas?
3. Protected areas as 'control' areas for changes in wider landscapes – identify climate x land use change interactions.
4. How to work more effectively outside Protected Area boundaries?
5. To assess the viability of ecosystem functioning on a regional/national scale (e.g. beyond protected area boundaries).
6. How will changes in behaviours/land uses outside protected areas affect key PA resources?

5.4 Cluster 4: Impacts of climate change on biodiversity

This was about research that needs to consider how the dynamics of climate change would affect biodiversity and nature conservation. Specific topics were:

1. Current condition of inter-tidal habitat (mainly salt-marsh) and erosion due to rising sea levels and coastal squeeze.
2. To assess the impact of human activities on critical resources/habitats and their accessibility by wildlife species.
3. Potential future roles that could be played by protected areas in the face of climate change (e.g. refuges for endangered species).
4. Projection of biotype/species change at bio-geographical/regional scale
5. Spread of infectious diseases and/or invasive species related to climate change
6. Impact on Firth of Forth Special Protection Area (SPA) species of continued habitat loss caused by climate-induced sea level rise – what is the cost of no action?
7. Can protected areas facilitate/provide homes for species that can't disperse – assisted migration?
8. Impact of climate change on species and biodiversity in protected areas.
9. Habitat changes due to climate changes results in conflicts i.e. habitat X is more important than habitat Y?
10. Understanding the resilience of protected areas to climate change.
11. Nature of 'resilience' in ecosystems facing climate change – e.g. vulnerability if one keystone species is negatively impacted by climate change.

5.5 Cluster 5: Systems Approaches

A plea for interdisciplinary or transdisciplinary approaches to the system, not mono-disciplinary studies. Specific topics were:

1. How will changing temperature/precipitation patterns affect everything (ecology, economic, social) and what are the uncertainties?
2. Impacts of extreme events – scenarios.
3. Need for inter/trans-disciplinary research to deal with complexity of climate change, across multiple natural sciences, multiple social sciences and incorporating stakeholder knowledge.
4. Systems analysis and place-based integration, i.e. ecosystem approach (multi-discipline) versus lots of sector based data.

5.6 Cluster 6: Planning Processes

Research is needed on how to develop adaptive management plans. Specific topics were:

1. Adaptive management planning – practical processes and techniques to create workable plans.
2. Who/what organisations need to be involved in designing management strategies and plans for flexibility.
3. To identify local priorities for biodiversity conservation.
4. Adapting management plans to climate change predictions.

5.7 Cluster 7: Evaluating the role of Protected Areas

Research needed on the role of current protected areas and how these roles might change under conditions of climate change. Specific topics were:

1. Will protecting the same selection of physical and topographical variations enable our current series of protected areas to continue to fulfil their purposes?
2. In the face of climate change, what types of biodiversity needs would benefit from geographically fixed protected areas?
3. Natura 2000 – effectiveness of network and management approach.
4. Are protected areas an effective network?
5. Role of geographically-fixed protected areas in assessing biodiversity in the face of a changing climate.

5.8 Cluster 8: Monitoring and Data-sets

We need both more monitoring and methods to use existing data more effectively. Specific topics were:

1. Evaluating and measuring efficiency and effectiveness of protecting large-scale habitats for wide-roaming key stone species.
2. Mechanisms to statistically combine data sets, i.e. data collected to answer similar questions but using different methodologies.
3. Long-term monitoring of change of a wider set of indicators than currently (tends to be focussed on 'rare' biodiversity).
4. Compiling and analysing existing data sets including those of citizen scientists.
5. Start long-term studies on climatic responsiveness of groups of taxa of conservation concern.

The focus on climate change raised questions about the focus of the overall learning landscape partnership model for two reasons (1) making the model over-complicated/not complicated enough (!) and (2) making the focus on protected areas redundant.

Making the model overcomplicated:

Some participants argued that as we are already lagging behind in understanding our current systems, we should focus on getting the current understanding correct before trying to deal with future changes. It can be challenging enough to build these relationships now and trying to engage managers in thinking about a complex, long-term, and contentious problem like climate change could prevent managers participating. Merging the need to create learning landscape partnerships with the challenges of climate change is too complex.

Making the model not complicated enough:

Other participants argued that climate change was not necessarily the biggest driver for adaptive management of protected areas. For example, changes to the Common Agricultural Policy are a very important aspect of how land is managed in most protected areas. Therefore, if the model is to look at partnerships for adaptive management, they should be considering a range of drivers including: demographic trends, urbanisation, tourism, food security, species conflicts, and the impact of EU policy (e.g. structural funds).

Focus on protected areas:

Some participants argued that climate change impacts occur on a spatial scale that is considerably larger than a single protected area, so the focus on climate change reinforces calls to look at protected areas within their wider regions. Some argued that climate change may require the boundaries of protected areas to be adapted as the habitat or species for which it was designated may have moved. Equally, climate change may drive increased interest in wider ecosystem services beyond biodiversity, which again may require changes in the existing boundaries or objectives of protected areas.

Counter arguments:

Counter arguments to these points are pragmatic and theoretical. Pragmatically, the funding for the European workshop (see section six below) was conditional on the consideration of climate change. Theoretically, the exercise helped us think beyond immediate knowledge needs and engage with some long-term and complex systems thinking. Some participants felt that the models of partnership working factors (Fig 1; Fig 2) were still appropriate. This means the models are robust enough to handle current *and* future research needs, suggesting they are useful tools that will help with *adaptive* management. The clusters provide different challenges for the learning landscape partnerships, but all clusters require effective learning landscape partnerships to deliver research that can be implemented in protected areas by EUROPARC membership organisations.

It is interesting how well many of the research gaps map onto the issues highlighted in Section 2 and Section 3.1 regarding why learning landscape partnerships are needed to help EUROPARC member organisations manage landscape or regional level protected areas. Issues of who decides on priorities and how to use research to inform adaptive management and planning were reinforced. However, many of the issues are not unique to protected areas, but involve wider institutional adaptation (e.g. incentives and planning processes); and new research processes (e.g. greater stakeholder and public engagement; working systemically with integrated and comparative data sets).

6. Outcome of the workshop

The final part of the workshop reflected on what we had learnt during the day and what should happen next. We revisited the discussion about the focus of the workshop. It was generally agreed that it was useful to have a focus on landscape-scale management organisations, to keep the process feasible and to ensure that the recommendations were targeted to the right audience. (For example, some participants commented that much of the discussion would have been very different if land manager representatives were attending). However, learning landscape partnerships, more generally, will involve wider stakeholders. Indeed, the focus on landscape-scale management organisations specifically acknowledges their role as knowledge intermediaries within their particular landscapes.

This workshop report was circulated to the participants for their peer-review before making it publicly available through the webpage of the Social Economic and Geographical Sciences Group, James Hutton Institute: <http://www.hutton.ac.uk/research/groups/social-economic-and-geographical-sciences/projects>.

Following the workshop, the James Hutton Institute facilitators synthesised the literature and comments arising from the workshop to propose a new and improved model and draft recommendations to discuss with the wider EUROPARC network in Europe. The revised model and recommendations are presented in the following sub-section.

6.1 Revised learning landscapes partnership model and draft recommendations

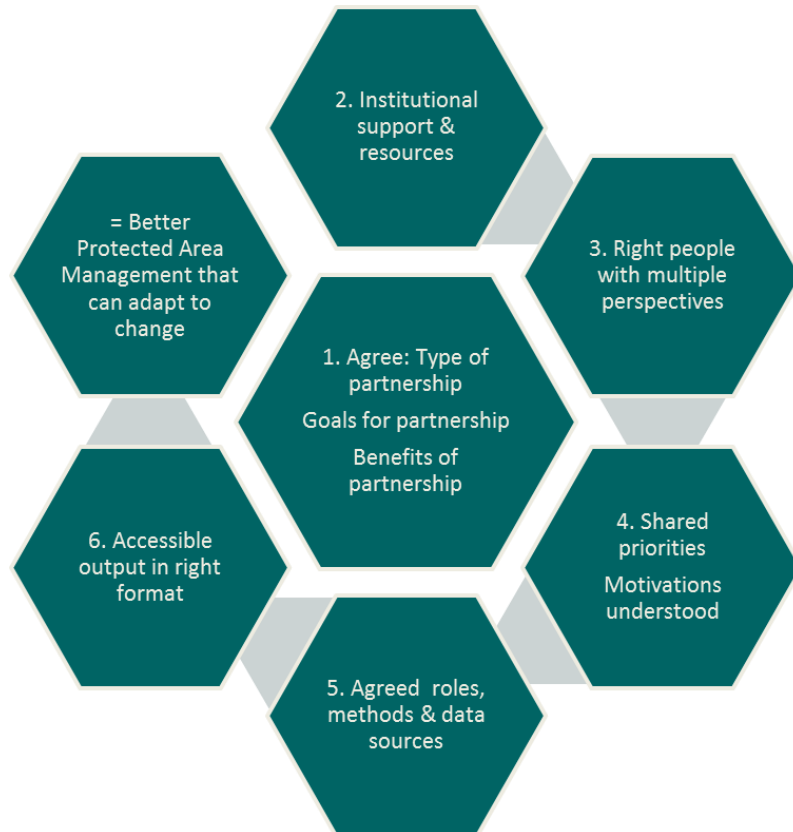


Figure 2: Revised model summarising the factors required for Learning Landscape Partnerships

6.1.1 Agree partnership type, goals and benefits

Consider what kind of partnership is required and for what duration. Consider the goals of the partnership – for instrumental reasons (e.g. to implement a strategy on how to manage under conditions of climate change) or for normative reasons (to enhance the professional development and capacity of staff) or both. As Section 3.1 addresses, partnership motivations will determine which processes will deliver the desired outcomes. Consider who should and will benefit from these partnerships, and how to align societal, organisational and individual rewards.

6.1.2 Institutional support and resources

Partnerships require commitments of time and money to work. Formal mechanisms like a memorandum of understanding could require regular communication of research activity and results as part of the contract (and appropriate responses/requests from the management organisations). These should support inter-personal and informal relationships between individuals. Funding should require, and support, long-term processes (including implementation, monitoring and research results evaluation) that are comparable across Europe. Funders should also be more realistic about the types of impact that learning landscape partnerships can have, and/or revise their ideas of what counts as impact. In this regard, the workshop discussion complements the literature regarding the need for salience, credibility and legitimacy for research impact.

6.1.3 The ‘right’ people with multiple perspectives

Develop a network of protected area researchers, or use other networks e.g. ISSRM (International Symposium on Society and Resource Management) or [ALTERNET](#) more effectively; or encourage

researchers to join EUROPARC as a new category of members. Use Higher Education opportunities more effectively: coordinate and open up current processes such as the Cairngorms National Park Research Strategy and the 'Making the Most of Masters' Initiative to link management needs with research student projects or annual field courses. Degree course assignments could also frame data-mining projects to answer pressing management questions and identify research gaps. One participant suggested a national or international board to judge both the quality and relevance of such projects and award prizes, to make these seem attractive projects and ensure they provide credible results. Different reward mechanisms may be more appropriate according to the motivations for partnership working. Furthermore, the literature advises both researchers and 'managers' to build capacity in conflict resolution, collaboration and systems thinking.

6.1.4 Identify shared priorities and understand motivations

Investigate ways in which researchers can become part of protected area management structures (and vice versa), e.g. sitting on their board or an advisory panel, to increase awareness of management needs. Such integration can permit social learning regarding recognition of the 'good' scientist or 'good' manager. Identify the time frame of when research is needed, so that it is clear whether there is time to do primary research. Check-in regularly with protected area managers (i.e. two-directional communication) to ensure that their priorities remain the same. See Section Five for some initial shared research priorities for protected area management under climate change.

6.1.5 Agreed roles, methods and data sources

The European Commission could set up an equivalent to WISE (The Water Information Service for Europe), which would record all research relevant to protected area management. A long-term repository of knowledge is needed. Build on existing networks and knowledge intermediaries that may have collated existing data and research. Consider the role of citizen science, to raise public awareness of protected area management as well as collect data. Data management, awareness and sharing are key aspects noted in the literature and reiterated by the workshop participants.

6.1.6 Accessible output in the 'right' format

Publish in open access journals where possible and also disseminate easy-to-read summaries that identify clear evidence of change, and suggested actions to take. The literature highlights the need for outputs designed for specific audiences, in this case, protected area managers. Section Four summarises some useful tips about modes of knowledge exchange. Provide summaries in appropriate languages. Embed a communication strategy from the start of any project.

Participants suggested various sources of information to further improve the model and the suggestions, which will be researched before the next workshop in September. Further research gaps (in addition to those generated in Section Five) include the need for better research to evaluate protected area management; to research the role of social interactions for successful networks and partnerships; and the appropriate processes to elicit the 'right' research questions.

The revised model and the draft suggestions will be further tested at a European workshop in September 2014, involving 12 pairs of academics and protected areas managers from across Europe. EUROPARC are particularly interested in learning more about existing communication platforms and portals. The outcome from this workshop will be presented at the EUROPARC Annual conference (to be held in Killarney, Ireland at the end of September 2014), attended by most of its membership

organisations. The model and recommendations will be further revised based on feedback collected at the conference. The final output will be re-circulated to all participants from the three workshops. It will be presented, by EUROPARC, to the European Commission's DG Research and submitted for publication in a suitable academic journal. It is surprising that organisations such as the IUCN are not undertaking similar activities, but EUROPARC believes there are no other initiatives like this taking place. Therefore building these relationships is a niche that needs addressing.

There were some suggestions of how to take this forward within Scotland. In particular, we may not need 'new' partnerships, but to invigorate existing arrangements through a stock-taking exercise to: address data sharing; engage with existing research programmes; and establish research priorities for the next research funding cycles. It would be useful to establish a list of relevant networks that could be interested in these outputs.

Participants agreed to put the outcome of this Scottish workshop on the agenda of CAMERAS (Coordinated Agenda for Marine, Environment and Rural Affairs Science) to ensure that the relevant organisations are aware of this initiative; and to put a short article into the Scottish Consortium of Rural Research (SCRR) newsletter for the same reason. We all agreed to tell our colleagues in our organisations and networks about the event and its outcomes.

Annex One: Agenda

9.30 – 10.15	Coffee and informal meet and greet <i>Tea and Coffee available all day in the room</i>	
10.15 – 10.30	Learning Landscape Partnerships: A view from Europe	Carol Ritchie, EUROPARC
10.30 – 10.45	How do we develop learning landscape partnerships? <i>Starter for 10 presentation ending with questions for group discussion below</i>	Kirsty Blackstock, James Hutton Institute
10.45 – 11.45	Building on existing good practice – insights from experience <i>Round table working – please come prepared with information and material to share if relevant</i>	All participants
11.45 – 12.30	Common Opportunities, Challenges and Issues for research –management partnership working <i>Small group discussion to identify issues to address in guidance/principles</i>	All participants
12.30 – 13.30	Lunch <i>Sit down lunch in main restaurant</i>	
13.30 – 14.30	Mechanisms for sharing research and maintaining partnerships <i>Snow ball exercise to identify existing communication platforms followed by analysis of their strengths and weaknesses</i>	All participants
14.30 – 15.30	Why do we need learning landscape partnerships – what are the main gaps in our knowledge? <i>Round table discussion – please come prepared with your individual top 5 knowledge gaps to be filled</i>	All participants
15.30 – 15.45	Sum up, next steps and close	Kirsty Blackstock, James Hutton Institute

Annex Two: List of Participants

Hamish Trench	Cairngorms National Park Authority
Jan Dick	Centre for Ecology and Hydrology
Kathy Velandar	Edinburgh Napier University
Carol Ritchie	EUROPARC
Zsolt Végyvári	Hortobágy National Park Directorate; University of Debrecen

Kirsty Blackstock	James Hutton Institute
Annie McKee	James Hutton Institute
Robin Pakeman	James Hutton Institute
Laura Meagher	Macaulay Development Trust
Paul Timms	Macaulay Development Trust
David Anderson	Royal Society for the Protection of Birds
Stewart Pritchard	Scottish Natural Heritage
Paolo Ciucci	University of Rome
Martin Price	University of the Highlands and Islands

Annex Three: Participant Feedback

We received nine feedback forms. Overall, the majority of participants found the workshop useful (n=3) or very useful (n=5) and all respondents would like to participate in further workshops on this topic.

Participants rated all aspects of the workshop either good or very good (see Table A). However, there were various suggestions to improve future meetings, including:

- To invite more land managers to the next event to provide a more varied perspective.
- To allow more time to go deeper or into more detail on the topics covered.
- To have more information on the other participants before the workshops.
- To organise such workshops more regularly in the future.

Table B Workshop Aspect Participant Rating

Workshop aspect	Participant rating (number of respondents)	
	<i>Very good</i>	<i>Good</i>
<i>Pre-meeting communication</i>	3	6
<i>Workshop structure</i>	5	4
<i>Facilitation on the day</i>	7	2
<i>Accommodation/catering</i>	6	3
<i>Materials provided</i>	4	5
<i>Quality of the interaction</i>	7	2

The main lessons and outcomes of the workshop for participants included that:

- The opportunity for collaboration is extremely varied and setting up close partnerships will be very productive.
- Some frustrating problems faced locally in improving relationship with park managers are globally shared, and most probably relate to structural/organisational issues.
- There are interesting similarities across borders.
- A small group of international experts can work very effectively.
- Protected area management can be seen as a nexus for/of learning partnerships.
- A lot of what was discussed is not currently common practice in the EU.
- Various networks exist and promote 'triple loop' learning.

The participants also valued meeting the other participants and workshop organisers, and sharing perspectives and enthusiasm with a focus on protected areas.

A number of participants explained that they hoped to do the following as a result of the workshop:

- To explore avenues of establishing partnerships and communicating ideas.
- To connect more internationally!
- To see national parks as more than a place to have research sites, and to go beyond owners of sites in interactions.