Wales Biodiversity Partnership Conference Proceedings 2011

Trinity College, Carmarthen, 14th and 15th September 2011

Delivering Ecosystem Health- building resilience, restoring biodiversity.

The fourth Wales Biodiversity Partnership Conference in partnership with the Welsh Government and the Countryside Council for Wales took place at Trinity College, Carmarthen. Morgan Parry, Chair of Countryside Council for Wales opened the conference and welcomed delegates.

Professor Chris Baines provided the keynote speech and John Griffiths AM, Minister for Environment, Sustainable Development gave the Ministerial address with over one hundred and twenty delegates from a wide-ranging group of organisations in attendance.

Day 1

Chair: Morgan Parry, Countryside Council for Wales

Ministerial Address – John Griffiths AM, Minister for Environment and Sustainable Development

The minister talked broadly about his priorities for managing the natural environment and about the development of an Environment Green Paper to progress the Government's new approach to protecting the environment and the announcement of an extra £1million to help create new habitats and stronger ecosystems for Wales.

The Minister said:

"I want to challenge the old orthodoxy and test the appetite for fundamental change to the way we manage our natural capital."

"The Environment Green Paper, the Sustainable Development Bill and the Environment Bill contained in our legislative programme will all contribute to a Welsh approach that puts ecosystem health and the sustainable use of our land, sea and air at centre stage."

"I am confident this will ensure that we have increasingly resilient ecosystems that are managed to deliver the best sustainable economic, social and environment outcomes for Wales."

Keynote Speech: Professor Chris Baines, Vice President Royal Society of Wildlife Trusts (RSWT)

Professor Baines highlighted the importance of iconic species as a mechanism to engage the general public in the conservation debate, highlighting what we can achieve by rebuilding the integrity of landscapes and aiding connectivity.

Although there is a perceived lack of knowledge at present, there has been an improvement in knowledge base in Wales over the past few years and advancement in technology will aid this. Professor Baines noted the key role of initiatives, such as the Big Garden Bird Watch, in engaging the public and building the evidence base.

The recent ascendancy of Buglife and other smaller NGOs pays tribute to the increasing engagement of the public.

The importance of urban areas for wildlife was noted, forming an interconnected mosaic. Urban landscapes have a key role to play but the urban population needs to be engaged and the conservation sector needs a change of mindset across the UK. Despite this challenge the vocabulary of urban planners is changing, presenting opportunities for urban planning to be integrated into the landscape approach.

Changes in the attitude towards conservation are evident in terms of the connection with human quality of life and the value of ecosystem services, with a shift in emphasis to what makes nature relevant to the population. Evidence demonstrates a strong connection between functionality of nature and human quality of life and our understanding needs to be applied in this sense. These are the issues which will influence political will and public spending and these arguments will continue to be sharpened as the increasing impacts of climate change become evident, with some of the most significant impacts seen in urban environments.

There are ever increasing examples of good practice and innovation, such as the Rigs to Reefs programme, which can be seen as an opportunity to re-build ecosystem, thinking on a broader/bolder scale with new partners.

Despite these developments there remains a lack of knowledge and understanding of natural systems and there is a need to address this and break down silos whilst singing about the functional benefits of nature and ecosystems and developing increasingly ambitious plans.

Q&A Session. Morgan Parry, John Griffiths AM, Chris Baines, David Parker

Volunteers engage with this work because of intrinsic value, however the focus of the SEB work appears to be social and economic – is intrinsic value being lost?

Morgan Parry – There is value to always having the concept of sustainable development as part of what WG is doing, and all these aspects need to be knitted together ensuring environmental aspects cannot be lost at all. The key will be ensuring the business case is effectively considered. There is a need to be watchful and careful and ensure that the contribution of three statutory bodies is not lost in any way, and the successfulness of the process will be judged on the result.

Chris Baines – emphasised that despite the keenness to take an ecosystem services approach, with a focus on sustainable development, the conservation sector need to keep emphasising the intrinsic vale of the natural environment.

The commitment to designate HPMCZs is welcome. How are governments going to ensure short term economic benefits will not impact on designation of MCZs which should deliver environmental benefits?

John Griffiths – In the past there has been a sterile view of the environment and economics, but we are now in a better place. Officials and Minsters are now committed to this and short term economic benefits cannot be allowed to impede this process.

David Parker – 30% of Welsh seas already designated as Natura 2000 sites and it is likely that any new HPMCZs will sit within these sites. We need to move towards sustainable management of our marine environment (connectivity and integration) and the Marine Strategy Framework Directive (MSFD) will be key to this. There is a challenge to UK and Welsh governments to ensure this is done effectively.

Local Authorities already have a number of statutory duties, what will be done to assist LAs in delivering environmental benefits? – increasing support is needed form higher levels of management

John Griffiths – The Welsh Governments sustainable development commitment should set an example for Local Authorities in Wales. Welsh Government is keen to work with cabinet members to ensure they understand the issues and the need to fund environmental projects and offer advice. Carl Sergeant AM, Minister for Local Government, is keen on building partnership approaches to demonstrate best practice across local authorities. There is much good work to build on and Ministers will work together to develop this approach.

Chris Baines- It is essential that the direction must come from the top down in order to demonstrate truly integrated thinking. England will look to Wales as an example. Welsh Government must set a good example.

Q. As an ecologist I worry that constant economic growth and truly sustainable development is incompatible and will have inevitable impacts on biodiversity?

John Griffiths – In the past there has been an un-sustainable approach to economic growth, but the government has now started looking at what constitutes success and measures of happiness. The environment should be put at the forefront and can deliver a better quality of life.

Chris Baines – The focus should be on economic vitality rather than growth. Fisheries are a prime example of this. Green space is central to planning and regeneration.

Left to right: Chris Baines, David Parker, Morgan Parry, John Griffiths AM

Presentations

Biodiversity Mapping in Wales – planning for the future
Jan Sherry and Jim Latham, CCW

Jan and Jim introduced attendees on the biodiversity mapping project. The process is complex, incorporating mapping of both biodiversity and ecosystem services. At present the focus is on terrestrial mapping, taking a landscape-based approach to conservation management. Projects use connectivity data, although there are inconsistencies in how the data is interpreted and used.

The WBP Priority mapping project is one of many mapping initiatives taking place at present and there is an interest from the NEF team in terms of ecosystem data sets and mapping.

A summary of what is available and how it should be used was presented to attendees. The mapping takes into account both the habitat resource and the connectivity combined, to produce maps of broad functional aspects of ecosystems. The result is the mapping of the

general resource with priority areas identified within them. This enables us to concentrate on areas with highest value and under greatest threat, with the potential for success using prioritisation.

The mapping is divided into three levels;

Level 1 shows the distribution and area of existing habitats/ecosystems and includes the zone around the habitat that represents their potential functional extent. The potential functional extent has been mapped using the least cost modelling approach developed by Forest research and CCW.

Level 2 shows the priority areas for targeting action to improve the health and resilience of habitats/ecosystems. This may be through habitat expansion, restoration or improvements to permeability between habitat patches so that ecosystems become more robust and functionally connected. Priority areas are identified by selecting key networks from Level 1 e.g. those networks which support statutory or second tier sites or key sites for Section 42 species.

Level 3 shows the Priority BAP Action Areas.

Functional areas which support designated sites. Interpretation has been done to target areas for restoration and expansion. Ecosystem services by woodland/forestry include water/flood management. Overlaying of these maps with flood maps shows clear benefits. Floodplain woodland is a critically endangered habitat.

This work will soon be extended to other areas, and will result in a web based project providing maps/guidance that can be updated as required. Guidance was requested from local authorities, as to how this data can be best used and delivered.

Q - At what scale will this be used?

A - The maps can be sued at any level and this will be dependant on the project. Guidance will be produced to accompany these layers. The intention at the start was to be strategic as that way what was missing.

Q - How is connectivity being mapped in terms of non-native species?

A - By developing better understanding of connectivity you can build in better control measures for non-natives.

Anglesey and Llyn Fens Project – large-scale wetland restoration for people and wildlife, Justin Hanson, CCW

Justin introduced attendees to the Anglesey and Llyn Fens Project, highlighting the fact that there is a huge amount of money is available for nature conservation in Europe. The work

being undertaken on Anglesey is focussed on the importance of fens, where some major issues are not being addressed.

There are a number of problems on site, including hydrology, encroachment, dereliction and community involvement. The restoration project is focusing on habitat restoration and community engagement with locals/farmers.

Soapbox Session: Biodiversity Action Reporting System (BARS). Oliver Grafton, Senior Specialist, Biodiversity Reporting: Natural England

Oliver introduced attendees to the current development of BARS and invited those interested to visit the interactive stand in the exchange fair to learn more. Further information on the BARS development can be found at http://ukbars.defra.gov.uk/

The South Wales Wetlands Project – landscape-scale habitat creation.
Becky Davies, Environment Agency Wales

Becky introduced attendees to the south Wales wetland project, the importance of wetlands as part of urban drainage systems within LA areas and the need for an integrated approach to habitat corridors throughout south Wales.

The project has focussed on linking habitats, community access, green space and educational benefits etc and has had beneficial effects for the wider community.

£30k of funding has been provided by the Environment Agency Wales and partner contributions, with 9 partners in total. Each local authority involved was asked to identify opportunities in their area. In total 20-25 projects across 9 areas initiated, with work progressed though community groups.

In Merthyr Tydfil the focus was on great crested newts and in Blaenau Gwent work was conducted in a Communities First area. In Rhondda Cynon Taff ponds had been installed previously as part of s106 agreements and had then been unmanaged and fallen into poor condition. The project presented an opportunity for restoration of these sites.

Large-scale Quarry Restoration for Nature
Noel Williams, Quarrying Consultant & Gerry Lucas, Edge Hill University

The Clywidian Range has seen significant visual impacts of limestone quarries. As a result a unique restoration techniques, developed by Noel Williams, was implemented by his employers and these techniques have now been adopted globally at all of their sites.

This study conducted for an international cement company used a geographical information system (ARCGIS) to measure the impact and value of a simple, cheap and low carbon restoration technique pioneered by the quarry manager involving habitat translocation and maintenance of partial living spaces.

The study demonstrated that quarries, when sensitively restored by simple techniques, can add significant value to the ecology at varying scales at a minimum financial and carbon cost. A computer based technique added scientific weight to the observations and formed the basis of future low cost biodiversity monitoring.

The restoration technique involved the creation of shelves and screes. Binds were also created at various angles and depths. The technique developed from top down using sequence of delays etc and spoil deposited from rock faces.

Edge Hill University have produced a report on the process, which provides scientific validation of the ecology of the site. (Gerry Lucas, Edge Hill University: 2008). This involved intensive field mapping, including the buffer zone. Restored slopes combined with partial living spaces were richer than surrounding areas. For further information please contact Gerry Lucas Lucasg@edgehill.ac.uk

Heather and Hill Forts
Nick Critchley, Heather and Hill Forts Project Officer

'Removing barriers and continuing work beyond the lifetime of a grant'

This scheme was made possible through a Heritage Lottery Fund partnership, the aims of which were:

- reconnect people through education, events and interpretation.
- conserve and maintain heather moorland, demonstrating sustainable agriculture in harmony with biodiversity.
- increase understanding.

http://www.heatherandhillforts.co.uk/index.php/en/about/about-the-project

Landowner and tenant farmers needed to be re-engaged with their heather moorland. The total area targeted covered 4,600 acres, including common land, all of which was sheep grazed. The challenge was to restore largely unmanaged heather moorland; the majority of which was in poor condition with bracken and encroaching scrub woodland. Management perceptions needed to be questioned, and management practices re-established in order to restore the heather moorland and its archaeological features.

The dense and widespread stands of bracken were addressed by mechanical crushing with 90 acres being tackled by the graziers. Banks of gorse were cut rather than burnt. Long-term bracken control addressed through large scale spraying by helicopter. As a direct result of the

bracken management graziers have found sheep easier to gather, and have reported a decrease in tick numbers.

Demonstrations in heather burning and cutting were provided to graziers. Management equipment was purchased for the grazier associations. Support was also gained from Tir Gofal payments and Section 15 SSSI agreements. College students were engaged in regeneration surveying and provided practical help to the project. In Year 1 sheep elected to graze in managed areas which greatly influenced graziers attitude to the introduced management. Other issues addressed included unseasonal fire control management and illegal off road driving, which had previously caused severe erosion. Illegal vehicles were removed from the area through direct police seizure made possible through the 'Moorland Watch' Scheme. The success of the scheme was measured by 64% increase in owner management and grazier engagement. Black grouse were also shown to have increased following introduced management. The main reason for increased engagement was economic – improved sheep rearing.

Q - Was there public concern re. bracken spraying?
A- Pre-empted complaints of spraying by visiting communities and people.

Q - Re. Burning management
A: Interpretation and engagement supported the introduction of heather burning in targeted areas. Graziers will take on burning management independently in the future with the support of the Fire service.

Q - Re. Bracken re-growth
A: During Year 1 and 2 College students undertook field survey of regeneration. Mechanical bracken control proved really beneficial. Liming has not been tried; CCW would need to be consulted.

Q - Re. Archaeological and cultural side
A: Five Iron Age Hill Forts were heather covered at the start of the project. Management was limited, as machinery could not be used due to the sensitive archaeology, and burning would risk damaging the fort ramparts. Careful guided management, working closely with CADW and monitored by archaeologists resulted in the uncovering of archaeological features including round house structures.

Day 2

Chair: Matthew Quinn, Director, Environment and Sustainable Development, Welsh Government

Presentations

Delivering the Natural Environment Framework: Examples of Ecosystem-based projects: Katie-Jo Luxton & Rachel Sharp, Wales Environment Link

Katie–Jo Luxton suggested that a number of projects developed through the voluntary sector, e.g. RSPB and Wildlife trusts can be viewed as pilots for the NEF Ecosystem Approach. Engagement opportunities exist between Welsh Government, statutory agencies and the voluntary sector to deliver NEF in practice. The Ecosystem Approach requires understanding of the ecosystem, pressures acting on the ecosystem and mechanisms available to address these. No one organisation can influence land management on its own so partnership is key with clear shared objectives and funding. Be ambitious. Consider a range of funding sources. Consider research needs – create partnerships with Universities.

***Example 1*: North Wales Moors LIFE project, blanket bog restoration**. The 5 year project concluded March 2011. UK holds 12-15% of world resource of blanket bog with Berwyn and Migneint supporting the largest and most valued extent in Wales, and is highly designated as a result (incl. 2 SACs). The bogs provide for the needs of a specialised assemblage of flora and fauna. Well-functioning blanket bogs have a major role to play in climate change. Recent reports state that UK peatlands could store 41,000 tonnes of carbon annually if in pristine condition - equivalent to 230,000 cars taken off our roads every year. However, a drying bog releases carbon.
Bogs play a useful role in the hydrological cycle. The natural sponge effect of the peat ensures its store of water is gradually released; the storage capacity of the peat effectively reduces flash flooding and drought events. The filter effect of the peat also improves the quality of drinking water. United Utilities spend millions removing the brown colouration from our drinking water, resulting primarily from peat erosion and loss. The quality of the water has implications for fish and other aquatic fauna health; and implications for the salmon and trout fishing industry, both important in Wales.

History and culture. People have lived and worked in our uplands for over 4000yrs and still rely on these areas for farming and recreation today. Threats to our blanket bogs include climate change, with likely drier summers and wetter, stormier winters acting to increase the erosion of the peat by drying, cracking and then washing it away. We need to ensure our bogs are in good health and resilient to the effects of climate change.

Across the Berwyns, and many other UK uplands, drainage “grips” were installed following WW2 and up to the 70s and 80s. The grips were expected to promote grass growth through drier conditions but didn’t have desired effect. However, they did lower the water table and alter the vegetation. Sheep numbers need to be balanced against the impact they have - too

many and the native bog plants are lost and you are left with a grass dominated landscape rather than heather; - too few and trees/rhododendron can invade.

The LIFE project was a partnership between RSPB, FCW, CCW and EA, with RSPB the lead partner. The majority of the £3.2 million funding came from the EU LIFE-Nature program. Drains were mapped using aerial photography and ground-truthing. Farmers had lost many sheep through the ditches. Mechanical re-profiling of the ditches and dam creation left pools of water for Sphagnum to re-colonise and safe crossing points for sheep and farmers. In total 480km of drains were blocked. 48 ha of plantation forestry has been removed and planting drains blocked. 485ha of regenerating Sitka spruce removed. Engagement with communities was through guided walks, talks, school visits, demonstration events, advisory and advocacy work with local farmers and land managers.

Research undertaken has shown increased water tables, increased water table stability and decreased peak flow. Decreased Dissolved Organic Carbon and Particulate Organic Carbon and therefore lower colouration. Vegetation surveys are awaiting analysis. Tick numbers low and the same pre and post blocking. No liver fluke found as too high, wet and acidic. Sheep loss in drains reduced to 1 loss. Overall research confirmed no advantage to farmers in having grips on their land.

***Example 2*: Pumlumon Project 'Inspiration of Landscape'**

Rachel Sharp asked 'How do we protect reserves in the context of climate change?' and suggested we have to approach management at the landscape-scale. As a jig-saw each piece of the landscape needs to be understood and incorporated. Resources need to be tapped to enable longer term projects, be they 2,3,4 or 5 year. Partnerships are needed to address complex work. The evidence base must be robust.
The Pumlumon Project covers 40,000 ha and 250 farms over a 5 year programme; the target area encompasses a vast watershed, the source of the Severn and Wye. A socio-economist was included on the Project Board. People were encouraged to get involved with the landscape. Base-line data was used. RSPB blocked drains. Local beef and lamb produce marketed as project meat-boxes. CEH students provided monitoring support. Water table levels increased by 5cm. An audio trail was introduced for visitors which increased public interest and numbers visiting. A 'necklace' of interpretation and engagement was created. Next year looking to Buff-cam! Sourcing funding can be a huge investment of time and effort, needs careful consideration of suitable sources.

Q – Socio-economic opportunities for NEF-we need to move quickly and address with effective mechanisms
A(RS)- Need to tackle lowlands and consider how we address food security; how do we influence? River Severn-Source to Sea Project. We need to consider urban areas. We need to communicate with new markets to influence funding opportunities including targeting insurance providers. The latter need to keep dividends down to attract/retain customers.

Q-Thousands of sheep off hills has implications for birds due to loss of dung for invertebrates. At a time when woodland and ground nesting birds are at all time low.
A (KJL)- Cattle and horses on Vyrnwy Farm providing dung source and are providing profitable returns. RSPB have found no causal link between numbers of sheep and loss in ground nesting birds. Not simple, other factors also influencing loss, such as availability of winter feeding, spring feeding and nesting habitat. Critical resources need to be met where species still occur. Critical resources of curlew and lapwing are still not all met. Survival rate is very poor at present. Project on Hiraethog looking at these to provide all critical resources. It is considered likely that in 10 years lapwing will only occur on Nature Reserves and curlew will no longer be seen.
A (RS)-Need spatial planning for the environment – to achieve net gain. No biodiversity loss needs to run through Planning Bill.

SCaMP Project is a good example of working with the water industry (United Utilities) to address land management issues negatively affecting both wildlife and water quality by treating the problems at source as opposed to 'end of pipe solutions'. Water regulators are potential sources of funding. Public lobby of OFWAT needed and Government pressure for delivering ecosystem service outcomes e.f. upland areas retain/filter water & carbon, habitat improvements in the uplands would benefit biodiversity & society.

Influencing Government and inspiring people: The WEL Marine Campaign, Wales Environment Link Marine Working Group:

John Clark, Marine Policy Officer, RSPB Cymru
Dr Wendy Dodds, Marine Policy Officer, WWF Cymru
Beth Henshall, Marine Campaigns and Advocacy Officer, Wildlife Trusts Wales

The Group provided examples of their work and demonstrated marine links across the UK. They have led a targeted campaign to look at how the Marine Act is being implemented. The intention is to produce an ecological coherent network of protected sites. A strategic approach is being developed for marine planning with Marine Licensing considered the best way to take this forward. Sustainable fisheries are needed. This is a key time. How do we achieve? Through partnership working which enables pooled shared capacity - vital if we are to contribute effectively. Large membership base providing collective voice. Identify evidence needed and how can be given additional support. Engage with stakeholders.

Advocacy –dialogue with Welsh Government key re. emerging and existing policy. Engage with new members. Ensure tools within the Marine Act are effective and key policies are scrutinised and influenced.

Summer programme of events to provide access to all to their seas. Not as easy as with terrestrial habitats. Marine photography competition. Aim to reach largest audience as is possible.

Next steps- 2nd anniversary of Marine Act-event to raise awareness at the Senedd. Environment and Sustainable Committee – ensure Marine integrated into future - 15,000km2 marine environment in Wales. Pressures on marine environment will increase. Need to integrate the 3 pillars of Sustainable Development into all work. Need to share experience and expertise with terrestrial environment partners. Consider how best we deliver SD? Need creative thinking. NEF – The Ecosystem Approach. Marine and terrestrial interface.

Biodiversity conservation in European Marine Sites
Blaise Bullimore, Wales EMS Group

Some facts: Half of Wales is sea supporting double the phyla than on land. The marine environment sequests 50% of anthropogenic carbon, drives our climate and provides for our survival. Coastal systems such as saltmarshes provide enormous sea defences saving millions in coastal protection engineering works.

The human impacts have led to severe degradation (estimated 50-60%). Designations have been made to 36% of our seas however this doesn't result in suitable management or protection. The inclusion of BAP species and the Habitats Directive aim to address inadequacies through awareness, action and regulation. However, the marine environment is more than its biodiversity. The ecosystems need protection in their entirety; these are enormous systems which require action through the Ecosystem Approach.

We need well managed European Marine Sites. The Management Plans consultation has shown half of the sites features as unfavourable demonstrating that effective management is not in place. The situation is only likely to deteriorate further.
The Good News? – Awareness-raising is easier to tackle so this is making great strides. Management measures introduced e.g. sea-grass protection measures in Pembrokeshire. Recreational management is more difficult but some progress here.
More work needed e.g. Scallop fisheries management measures only introduced after case taken to Europe. We need to put measures in place to protect - not to avoid infraction.

Monitoring and Surveillance – 18 year dolphin watch programme. Sea-grass work.

Damage, disturbance, species depletion all need addressing and result from many factors. Renewables - Wind Development – need to achieve some wins for the marine environment here.

Regulatory implementation needs to be appropriate. There is a paucity of information on the marine environment to provide the evidence needed.

Fisheries – greatest pressure from shell fisheries and there is increasing pressure to open these again. Socio-economic - Conflicting interests need resolving. We need to move away from current short-term approach to addressing our long-term objectives for the marine environment.

Our Objectives? Essential focus needed on restoration of our marine ecosystems to increase resilience and increase productivity and health. We need a robust management approach and appropriate funding for our European Marine sites (currently dropping sharply). We need re-engagement including from Fisheries managers. European Marine Sites have a huge potential to provide for all if we all work together in sprit of cooperation. The economic benefits of managing our seas appropriately are enormous.

Q – Highlight evidence gaps
A- Although aspirations are good at JNCC for the health of EMS, the resources are wholly inadequate. Since the evidence base is so low, we are reliant on marine modelling. Although, marine monitoring in Wales is recognized as being of high quality there are gaps. The Marine Strategies Document will highlight monitoring gaps.

Keynote Speech: Overview of CAP Reform and RDP beyond 2013:
Chris Lea, Sustainability and Environmental Evidence Division, Welsh Government

EC Consultation of 27 Member States showed that the need remained for a strong CAP with a 2 pillar structure. Concerns centred on redistribution of pillar 1 and 2 both between and within Member States, also the capping of payments and targeting
payments towards particular groups such as big farmers and young farmers.

We have an opportunity to strengthen the way we deliver with a step up on environmental performance. Huge challenge ahead. Objectives of the future CAP:

- Viable food production (contribute to farm incomes, improve competitiveness of the agricultural sector and enhance its value share in the food chain).

- Sustainable management of natural resources and climate action (sustainable production and enhanced provision of environmental goods, foster green growth through innovation, pursue climate change mitigation and adaption actions).

- Balanced territorial development (support rural employment and maintain social fabric, promote diversification, allow for structural diversity in farming systems).

Pillar 1: Big change, particularly for Wales Greenhouse gas emissions in consideration. The introduced capping will have little effect in Wales as few large farms. However, the move from historic basis of payment to area based payment from 2014 will have a big impact here.

Pillar 2: Farming Connect will need to change to deliver public services as well as innovation in food production.

In summary, Welsh Government remains committed to CAP reform outcomes that:

- Maintains direct support.
- Provides the basis for sustainable food production.
- Strengthens the competiveness of our land based industries.

- Recognises the role of farming in safeguarding and enhancing the natural assets of Wales.
- Contributes to the socio-economic development of our rural communities.

The four draft CAP reform regulations are expected to be published during October.
Welsh Government welcome engagement with the detail once available.

Challenge of how we manage our land and seas. We need to look more carefully at soils. And also address issues of waste: currently 20-40% of food bought is thrown away. We also need to look at how we move the renewable energy industries forward with communities. We need to look at how we could effectively use LEADER (integrate LEADER with local development strategies).

Realising Farmland Biodiversity's Potential:
Richard Knight, Farming and Wildlife Advisory Group Cymru (FWAG) and Gareth Vaughan, Farmer & FWAG Cyntaf

Considerations for the audience:

1. Talking to farmers. Special Areas compared to non Special Areas?
2. Dependence or assumed dependence on environmental improvements in agriculture being funded by government. Good or not good?
3. Turn on head, could we use SSSIs to support the wider environment?

FWAG Cymru is a specialised, generalised organization, providing interpretation of evidence for farmers. FWAG runs the 'Silver Lapwing' Competition for commercial farmers highlighting best farming practice for biodiversity. FWAG has, for 20 years, led 'Cyntaf' which looks at whole farm conservation. This is a subscription service which raises awareness, interest, and desire for action specific to an individual farming business e.g. young farmer with loans etc.

Gareth Vaughan, Farmer

Farming families as conservationists.
Traditionally farming families cared for their historic stone boundaries, were familiar with locally available and collected herbal remedies, managed their woodlands and hedgerows. Planting of trees would be suitable for the geographical location. Husbandry skills and wildlife knowledge would be passed down through generations.

FWAG Cymru's approach is welcomed: steering farmers towards how they can improve an area for specific species or make habitat improvements. Advice given by FWAG is confidential therefore farmers can confidently discuss issues in relation to their farm e.g. cross-compliance. The Silver Lapwing competition generates much interest in the farming community, communicating the message that farming and wildlife management can co-exist

and complement each other. There are some good case studies coming out of Wales from the competition. Winning farms offer farm walks on their farms to share best practice.

Question and Answer Session with Chris Lea and FWAG

There is a dearth of species records from farming areas; most records arising from special sites. Would farmers submit records or are they concerned re. possibility of potential designation?
Gareth Vaughan – Would prefer not to provide information but happy to discuss biodiversity of farm with FWAG Officer and to make provision/manage for the species.
Richard Knight – The converse is often true - that farmers are not informed of what species are on their farm by those provided with access.

The confidentiality issue means we often don't have the data we need to help inform enclosed farmland management?
Chris Lea – We need to energize how we work with the agricultural community. Monitoring data sets need to be combined into one. We need to look at how we can better use our data, including GIS.

How do we form partnerships to share same vision? We need skilled facilitators to ensure effective cross-sector working. Are you looking at this?
Chris Lea – Need for pilot. Consultation will be part of this process re. common officers etc. Minister John Griffiths is very much a people's person so it will be important to him to get this right.

Songbird Survival believe the increase in bracken has increased acidification in watercourses. Tick increase in the uplands is also a serious problem for stock and wildlife. Would like Welsh Government to look at this.
Chris Lea – Creative solutions needed for land management. Ticks are included in the Chief Vets Animal Plan. Better advice is to be given to farmers.
Gareth Vaughan – Farmers need an alternative treatment for ticks and blow-fly.

Need right tools for SEB to deliver NEF. Suite of incentives for people to engage with farmers.
Matthew Quinn – In Glastir a sense of local place is important. We need people on the ground who know the area.
Chris Lea – Re. Delivery of CAP, we need to join up.

How do we address wider countryside biodiversity?
Matthew Quinn - Natural Resource Planning – if we go down this route. Scoping, pilots, see what the collective appetite is.
Richard Knight – A wider approach is needed.

<u>Soapbox Session: Ecological Skills Gap: Dr David Parker, CCW</u>

IEEM- discussed membership
Rebuilding ecological skills in the 21st century.
Found to be shortages in;

- Fish
- Invertebrates
- Habitats
- Control of invasive species
- Ecosystem goods and services
- Freshwater/ marine
- Surveying
- Microbial ecology (very much so due to its important role)

Good in the following areas;

- Mammals
- Amphibians

IEEM is leading the UK strategy. Important particularly for higher education to make sure students are graduating with the right skills. These skills should be, and are worth investing in.
CPDs to keep skills (and make them more accessible and extensive)
Important for employers.
This area of study used to be found in biology, it is now found in geography- but geography needs to be more in tune with the needs mentioned above.
www.ieem.net

LBAP Perspectives: Experiences from Carmarthen.
Isabel Macho, Carmarthen shire County Council

Isabel introduced attendees to her work with LBAPs in Wales over the past 12 years. Entered field in 1999, now a biodiversity officer at Carmarthenshire County Council. Highlighting the importance of two-way communication (understanding and listening) and empathy with others. The importance of the advisory role within local authorities was also emphasised. Key to the effectiveness of this work is always considering new ways to engage and retaining the ability to communicate the intrinsic value of nature, despite changes in the language used to do so.

1) Over last 10 years communication has been most significant to job. E.g. Western Power- attempted to put pylons over reed bed, but communication has allowed different groups to see things in a very different way. Allows them to try and see other points of view in order to communicate well.
2) Llanelli- ownership problems. Water voles. Could see delays, costs and restrictions, so needed to communicate. There were 16/17 key sites for water voles and Llanelli was one of them. Once they found out about this, they then wanted to become the largest vole site! They managed to secure funding to help protect voles.

3) Highway issues and drainage causes biodiversity problem. Trying to listen to those who are involved but do people listen to us? At this conference it is engaging with the same culture, but in another culture it is difficult to get listened to.
4) Being tidy is a priority for some people so want the lawn cut or a tree in the garden. Biodiversity creates infrastructure, services, and economics. It is a multi-million pound business but we still want to think of it as intrinsic skills- it can still exist without just being a commodity.
5) Biodiversity Officer- Importance of the role has not been seen as much as it should as funding is falling. Not communicating the message loud enough.

Practical Use of LRC Data: Coping with the geography of records, and some technical solutions: Colin Russell, West Wales Biodiversity information Centre and Rob Davies, Environmental Consultant

West Wales Biodiversity Information Centre is the local record centre serving the region which covers the conference location, Carmarthen. In the introduction by manager, Colin Russell, the emphasis was on how a flexible and creative approach to the use of sophisticated GIS software coupled with technological advances can be used to support the core functions of the LRC in collecting and disseminating biodiversity information. Technological advances open up new possibilities for data capture and new layers can be generated by combining existing data holdings which add value to existing data holdings and can address specific needs of, for example, local authorities in the preparation of their LDP.
Dr. Rob Davies then went on to explain how the ESRI ArcGIS suite has been invaluable at WWBIC in providing a fully supported and constantly improving system which has enabled the LRC to engage with partners in projects to support their work. A few examples were given, including the development of a combined biodiversity value layer which has been used by Forward Planning staff in two local authorities.
Dr. Davies went on to describe a recent project developed for Sea Trust employing ArcGIS mobile and ArcGIS Server a recently installed at WWBIC under a new not-for-profit license scheme. The ArcGIS mobile software is designed for a range of mobile platforms and applications can be tailored to fit individual needs. For Sea Trust, data can be entered by touch screen, directly on a map for location, and additional information (recorder, species etc.) is presented as a series of drop down fields, ideal for recording cetaceans from boat surveys. The software automatically sends the data to ArcGIS server as soon as a cellular or wi-fi connection is available.
The highlight of his talk was a live demonstration of a sighting being entered into Cardigan Bay from the stage at the conference centre with full attributes. ArcGIS Server enables webmapping and hosting multiple websites, one having been created for Sea Trust. By logging on to this, delegates could see the test record added to the existing data in a matter of seconds with the attribution entered from the mobile device. He concluded by saying that this was an ideal first project because of the relative simplicity in that few species are involved but there are exciting opportunities for other taxon groups and would welcome the opportunity to develop more applications.

…And after all that? What's next? Bugs need to be loved too: Einir Young, Welsh Institute for Natural Resources/Bangor University

Einir presented food for thought around the human dimension of biodiversity and competing conflicts that often effect behaviour. How do we meet people's needs? What stops people from coming on board? Consider RAMSAR sites and people. The pressure is often heavy on the resource. Inequality in the UK. People may feel they can't afford the 'luxury' of considering the environment - but in reality they can't afford not to. If a balance was in place it would be excellent but there are usually conflicts of some kind to resolve. These need to be considered right at the start. Conflicts are often competing and often down to inequality issues. Consider the biodiversity of humans, tribes and languages. What biodiversity will be lost when the last speaker of a language dies?

We need to live within the resources available. We all have our own circles of influences. Biodiversity work mustn't be a bolt on. There are opportunities linked into the sustainable development agenda. We need to fully consider cradle to cradle approach and look to nature for design solutions. Our ambitions need to be bold in a 'one planet' way.

Summary by the Chair

This is an exciting time to address the things that really matter in Wales, and to make sense of complexity by integrating the Ecosystem Approach into policy and practice. Thank you to all speakers, contributors and attendees for your contribution in making this a successful conference.

Workshops Day 1

Local Biodiversity Action Delivery Workshop

Aim:
To identify which areas of work local and regional partnerships should focus on to add value to range of work going on for biodiversity and ecosystems in Wales
To start to understand the role of different organisations in delivering these areas of work and the contribution that they can make.

Introduction Julia Korn
Starting point is to put all our preconceptions about LBAP Partnerships to one side and start with a fresh sheet of paper.

<u>Exercise 1 – focus on local delivery</u>

- **Working individually**
  Write down **3 things** that can be **done locally** in **partnership** that will have the most **benefit for biodiversity and ecosystems**

- **Working as a small group at each table**
  In groups use the flip chart sheet on your table and **cluster** together **post-it notes** under **agreed headings** and agree the top 3 areas of work. Each table to volunteer and spokes person.

- **Working as a whole group**
  The first table to **call out their top heading** and the **number of post it notes** recorded against this heading, and **similar headings from other tables** are fed back **with the total number of post-it notes recorded** by the scribe.

  This exercise moves around the tables until **all 'top 3' headings** have been fed back and recorded **along with post it note numbers for each**.

  From the list **agree** the **top 5 areas** of **work** where **local partnerships** would secure the greatest benefits for biodiversity and ecosystems

REPEAT EXERCISE FOR REGIONAL GROUPS

Overall Conclusions

Priority Areas for Local Partnerships to focus on:

- Collaboration (including local knowledge)
- Education and Engagement
- Integration e.g. green infrastructure, other policy areas etc
- Action on the ground

The consensus was that local groups were very much about working in collaboration, sharing experience and knowledge to enable delivery all types of biodiversity action especially community engagement and education.

Priority Areas for Regional Partnerships to focus on:

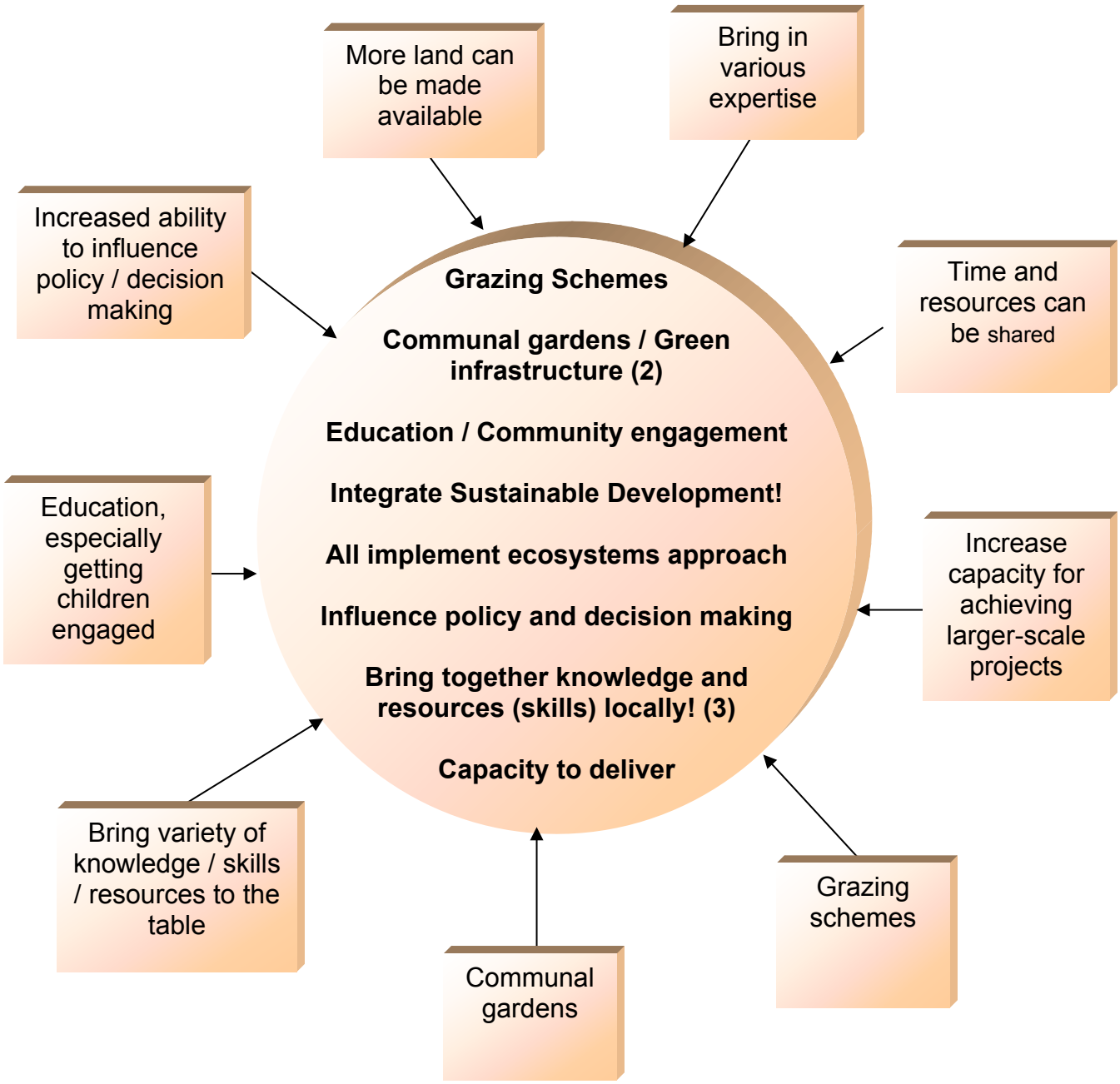
- Strategic planning and landscape scale delivery
- Data sharing
- Sharing best practice
- Collaboration

Other areas considered important at a regional scale were:
Drawing down funding, discussion forum, and ability to challenge government on policy, engaging with all-Wales organisations, businesses and NGOs and with the Wales-level biodiversity groups.

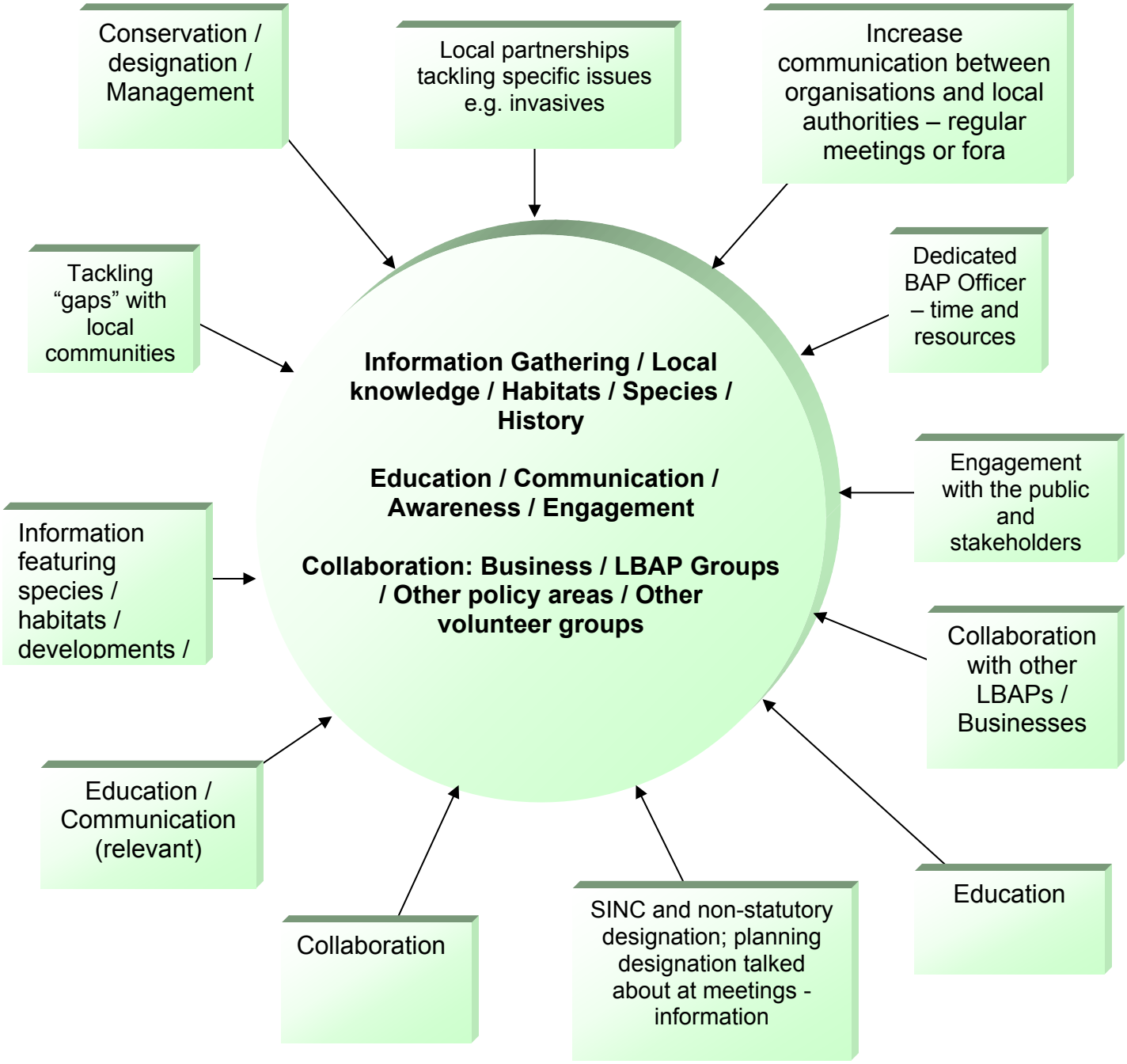
The consensus was that regional groups should focus on strategically planning action at a larger landscape scale through sharing experience and data. The role was distinct from local groups in that it provided advice, direction and support mechanisms to those delivering on the ground through local partnerships.

Each of the 3 tables collated information for Local and Regional priorities which fed into the above conclusions. The diagrams below so detail of information captured for each table first for local and then for regional groups

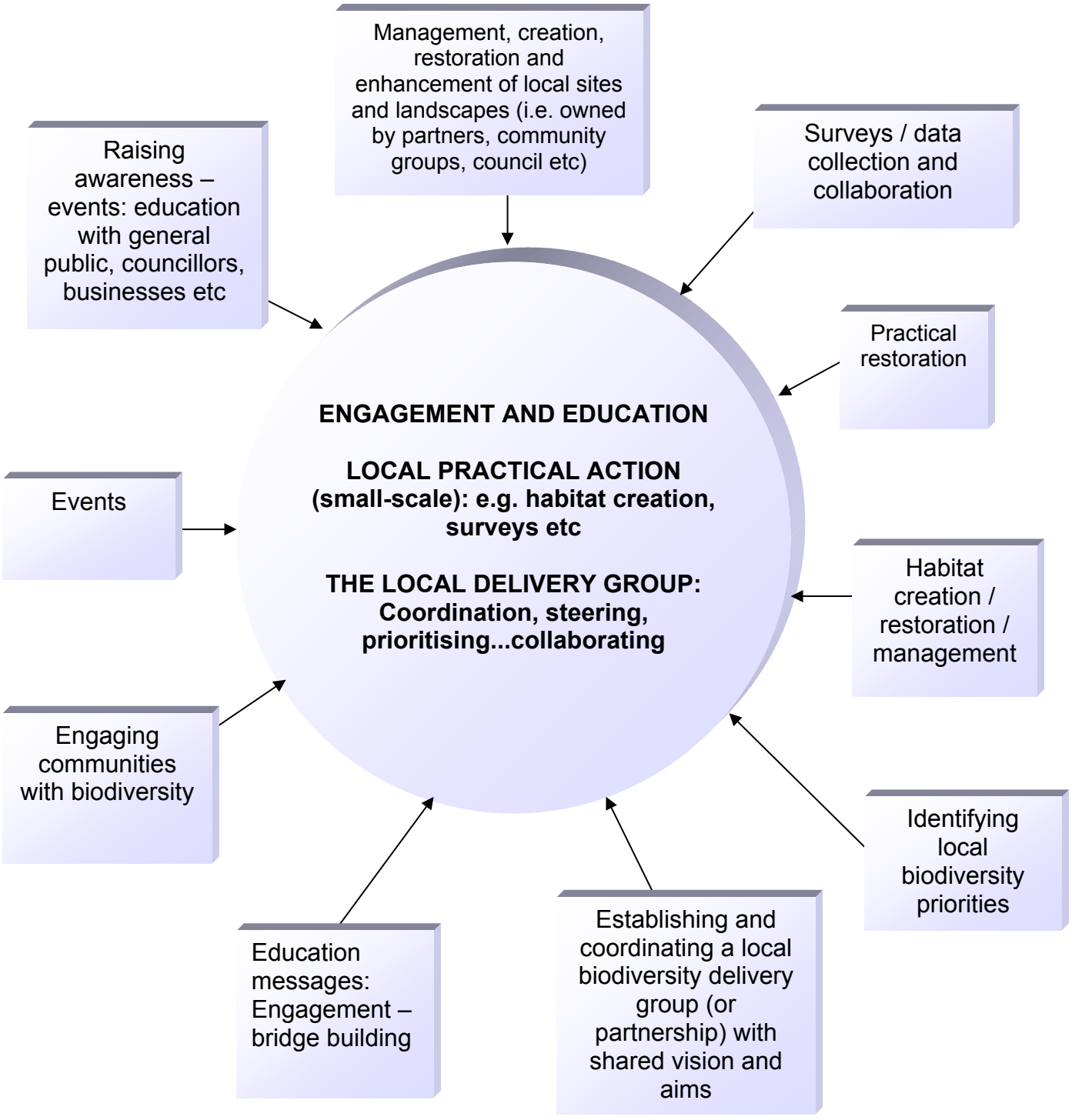
WORKSHOP: FOCUS ON LOCAL DELIVERY 1.



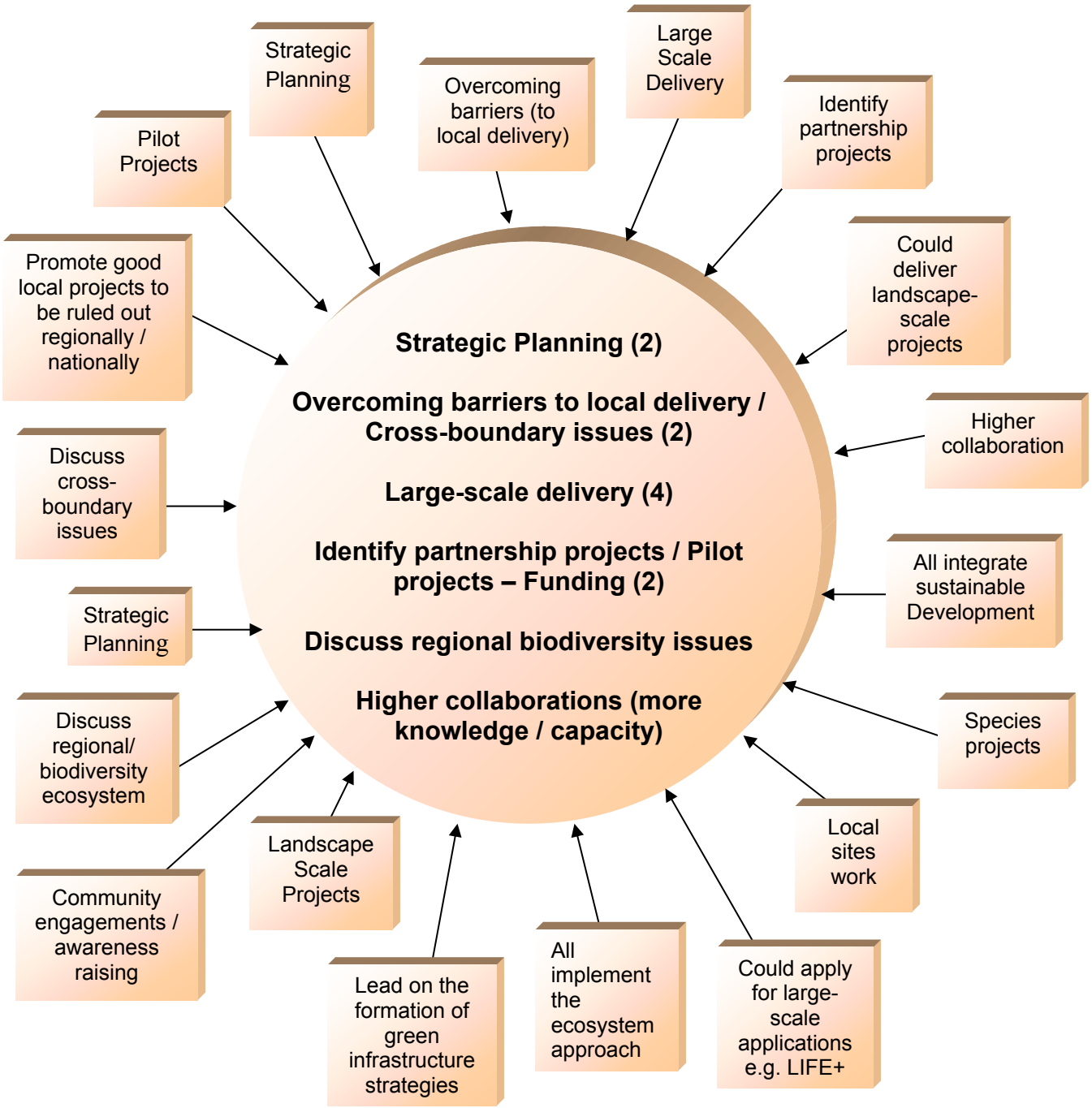
LOCAL DELIVERY 2



LOCAL DELIVERY 3

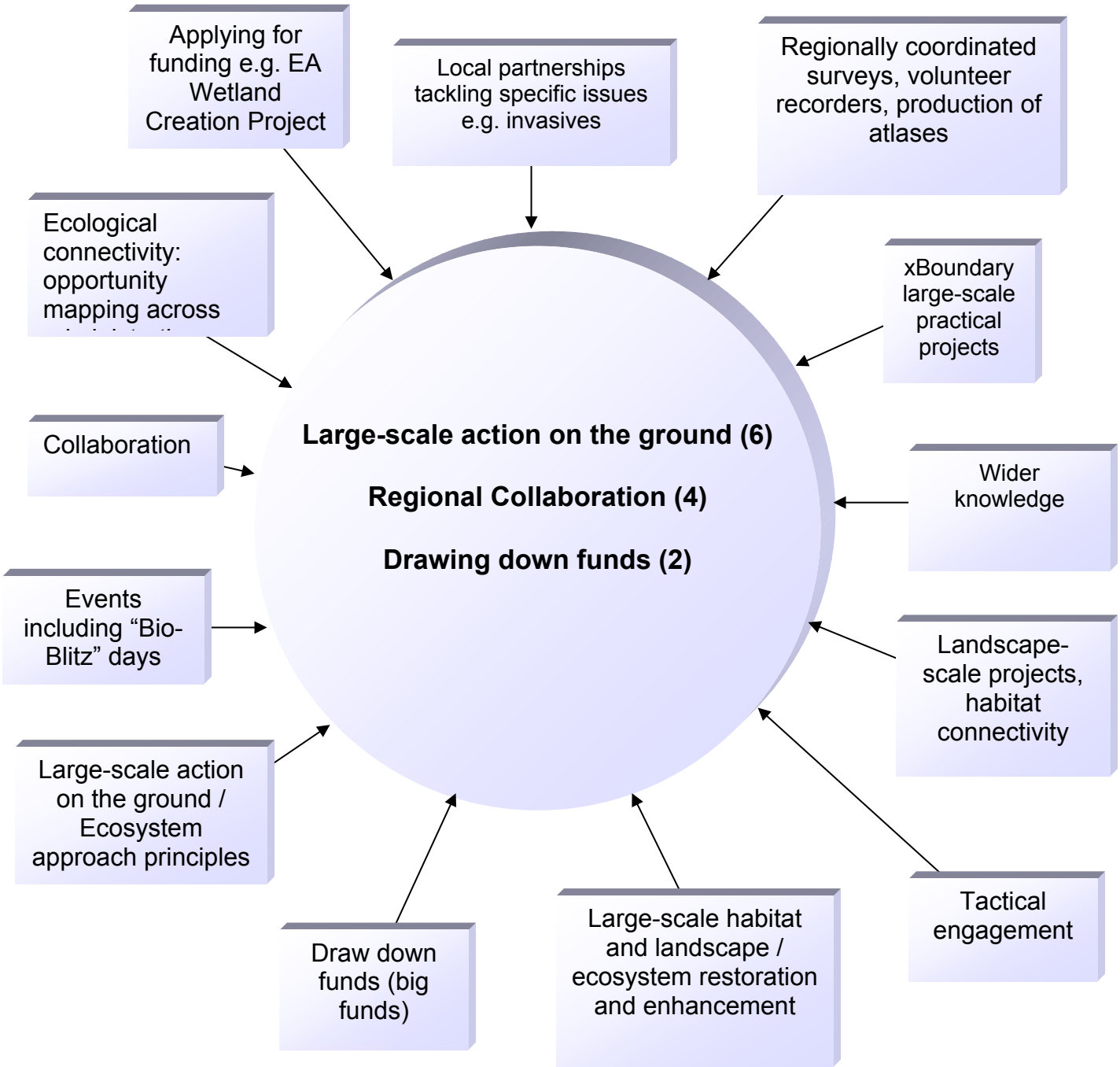


WORKSHOP: FOCUS ON REGIONAL DELIVERY 1



REGIONAL DELIVERY 2

REGIONAL DELIVERY 3



Water Framework Directive Workshop- Environment Agency Wales

Workshop Aims

Purpose of the workshop was to raise the profile Water Framework Directive and the links to Biodiversity.

Workshop presented; An introduction to the Water Framework Directive, how Water Framework Directive influences biodiversity and a biodiversity: WFD project case study.

Workshop aimed to get people thinking about the way biodiversity projects have benefits to land management and water cycle management which contributes to the measures needed to ensure improvements in water bodies and prevent deterioration of a water body. WFD isn't just about the main water bodies, but also about all the smaller tributaries, wetland habitats and land management activities within a catchment.

The workshop aimed to look at habitats in a different way and how activities on the land will benefit the connected water bodies. It is easily recognise wetlands for their natural beauty and wildlife value, they also help maintain environmental quality and benefit local communities as well as biodiversity. Through their natural processes they provide many other knock-on benefits to help support a range of ecosystem services that we can sometimes take for granted including carbon storage, flood regulation, sediment and nutrient management and recreation for example.

In spite of this great potential, many wetlands have been lost, degraded and fragmented due to the effects of inappropriate development, pollution and changes in agricultural or other land management practices. However, the benefits of healthy wetlands for their wider value are now being recognised and through the delivery of the WFD by everyone there can be many biodiversity benefits. Wetlands can, if they are in good condition, help buffer against extreme conditions by regulating water flow for example by acting as a sponge to soak up water and then slowly releasing it back into our rivers and streams.

Workshop Outputs

- How can we (the Environment Agency) help?
- Provide evidence of cost-benefit of SUDS and green roofs.
- Slicker collaborative project agreements, bureaucracy of funding within EA to partners
- Support the Cynon Valley River Park – floodplain and development investigation
- Provide general information on WFD
- Provide guidance for external organisations to facilitate internal discussion on WFD
- Use WFD as a way to enforce biodiversity enhancement or the requirement of biodiversity improvements through development.
- Provide help with WFD context relative to other drivers
- Help with WFD Language

- Maintain and provide contacts and continuity of roles
- Improve EA – NGO WFD communications
- Provide more funding
- Provide data sharing to help prioritise actions on the ground
- Provide clear information on how to solve issues not just ideas.

What was good?

Definitions and explanation of WFD, link to biodiversity, what the EA does and short presentations.

How can biodiversity action influence WFD measures?

- Action on natural water cycles - DCWW
- Implement Surface Water Reduction Strategy
- Collaborative biodiversity projects
- Tackling diffuse pollution through land management - Forestry on Bog – Restoration of Bog or change trees, encourage and use more traditional agricultural management techniques.
- Incorporating quarry restoration and wetland creation.
- Education
- SUDS create habitat but there are adoption issues, funding and management in the future
- Over abstraction – low flows – impacts from increased development in catchments
- Floodplain development – loss of habitat, but also hydrological connectivity. Need to prevent floodplain development.
- Fencing of watercourses – management of invasive weeds for habitat management, also benefits diffuse pollution management
- Trees aren't the only answer for habitat creation or managing water. Bogs and marsh also good for water management
- Local authorities- LBAP habitat creation and enhancement linking to WFD
- Influence over planning drainage schemes, incorporate SUDS
- Pond creation, wetland connectivity
- River corridor connectivity project
- National Trust – management of uplands, erosion issues, invasive species management, public engagement, peat restoration.
- SWWARG – pond creation and connectivity
- DCWW – LIFE project re. Reservoir water quality OFWAT investigation to reduce the burden of cleaning water.

Special Sites Project and Outcome 21 - Prioritisation Workshop

Workshop key points, outcomes and any actions for WBP/WG to take forward

Task 1

a) Each group had 7 conservation management scenarios and an £8,000 budget. The task was to discuss which ones could be funded with the limited budget. The groups were asked to rank the scenarios, highest priority for funding, to lowest. The objective of the exercise was to help participants to start thinking through what criteria they used.

Rankings produced by the groups:

Group 1 G C E D
Group 2 E G C D and could fund some of B
Group 3 D B C

No absolute agreement on the highest priority for funding, but there was some consensus or which should fall in the higher end.

b) Groups then recorded criteria on post it notes, and these were collected and grouped (where appropriate)

Groupings:

- Fragility, Fragility and current condition (looked at together) , Fragility (if not funded immediately)
- Condition
- Alternative funding, alternative funding, alternative funding sources
- Rarity
- Type of owner (ie if have biodiversity duty, they should be willing to fund themselves, Type of owner
- Cost, value for money
- Size
- Actions will deliver sustainable output without future input
- Significance at European level.

Task 2

1. What are the risks of using these criteria at local level?

- Personal factors come in to play. One agreement, rather than another, might be delivered because of the individuals concerned.
- Some of the alternative funding might not be available.

- If use rarity criteria, this would result in different agreements being funded in one area versus another.
- Inconsistency of application of criteria
- Repeatability
- Risk if applied too rigidly
- Cost (although limited) should not rank too highly…….
- Isolated pockets – no connectivity
- Lack of balance of funding
- Not maximising benefits or value for money.

2. What are the opportunities of using these criteria at local level?

- Local consistency
- Ability to respond to local situation, taking local factors into account.
- Can use local criteria.
- Capture best or most important sites locally
- Local community buy in and responsibility

3. What are the risks of using these criteria at national (Wales) level?

- Lose ability to deal with local circumstances. Local criteria for rarity might not fit with national criteria for rarity.
- Difficult to judge relative priorities for rarity nationally.
- Uneven distribution of habitat and resource could lead to disenfranchisement of local stakeholders
- Set national priorities – as well as local.

4. What are the opportunities of using these criteria at national (Wales) level?

- Those funded (or not) will know the basis on which they 'qualify' for an agreement.
- National consistency.
- Transparency.

5. How or what can the WBP Outcome 21 Partnership Group and WBP Ecosystems Groups do to help support and guide prioritisation?

- Specialist ecosystem group advice should be sought.
- O21 group could analyse which activities (actions) have been undertaken over the last year. We could attempt to see which have been done or not (generically) and try and analyse what obstacles might stand in the way of doing the actions that aren't getting done.
- Review on a scientific basis the fragility, resilience and recoverability of SSSI features.
- Review of the landscape context (connectivity mapping).

Understanding Ecosystems Services Workshop

Q1 How do we re-train ….

- Inspiring – to have the will to want to
- Some sort of 'stick' approach
- Enlightened self interest
- Understand their job better than they do!
- Values – relate to things that connect them to their environment
- Start with economics / risk management – what is the fall out eg Habitat regs
- Evidence Based decisions – use scrutiny
- The dilemma between stick and carrot – need incentives
- Policies and initiatives are in conflict
- Give examples of what went wrong and the result – consequences
- Get decision makers from different parts of the organisation together but vital to have the buy-in of the Chief exe / chair
- Politics and economics are the most powerful driving forces

Q2 How do we ensure decision makers use the new NEF / ecosystems approach?

- Presentation of evidence in a way that makes decision making easy – use of language / techno babble
- Good knowledge base
- SD processes are the gateway – biodiversity is part of the solution
- Need to work in partnerships
- Offering something – being solutions base – 'we are the solution'
- Recognising the value of monies within supporting services – health / tourism
- 'seeing is believing' – taking people on site to see for themselves
- Present / address any problems early within the process – not as a hurdle / add on in the final stages – early dialogues
- Focus on outcomes and benefits – not on process

Q3: Change policy or influence decision makers?

- Influence decision makers – get them to believe
- Target a champion for the process
- Biodiversity must be closer to people – made more relevant
- Design in ecosystems from the outset – not as add ons
- Funding – systems / schemes with tight deadlines to not help / people need thinking time, time to develop relevant associations / time constrains on application and on funding / less regulation / more taking of responsibility by the funders to meet their funding regulations and not passing on additional regulatory burdens
- Need to change how investment is put in – particularly via funding schemes and address the issues of annularity
- Need a win-win approach

FEEDBACK on the exercise

- Need some colour coding system for the ecosystem labels – perhaps the use of dots to clarify which of the four key groups from NEF people feel this particular system fits into.
- Recognise and find a way to let people know that each label could have more than one coloured dot on it.
- Think about how to explain / demonstrate the connectivity aspects more clearly
- Make explanations clearer
- Find ways to stress the interconnectedness of all things
- Need more of each label – probably x 4 more for each group

It should be noted that the comments of this group were without the benefit of seeing the presentation that members / decision makers participating in this training exercise would have.

Also – there was interest within the group to have the final format of the exercise to be able to adapt for their own use.

Green infrastructure-Influencing stakeholders Workshop

1 Green infrastructure principles

- Green infrastructure (GI) works at different scales:
- regional
- city/town
- neighbourhood

GI benefits from a holistic approach:

- urban & rural
- public & private
- existing & new
- temporary & permanent
- connectivity

GI is **multifunctional** and offers many different benefits

2 Who are the stakeholders?

- politicians
- local authority officers
- funding agencies
- developers
- conservation organisations
- regulators

- businesses (national & local)
- museum services / schools / other educational institutions
- consultants (can provide objective brokering of creative partnerships)
- local people

NB

- Not all stakeholders are supportive: eg resistance to tree canopy cover from solar energy lobby and resistance to open water from parent pressure groups
- Business interest is welcome, but corporate responsibility (CSR) can be double-edged
- Relatively easy to engage people at local level , but more difficult to engage at city level

3 Barriers to green infrastructure

- insularity / silo thinking / compartmentalised structures
- short-termism
- funding inconsistency & unreliability (roller-coaster patterns)
- changing land use
- lack of recognition of potential and value of temporary GI
- culture of corporate property departments
- lack of understanding that issues are wider than biodiversity
- lack of overview (needs Chief Executive or similar to champion as was often the case with Local Agenda 21)
- lack of political champions
- view in smaller towns and cities that urban greenspace is not necessary because there is countryside on the doorstep

4 Justifying the resources

- A number of tools are being developed around the world to aid objective evaluation, such as:
-
- CITYGreen (www.americanforests.org)
- i-Tree (www.itreetools.org)
- Providing Accessible Natural Greenspace in Towns & Cities: CCW guide to assessing resources & implementing local standards for Wales
- (www.ccw.gov.uk)
- Green Infrastructure valuation toolkit (developed for CABE, Natural Economy North West, Natural England, the Northern Way & a number fo English Regional Development Agencies)
  (www.bit.ly/givaluationtoolkit)
  (www.naturaleconomynorthwest.co.uk)

- Economic valuation can be helpful, but also concern about recognising intrinsic value. Welsh Assembly Government is making particular effort to recognise non-monetary values in greenspace
-
- It helps to match particular benefits to particular stakeholders, rather than expecting everyone to appreciate all the benefits of GI

5 What are the measures of success?

- an increase in integrated policy making
- greater recognition of multiple benefits of functional green infrastructure
- direct engagement of a widening circle of stakeholders

NERYS JONES & CHRIS BAINES
Greenspace Consultants

Workshops Day 2

Delivering the Natural Environment Framework-what would a pilot NEF project look -like?

Aim – to identify the key elements in developing a project to deliver NEF outcomes

Italics are questions posed by facilitator

Exercise 1: Work through Ecosystem Services model to describe what the different services mean on a project basis (warm-up)

Eg. Service = food grass beef farm – what other services to consider?

- What are the Initial drivers? How do we define what a project is that fulls under this approach?
- Biodiversity/ecosystem/environmental safeguard must be starting point, or other 2 legs of stool don't stand up
- Depends on what trying to do – whatever initial driver, biodiversity need to be brought in as an outcome
- Mismatch between finite planet & global aspiration for infinite growth / resources – finite space
- Something that costs money or social benefit will be an initial driver. Ecosystem approach says biodiversity leads to solution.
- Climate change as a driver
- People's capabilities & national investment in these

- Look at all services within an area; understand trends and issues; what problems need solving
- Can we engineer our way out of it, cf. role of supporting services
- How the environment is valued – role of each economic valuation? Who does it speak to?
- Looking at multiple outcomes, how do you create incentives for all?

Exercise 2a : Housing

Look at Environmental, Resource, Societal and Economic outcomes a project should achieve. Identify factors and partners not normally engaged. eg 30 house development – towards a NEF tool. What should be included in the project? Impact on other services – biodiversity, water, social context? Try to avoid being constraint led.

Need good, evidence-based spatial planning (supporting services are critical) so the development is not OK'd on inappropriate sites. For this exercise assume that's been done and the project is going ahead

How do you build in external services? Current problem of limited recognition of 'invisible' services

What are impacts on biodiversity loss and connectivity? Opportunities to restore/enhance could create positive results. Impact of special sites.

Road network
Proximity to existing infrastructure
Water management - supply, sewers. Drought area? Floodplain?

Employment opportunities – support local economy.
External opportunities - engagement in wider communities and ensuring access to wider infrastructure.
Communicate to new and wider community
Recreation and access demands – need to provide opportunites for these .
What is present on site – what are the supporting services, and what state are they in (community centres, allotments, play spaces)? How can the development be used to enhance supporting services?

Landuse change – what else does that impact?

Knock-on effects of taking farmland out of production – need to find other land for growing food

Looking at landscape impact – potential for improvement

Social housing benefits - Style/mix of housing - for social needs, 1 person and family sized blend needed and social mix. Affordable and remember to think of economic needs and opportunities.

Resources used in construction, global impacts of these. Emissions/energy use. Footprint of build
Opportunities for green housing eg green rooms

How is site used after (more relevant to other eg industrial use) – legacy. Future management when passes out of developers' hands.

Aspiration to maximise land value

Difference in land value between allocated and un-allocated fields – how to capture? How are allocation decisions made?

Managing developer expectations on profitability – linked to density of housing, need for low-cost housing versus space for nature. Imagination and creativity needed, including in marketing

Amenity – fitting in with place and landscape. Can save cost embracing natural habitats cf landscaping.

How are all the expectations to be met?

Quality of development can bring benefits

What is the incentive structure?

What are policies that influence decision process? Influence of existing policies and regulations

Creativity and policy change both needed

Housing for wildlife

Exercise 2b: Woodland – how would you asses what a project delivered?
Driver is biodiversity project – woodland creation. What socio-economic benefits to build in?

The site comes first and determines future options and outcomes achievable. If very fragile may not encourage very high public use, elsewhere, field teaching possibilities, Forest school etc. What surrounds the site? Is it habitat that can be functionally converted?

What is primary objective, e.g. biodiversity, carbon, water management, windbreak? Should it be multifunctional – would require trade-offs.

Integration e.g. biodiversity with carbon sink may mean trade-offs e.g. less carbon sink but multiple benefits; need practical delivery plan for BAP species. Societal/policy objectives to be met.

Who should be considering these questions? Multi-disciplinary, including local land-users.
Consultation – who are the right group to be doing this? Private/ community group/ conservation group?
Participation, not just consultation. Ensuring shared understanding of objectives.

Set of opportunities from woods - biodiversity, Carbon, landscape, amenity – can be applied as appropriate for locale. Smaller woods might offer fewer opportunities.

What economic opportunities e.g. harvesting - how would we make money out of it?
Community scale fuel supply
Management e.g. for timber may lead to more social opportunities e.g. recreation.
Community aspiration for benefits

Grants - what available?
Or economically sustainable, not depend on grants (paintballing, biking, local food such as venison etc).
Is economic return necessary?
Local businesses e.g. tree nursery - where will trees come from?
Skills development
Payment for invisible services (through grants?) eg windbreak, water run-off, temperature regulation - natural capital.
Return timescale
Market requirements

Timescale/pressure may determine planting versus natural regeneration, broadleaf versus conifers, etc. Primary purpose helps to guide

Ecosystem benefits from floodplain woodlands
Indirect benefits e.g. increased connectivity, biodiversity gains, invertebrates
Life-cycle – how to be a net carbon sink?

Exercise 4: Identify potential resources to deliver these outcomes

Higher market value e.g. for houses result in better consideration of services and increased desirability – lifestyle.

Make grant, or permission, conditional on considering services etc. through consenting regime

Covenants – and enforce!

Service charge on users/residents (‘green maintenance’ fee)

'Net gain' for ecosystem outcomes built into consenting regime (lessons from windfarms and community benefit should apply across the board)

Mainstream requirements for higher environmental specifications, not an add-on.

Government needs to use its estate (including buildings) to lead by example.

Carbon management in supply chains

Awareness/educational aspect to foster understanding of benefits, how users/ residents can augment benefits.

Planning process - change 'confrontational ' approach. Plan a more effective process.

TAN8 has led to a different level of dialogue on windfarm issues before they enter the planning process

Final thoughts

What can we learn from LID / 'ecovillages' eg Lammas?
– get a more holistic approach into the mainstream

Environment Wales funding Workshop

The workshop discussion noted that Environment Wales already supported a range of biodiversity initiatives and that projects supported by the Local Biodiversity Partnerships might well be eligible for support, as these were often local community-based projects with volunteer input. It was confirmed that support was only available to third sector organizations or groups and was therefore not suitable for university or local authority projects.

Delegates left with a clearer idea of the support offered by Environment Wales and the opportunities for biodiversity projects to benefit from this.

Traditional Orchards: Building the Welsh Inventory

There is currently a great enthusiasm for the rediscovery of our orchard heritage. This project uses this momentum and returns a useful dataset for Governments, communities, NGOs, and individuals to use freely for the promotion of Traditional Orchards. We aim to map and ground-truth as accurately as practicable the traditional orchard habitat across Wales.

With thanks to the workshop attendees. I hope some of you will be involved with the project over the next 16 months and do let me know about any other feedback you have.

Uses

The main sentiment expressed during the workshop regarded the Traditional Orchard Inventory's usefulness to communities wishing to set up community orchards. The map can be used to identify potential opportunities to get involved with or create community orchards and gardens, to identify existing locations, or if the historical data is done, locations of relict orchards may be chosen as preferential sites for restoration.

A distribution map of varieties was mentioned as a possible outcome. A project called FruitID.com have this as a future aim so information will be stored in the database to facilitate that project.

The Traditional Orchards Inventory is likely to be used in isolation, in a different way, to other habitat surveys and inventories, so the structure is unlikely to be similar to existing inventories which are mostly based on Phase 1 and 2 surveys.

Relict and historical sites
Given time during the project, historical data should be mapped for areas of importance such as the Towy River Valley, NE and SE regions, and other river valleys. Relict sites and those that don't quite adhere to the Traditional Orchard definition (NonTO sites such as Long Abandoned, Organic Modern Orchard etc.) would probably be best kept in with the rest of the data as opposed to stored separately as with the England inventory. These can be filtered easily but are to be accessible within the Welsh inventory. If historic layers are created, unless there is evidence of trees in which case they can be classified as relict sites, these should be kept discrete.

Contacts to make
LBAP groups.
Local Record Centres, possible source of volunteers. www.lrcwales.org.uk.
National Trust, Wales. Layer of NT owned land has been created. Does a list of orchards on their land exist?
Wildlife Trusts.
Simon Farr – involved in mapping in NE Wales.
Glastir – replacement agricultural scheme for Tir Gofal. List of TG sites has been created.

Amendments to structure of dataset (from England)
Mistletoe to be recorded in a column in dataset.
Community Orchard column or keyword in subjective field.
Potential Community Orchard column or keyword in subjective field.
For the promotion of orchard networks, ask orchard owners on the Orchard Owner's Questionnaire if they would like to be put into contact with people who will collect their fruit for community use or buy their fruit off of them for commercial use.
Add fields for all fruit types likely to be encountered.
Remove obscure or superfluous fields or those so rarely used as to not constitute a useful dataset, such as aerial roots, fungal fruiting bodies, branch holes/trunk cavities (keep one only).
Amendments to be discussed with Hilary Miller.
Consider use of DAFOR scale. Rarely completed correctly.
Rationalise 'Source#' data to remove complication but retain useful information.

Teloschistes chrysophthalmus - highly conspicuous and unmistakable lichen. New record in Gloucestershire 2008. Thought extinct for a number of years. Possible species for inclusion as a 'have you seen this…' fact sheet.

Open Mosaic Habitat on previously Developed Land Workshop

Wales Brownfield Baseline Survey 2011/2012

Section 1.01 Introduction

(a) Brownfield Land and Biodiversity

Although a growing number of conservationists were aware of the importance of brownfield land for biodiversity, it wasn't until 2007 that 'Open mosaic habitats on previously developed land' (OMH) were identified as a UK Biodiversity Action Plan Priority Habitat. Brownfield sites can be particularly important for plant and invertebrate diversity – the invertebrate rarity and diversity of some sites is only equalled by that of ancient woodland (Barker 2000).

The factors influencing the biodiversity of brownfield sites include the underlying substrate, the site history and the current levels of disturbance. The nature of the substrate often leads to arrested succession, or prevents dominance of any particular species. A history of disturbance leads to heterogeneity in the topography of a site, which provides opportunities for a diverse range of species (BRIG 2008). Similarly, continuing disturbance of a site can also arrest succession and provide topographic variation.

Species-rich brownfield sites also have an important role in the wider landscape. They are likely to represent biodiversity hotspots within urban areas, enabling other green spaces such as parks and gardens to support a greater variety of wildlife. As a result of agricultural pressures, some species that are traditionally associated with the countryside are now more often found on brownfield sites, where groups of sites collectively provide enough resources to support them. Species such as the shrill carder bee (Bombus sylvarum) are now increasingly dependent on networks of brownfield sites (Buglife 2009).

(b) Open Mosaic Habitats on Previously Developed Land

Brownfield habitats are notoriously diverse and therefore difficult to define. Even as OMH was added to the UKBAP Priority Habitat list, it was stated that 'the habitat is best defined in terms of structure and growth forms, rather than through specific vegetation communities.' In 2009, ADAS produced a report, commissioned by DEFRA, which gave a definition of OMH and sought to take the first steps in mapping the OMH resource (ADAS 2009). The habitat definition was confirmed by the Joint Nature Conservation Committee (JNCC) in July 2010. OMH sites must meet each of the criteria in Table 1.

	Criterion
1	The area of open mosaic habitat is at least 0.25 ha in size.
2	There must be a known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added.
3	The site contains some vegetation. This will comprise early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of: (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland.
4	The site contains unvegetated, loose bare substrate and pools may be present.
5	The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above (criterion 3) plus bare substrate, within 0.25 ha.

Table 1. Criteria for Open Mosaic Habitats on Previously Developed Land

(c) NB Scale of spatial variation and mosaics will vary depending on substrate but may include small very intimately mixed vegetation type and abre gound at a small-scale.

(d) Brownfield Land in Wales

(This section is lifted verbatim from the Gwent Baseline study report and needs expanding to describe brownfield land in the rest of Wales)

Wales supports a diverse range of brownfield sites, because of its history and variety of landscapes. There are three broad landscape types within the region, roughly corresponding to the sub-areas of the Capital Network outlined in the Wales Spatial Plan. These are the Heads of the Valleys Plus, the Connections Corridor and the City and Coast.

In the Heads of the Valleys, the rich industrial history of the south Wales coalfields has left a legacy of spoil tips, quarries and mines, most of which are now disused and returning to a semi-natural state. This type of landscape dominates Blaenau Gwent, and the northern areas of Caerphilly and Torfaen.

Stretching from Monmouthshire across to the south of Caerphilly, the agricultural lowlands of the Connections Corridor do not seem to contain many brownfield sites, but on closer investigation are dotted with smaller quarries and pits, as well as occasional larger scale excavation and landfill sites.

In the south, the urban area of Newport supports distinctly different brownfield sites, such as vacant building plots and sites contaminated by heavy industry. Such typically urban sites are found in other built up areas and industrial estates across the region.

(e) The Wales Baseline Brownfield Study

The Welsh Urban Ecosystem Group was formed in 2009. The first priority of the Ecosystem group is to set Welsh BAP objectives and targets for OMH. The Ecosystem Group has identified the following actions as necessary to begin to set 'Maintain Extent' and subsequent BAP targets within Wales:
Identify the extent and location of the total habitat resource;
Define the substrate types upon which Mosaic Habitats occur;
Identify the extent and location of sites on each substrate type;
Identify individual sites that are important for continuing management

Section 1.02 OBJECTIVES

(a) Objectives

The objectives of this project are:
To identify the extent and location of potential OMH in Wales;
To identify the extent and location of sites on each substrate type;
To identify individual sites for field survey and SINC assessment; and
To suggest initial LBAP targets and actions for OMH in Wales.

(b) Outputs

The project will deliver the following outputs:
GIS layer showing potential OMH sites by broad type, and identifying those which are priority for field surveys;
Baseline data of potential OMH area, by LBAP area;
Suggested LBAP targets, in BARS format;
Suggested LBAP actions, in BARS format ; and
Final report of findings, detailing the above.

Section 1.03 METHODOLOGY

(a) Alert Map

Source	Data
Ordnance Survey (OS)	Paper maps, GIS raster layer
Countryside Council for Wales (CCW)	GIS Wales Phase 1 Survey 1979 – 1997
Environment Agency (EA)	GIS Landfill Inventory
Local authorities (where available)	GIS Inventory of Previously Developed Land

Compile a GIS 'alert map' of potential OMH sites using, inter-alia, the following data:
Table 2: Data sources

Search the OS maps for the following industrial structures:

gravel pits;
other pit/quarry;
landfill/slag heaps;
levels; and
mines.

Create a GIS layer marking each of these potential sites with a point.

Extract the following vegetation types from the CCW Phase 1 layer:
I.2.1 Quarry
I.2.2 Spoil
I.2.3 Mine
I.2.4 Refuse Tip
J.1.3 Ephemeral vegetation
J.4 Bare ground

Use the above layers with the EA Landfill Inventory and local authority Inventories of Previously Developed Land (where these are available) simultaneously to create an 'alert map' of sites which potentially contain OMH.

(b) Substrate Types

Classify, as far as possible, by substrate type of each site shown on the "alert map" according to the following six broad substrate types identified by the Urban Ecosystem Group:
coal spoil;
extraction site (quarries and pits);
metal contaminated site;
derelict site;
landfill site; and
coastal.

For the purposes of this project these are defined as follows:

Substrate	**Definition**	**Examples**
Coal Spoil	Sites with a history of coal mining, and sites identified by OS as spoil but **not** registered as landfill	Coal spoil heaps, in various forms
Extraction	Sites identified by OS as Gravel pit, Sand pit, or Other pit/quarry, and sites appearing as such on aerial photographs, but **not** registered as landfill	Quarries, spoil heaps other than coal, derelict mines
Metal contaminated	Sites with history of metal contamination, but **not** registered as landfill	Lead mines, steelworks
Landfill	Sites registered as current or historic landfill	Active landfill, former landfill that has been capped
Coastal	Sea defences, man made bunds, or docks	Sea walls, bunds

Derelict	Sites not meeting any of the above criteria	Vacant building plots, derelict industrial sites, ruins of buildings

Table 3: Substrate definitions and examples

(c) Aerial Photography

Using a recent geo-referenced aerial/satellite photography product (e.g. Google Earth with an OS grid square overlay) search each square kilometre of the study for potential OMH sites, paying particular attention to any sites shown on the 'alert map' of potential OMH sites.

Eliminate sites shown on the alert map if:
They have been developed or successfully landscaped;
They are not visible as distinct from the surrounding landscape; or
They appear completely overgrown with mature vegetation such as trees and shrubs

The distinction of 'successful landscaping' is made because many sites that have been reshaped and seeded with grasses still show indications of OMH. In these cases where the landscaping may be said to have wholly, or partly failed the underlying substrate still determines the form and vegetation of the site.

Identify the following additional site types as potential OMH:
Bare ground with no sign of activity (no buildings or stored materials) as they may have vegetated in the time since the photograph was taken;
Sites appearing to match a particular substrate type, e.g. showing the distinctive colouring of coal spoil heaps;
Sites that appear to have been disturbed, showing topographical variation and appearing to be distinct from the surrounding landscape; and
Sites known to the surveyor to be likely to meet OMH criteria.

Draw the boundary of each potential OMH site identified by the process above onto a new GIS layer, including the following information:
Site name;
Phase 1 code(s);
If the site was identified on the EA Landfill map, whether the site was current or historic landfill;
If the site appeared on an OS map, how it was identified;
Substrate;
Potential to meet the OMH criteria;
Local Authority; and
Size.

OMH Criteria

Classify each site according to the potential to meet the OMH criteria.

Potential	**Indicators**			
High Medium/High Medium Medium/Low	Sites showing significant heterogeneity	Sites with a known history of disturbance	Sites known to meet the OMH criteria	Sites greater than 0.25ha
Low	Bare sites, vegetated sites (closed vegetation)	Sites with an unknown or unclear history	Sites likely to be developed	Sites less than 0.25ha

Table 4: Indicators of OMH potential

Engagement with Local Biodiversity Action Plans (LBAPs)

Consult with local authority officers in each LBAP area. The decision as to which officers (LBAP officers or Ecologists) should be consulted should be left to each local authority, dependent on the familiarity of the officers with the local area.

Present the local authority officers with a map of the potential OMH sites in their LBAP area, (re)families them with the OMH criteria, and ask them to eliminate sites that definitely do not meet the criteria (usually those that have been developed since the aerial photographs were taken). Ask the officers to extend or reduce the boundaries of the sites identified, and add sites that your desk-top survey has missed. In local authorities where a high number of sites have been identified, you may choose to consider only the larger sites.

Additionally identify sites:
where officers are unsure if the site meets the OMH criteria; and
that are protected by designation (SSSIs, SINCs, LNRs).

To inform site selection and aid recall you may use aerial photographs, site surveys, maps of protected sites and planning databases.

In addition to considering sites, you will find that discussions will include conservation of OMH, possible LBAP actions, the perception of brownfield land, understanding the definition of OMH, and protection and management of OMH. Wherever possible record the salient points of these discussions for inclusion in the discussion section of your report.

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