



LEONARDO DA VINCI Partnerships
“Interchange for the Training and Development of Staff and Volunteers
among European Nature Conservation Trusts”

**MANAGING NATURE IN THE FACE OF CLIMATE CHANGE:
LESSONS LEARNED IN THIS LEONARDO PROGRAM**



Annex 1: Information Exchanged and Lessons Learned

This appendix is a collection of the Lessons Learned, distilled from the Visit reports of the Leonardo project ‘Interchange for the Training and Development of Staff and Volunteers among European Nature Conservation Trusts’. The project focused on several subjects or habitat types connected to Climate Change and nature management:

- Carbon footprint
- Peatlands
- Invasive species
- Coast & river

Besides this there were many lessons learnt regarding:

- Process & organisation
- Communications

All the participants of the visits made a report afterwards. Part of these reports were the lessons learned from the visit. The important lessons are coloured and italicized. In the first column you will find the person’s name and organisation in abbreviation. For instance: Hans-Peter Westerbeek works at Natuurmonumenten in the Netherlands. The abbreviation is HW/NM. Sometimes you will find 'all' in this column, which relates to a lesson distilled at the final meeting of the project in Berlin.

The most important highlights of the lessons or key points in this project are given in the table below.

Key points

- Let nature take its course wherever possible (at the highest level) – e.g. coastal processes, rivers and flood regimes, peatland grazing with native breeds
- However, some intervention management may be necessary to keep key species (e.g. in freshwater lagoons) or reflect opportunities or challenges arising from cultural differences (e.g. UK compared to Netherlands)
- Active protection and adaptive management therefore still has a role, which may require local fine tuning and striking a balance between different stakeholder needs
- Plan long-term – 100 year visions are valuable. But there is a challenge with making these realistic to people
- Think Big – we have seen some impressive large-scale projects and these have multiple advantages

(e.g. resilience)

- For some issues, time is on our side – we can take some management projects (such as naturalisation of large floodplains) slowly and use longer timeframes to plan and implement properly
- We need to be pragmatic, realistic, patient and proactive: securing local ‘buy-in’ is critical
- Habitat restoration or creation has many benefits – but it’s only one part of the bigger jigsaw; restoring coastal habitats, peatlands or floodplains can create ‘win-wins’ for biodiversity, many ecosystem services and climate change adaptation; “the sharpest sword [restoration] is in the weakest hands [NGOs]” – continue to stress that we have the sharpest sword!
- Climate change *per se* is not a major impact in all sites. It is overridden by other anthropogenic impacts more often than not, e.g. eutrophication, drainage regimes, urbanisation
- That said, the immediate impacts of climate change are obvious on many of our sites, especially coasts, including fast-eroding chalk cliffs, floodplains and peatlands.
- Climate is also impacting on the landscape via the methods we are using to adapt – for example sand motors, river corridor restoration, new flooding regimes (“we’re changing the landscape in order to adapt!”)
- “Managing climate is managing people” – we need to recognise that certain types of tools work best in certain situations – and that we need to be flexible
- Effects of climate change may be very obvious for some sites, less so for others: varying degrees of impact = spectrum of intervention
- The training available on climate change is poor, and not integrated with other subjects; the value of getting people together, out on site, exchanging knowledge, is enormous and the best form of training (we can provide new training packages from the visits we organised; see Section 13)
- It is not possible to link many invasive species with climate change explicitly; other reasons are important in their distribution and spread; we noted little energy from our visits going into identifying climate change indicators, monitoring indicators and generally little control of invasive species – although there are notable exceptions
- Our programme was well received by both learners and hosts; speakers were of high calibre and we are very grateful for the knowledge and experience they shared: reciprocal visits were an invaluable mechanism (connecting people through exchange visits was the real outcome)
- Site staff are the real actors: they are the force for change and creativity.

Lessons about the Carbon Footprint in Nature management

Lessons
learned by

Name/org	No	Visit	
all		Carbon, UK	<i>The philosophy and focus of all the organisations involved was similar - reducing the organisational carbon footprint is essential.</i>
HS/NS/NM	2	Carbon, UK	Different organisations had different working priorities, but all agreed that linking CO ₂ output and land management was a priority. A carbon-neutral estate is a good objective.
all		Carbon, UK	All are working on energy-saving and energy management, with NM and NT also 'growing their own' energy.
all		Carbon, UK	<i>There are many useful methods of influencing staff behaviour to reduce carbon footprints.</i>
all		Carbon, UK	There are various methods of auditing carbon use, different in different countries.
all		Carbon, UK	It is possible to become less reliant on fossil fuels and help reduce our carbon footprint but reliance on cars to visit sites is a difficult issue to resolve.
all		Carbon, UK	It is very useful to have a good example how to live in a way with a low carbon footprint.
all		Carbon, UK	<i>The carbon store in the soil is potentially huge - far greater than in vegetation. There can be a misconception that forests are the biggest store.</i>
all		Carbon, UK	<i>Badly managed soil can emit large quantities of CO₂. Where peat (and other) soils are emitting CO₂ we have to prevent that.</i>
HA/NS/NM		Carbon, UK	Soil carbon measurement and earthworm monitoring can be used in a programme of soil carbon enhancement in farmland.
CW/Nabu	2,1	Carbon, UK	Soil carbon measurement and earthworm monitoring can be used in a programme of soil carbon enhancement in farmland.
HS/NS/NM	2	Carbon, UK	Organic farming can increase soil carbon in arable fields.
HS/NS/NM	2	Carbon, UK	Use of low-carbon equipment in offices, on farms, etc. should be considered.

Lessons about Peatlands and Climate Change in Nature management

Lessons learned by

Name/org	No	Visit	
NABU and all		Dutch & German Peatlands & English Fenland	<i>All sites have ambitious and impressive large-scale projects, with long-term visions. There is emphasis on both protection and enjoyment of nature. There is honest and transparent communication with local people and stakeholders. The support of local and national statutory bodies is impressive. It is good to have a hydrological vision, with options.</i>
RP/NM	2	Dutch & German peatlands	In general large areas and a management strategy focusing on room for natural processes give more scope for dealing with climate change.
		Dutch & German Peatlands & English Fenland	<i>Many factors make restoration of peatland difficult, eg. agriculture in the immediate vicinity, the degraded condition of the peat, eutrophic drainage water and inadequate water.</i>
NT		Dutch & German Peatlands	Atmospheric nitrogen deposition is an important factor in frustrating attempts to restore raised bogs by encouraging tree growth, particularly birch.
NT		Dutch & German Peatlands	It is possible to restore hummocks and lagg fen on a raised bog with close control of water levels on a compartmentalized basis, and stepped dams at the edge of the bog
			Opinions are divided about the wisdom of sacrificing some stored carbon to put a carbon-capturing ecosystem in place.
NT		Dutch & German Peatlands	Restoring peatlands may actually increase CO ₂ emissions (eg by creating peat bunds, or removing peat to get closer to the water table)
NT		Dutch & German Peatlands	There are two possibly conflicting objectives in peatland restoration: conserving current biodiversity, eg a rare type of fen, or ensuring that peat-growth processes and natural succession are allowed. Both are justifiable in the right circumstance.
NABU		Dutch & German Peatlands	Hydrological and biological monitoring are essential to demonstrate success.
NT		Dutch & German Peatlands	Purchase of project sites gives greater scope for control and changes in management, although it may dissociate the project from the local community
all		English Fenland	Peat loss and shrinkage figures can be dramatic everywhere.
all		English Fenland	Water table depths can be several meters below land, even in nature reserves.
all		English Fenland	English fens have major water deficit issues in summer – no water available for abstraction. This seriously compromises restoration options.
all		English Fenland	Peat loss will continue unless water tables are suitable (although Wicken shows small net store after a short time).
all		English Fenland	There are no reference points for degraded peat restoration – we are making novel ecosystems. We should share experience on this so that knowledge can develop.

	English Fenland	Ecosystem Services monitoring and evaluation is being carried out and published as part of the site restoration projects
	English Fenland	Natural regeneration of grass on ex-arable peat is extremely luxuriant: the fen peat is very productive for several years, without further inputs.
	English Fenland	Scrub and soft rush <i>Juncus effusus</i> can come in very quickly as soon as land comes out of arable, if not controlled
NM	English Fenland	There are good examples of natural stock management in the fens – “the less we interfere, the greater their influence on the landscape”, eg cattle at Wicken making display pits.
NM	English Fenland	There are similarities and differences between nature conservation of fenlands in England and the Netherlands. There is a difference between England and the Netherlands in the process of enlarging and linking nature conservation sites as a survival strategy for the future. In the Netherlands this process started a few decades ago and is now coming to an end largely due to the lack of government funding. We are now exploring other types of funding which are more common practice in England.
NM	English Fenland	<i>There is a difference between the Netherlands and England in the attitude of the water authorities towards water requirements of nature conservation areas. In the Netherlands these demands are equally weighed with the demands of other types of land use - sometimes they even have a higher priority. In England agriculture gets the prime share.</i>
NM	English Fenland	The types of management issues related to Fenlands are similar in the Netherlands and England, ie. grazing, mowing and water level management.
NT	English Fenland	Water needs to be allocated more fairly, with more going to ecosystem services other than agriculture.
NT	English Fenland	<i>There is a new toolkit for monitoring costs and benefits to all ecosystem services, using Wicken Fen. For most services (carbon storage, recreation, harvested wild goods (grass) and flood services), restored peatland is more productive in terms of costs than arable land. The exception is cultivated farm products.</i>
NT	English Fenland	Drainage systems at sites (eg Woodwalton Fen) could benefit from re-design, along lines suggested by Natuurmonumenten, with one inlet / outlet for the unavoidably eutrophic water, rather than a flush-through system.
NT	Dutch & German Peatland & English Fenland	A carbon trading and payment scheme is needed. Indications are that this would tip the economic balance towards peatland restoration. There is potential for commercial companies to fund bog restoration works to reduce their carbon footprint and this is already happening in Germany.
NT	Dutch & German Peatland & English Fenland	<i>It would be useful to promote the connection between peatland restoration and climate change more overtly in England (as on German sites). This could bring in new funding. Similarly, the ecosystem service of carbon sequestration doesn't play a role in the funding of NM's peatlands, which are focussed on biodiversity.</i>
NABU	Dutch & German Peatlands	Off-site training in peatlands can be provided for corporate companies, for example through the co-operation between NABU and VW.
NM	Dutch & German Peatland	Many of the peatland conservation techniques, like protection with sheet piling, are attractive and fundable by companies.

Lessons about Invasive Species and Climate Change in Nature management

Lessons learned by

Name/org	No	Visit
WS/NM	2	Brown&Wa
CB/JFCdL	6	Brown&Wa

Early focus on invasive species makes control easier.

There are new methods for invasive species control.

Most invasive species are not linked to climate change, but to other impacts of man.

Not all invasive species are a problem - they do not cause ecosystem change nor threaten native species.

Some invasive species disappear by themselves after a time.

Invasive species are a particular problem on island sites. some are disappearing from itself

Island sites afford good opportunities for effective control strategies.

Invasive species are rarely a prime damaging impact on a site.

Lessons about Coast and River Nature management and Climate Change

Lessons
learned by
Name/org

No visit

all

All organisations agree that wherever possible nature will be allowed to take its course. The natural process is of value in its own right. However, obviously sometimes human intervention is necessary.

NGOs, private sector), strong policy support and sufficient funding. The importance of good dialogue and the ability to compromise were also highlighted as significant factors in developing and implementing unified approaches to climate change adaptation.

JR/SH/NT

1

Rhinedelta

There is a tension between allowing coastal change, and maintaining valued habitats. Site managers are constrained by the 'rigidity' of managing Natura 2000 sites, which does not allow habitat change, along with climate change. If a habitat disappears due to a natural event (as at Val de Saire) another one will replace it. So why attempt to maintain habitats in the face of change at all costs?

CD/JP & summ
TT/JL/AB/CMC/
NT

1

Normandy

A change of goal can be beneficial. At Baie de Veys, former arable land has been restored to wet pasture and is likely to revert to saltmarsh if the boundary dyke is removed.

2

Normandy

summary

Brown&Wall

There will be trade-offs when habitats change. For example, farmland birds will be lost when farmland is replaced by saltmarsh at Wallasea. It is necessary to know who will make the decision.

Climate change adaptation measures in the Netherlands have stronger policy and funding support than in the UK and France, due to the vulnerability of the country and its economy to flooding. There are currently a number of large-scale, innovative coastal and river adaptation projects under way (like the sand motor) – individual projects can have budgets far in excess of what other countries spend annually on their climate change programmes. This allows for greater innovation and more ambitious projects which are not replicable in other countries.

JR/SH-NT &
CduL

1

Rhinedelta

The Dutch are big, bold and confident in their thinking and implementation of projects. They have a creative and daring approach to flooding farmland.

KH/AC/JM/DT/H
T NT

3

Rhinedelta

In the Netherlands water is on the agenda in a way it is not in the UK - where it comes from, water quality, and flooding. The public is much more aware of sea level rise.

KH/AC/JM/DT/H
T NT

3

Normandy

There are massive engineering projects on the coast in the Netherlands, with a striking lack of emphasis on retaining natural processes.

KH/AC/JM/DT/H
T NT

3

Rhinedelta

Beach replenishment sites show a huge scale of investment for a relatively limited timescale (60 yrs) which is interesting and impressive.

KH/AC/JM/DT/H
T NT

3

Rhinedelta

KH/AC/JM/DT/H
T NT

3

Rhinedelta

The practical implementation of all the projects seen in the Rhine Delta was underpinned by thorough and sound science.

TT/JL/AB/CMC Nat. Trust	2	Normandy	<i>Solutions to local impacts and problems are often found by looking at larger landscape-scale units, and local communities can be helped to understand the benefits of this.</i>
TT/JL/AB/CMC Nat. Trust	2	Normandy	The opportunities for identifying future coastline for potential acquisition is a practice that should be further developed in the National Trust - although already happening.
TT/JL/AB/CMC Nat. Trust	2	Normandy	It is possible to make major changes to visitor use of a large site by progressive changes to car parking provision - as at Regneville Haven.
QS/HW/NM	3	Normandy	<i>Land which is taken by the sea is seen as a 'loss' although ecologically this may not be the case.</i> Cliffs are eroding at a dramatically rapid rate on the Isle of Wight - it is not just soft coasts and sand-dunes that are very vulnerable to coastal erosion.
LM/JP/TS CdL	2	Isle of Wight	Soft' techniques such as wooden fences can maintain an eroding coastline, as can the 'soft' but heavily engineered sand motor technique.
KH/AC/JM/DT/H T NT	3	Rhinedelta	Following examples of coastal adaptation in the Netherlands, the UK could be a lot bolder, and 'think unthinkable' solutions. Islands are difficult to manage. Brownsea is a good example of how to exploit an important site for nature conservation in a sustainable way.
BH/NM	1	Brown&Wall	Heavily motivated and engaged people are needed for these high projects
TS/CdL	1	Havel&Elbe	Almost all of the measures implemented to restore an area must be accompanied with compensation measures because it might be disturbing for an ecosystem
TS/CdL	2	Havel&Elbe	Basically the approach is to create a larger floodplain or take measures to enlarge discharge capacity of the existing river.
HW/MS/JB/NM	1	Havel&Elbe	It's new for Dutch and German NGO's to manage projects in the public domain. The future can learn if this will lead to save public money and time.
HW/MS/JB/NM	2	Havel&Elbe	The NGO manager is fighting the bureaucrats.
HW/MS/JB/NM	3	Havel&Elbe	Disasters are important factors in these processes. It leads to changes, mainly political.
HW/MS/JB/NM	4	Havel&Elbe	It helps to work on a project like this in stages. Take your time to work step by step
HW/MS/JB/NM	5	Havel&Elbe	Various land-use changes override climate change impacts, but political change is the most powerful change of all – re-unification of Germany in this case
KH/MG/NT	1	Havel&Elbe	Woody debris is just as important in the natural dynamics of these huge rivers as it is in our small ones
KH/MG/NT	2	Havel&Elbe	The Germans have a Nature Reserve designation which is stronger than Natura 2000. Do we need this??
KH/MG/NT	3	Havel&Elbe	

Lessons in matters of Process & organisation

Lessons
learned by

Name/org
RW/NM

No Visit

3 Brown&W

Large numbers of visitors can be accommodated, if managed wisely, without compromising natural and cultural values.

AC/NT

2 Camargue

Successful change management processes in both UK and France include community engagement, species monitoring, land purchase, co-operative work with like minded organizations, engagement and consensus building with stakeholders, particularly businesses.

AW/NT

3 Camargue

Engage the public at all levels, so that management of factors beyond the control of one organisation, such as water level management, can be influenced.

JT/NT

5 Peatlands

Holistic, joined up approaches to projects make a huge difference to the success of the project.

GG/NM

5 Camargue

Going local' and leasing nature sites to others makes local communities feel involved and trusted, and gives stakeholders more influence. Many actions are based on voluntary involvement of the public.

WG/NM

7 Brown&W

Engage stakeholders right from the outset of a project. The RSPB engaged the local community years ahead of the habitat transformation on Wallasea. This is very impressive.

HS/NM

3 Peatlands

NABU effectively uses stakeholders to access funding for restoration projects in peatlands.

RP/NM &
NABU

4 Brown&W &
Rhine Delta

A strong and attractive vision, working on a large scale, creativity in realising funding, full management control and perseverance and persistence are all inspiring lessons from Wallasea. They also applied in the Rhine Delta: long-term strategies, adequate compensation, courage and perseverance are needed.

Thinking big and on a long time-scale are both necessary. Projects with a planning duration from 1967 to 2008 and an implementation phase of twenty years or more, like Maasvlakte 2, need major compensation and nature protection measures.

AP/Nabu

5 Rhinedelta

TT/JL/AB/CM
C Nat.

Trust

2 Rhinedelta

The Dutch are very successful in persuading government to invest huge sums of money into landscape-scale engineering projects, while creating significant wildlife habitats at the same time.

KH/AC/JM/DT

3 Rhinedelta

UK conservation practitioners, both at NGO and government level, could be a lot cleverer in using climate change as a lever in seeking support and financial backing of projects to protect or enhance our designated sites.

/HT NT

RS/EJ/ML/AP

4 Rhinedelta

Very impressive creativity and problem-solving are shown in the Rhine Delta. Limitation on space is not an obstacle - new space can be created so that there is multiple use of Nature - Urban - Industrial spaces.

Nabu

5 Rhinedelta

The Mutual Gains approach of negotiating conflicting objectives is an advantage in complex situations.

AP/Nabu

5 Rhinedelta

Combining nature protection with Climate-buffering and other objectives helps overcome resistance to important projects.

AP/Nabu

5 Rhinedelta

In both France and the UK society and local communities are unaware of climate change, except in the case of 'natural' catastrophes like the Xynthia storm which impacted the Atlantic coast of France in 2010.

CD/JP

1 Normandy

cD/JP	1	Normandy	<i>The Conservatoire du Littoral integrate coastal zone and inland climate change management, which was surprising to some other organisations.</i>
TT/JL/AB/CM			
C Nat.			
Trust	2	Normandy	The French system of consulting with the local Mayor (who represents the local community), on management changes, seems to work well. It gives a real feeling of ownership and decision-making to the people living closest to the various project sites.
TT/JL/AB/CM			
C Nat.			
Trust	2	Normandy	The inflexibility of the Habitats Directive in allowing habitats and species to change or move is shared across coastal nations and requires modification at an EU level.
EJ Nabu	3	Isle of Wight	Flooding and sea level rise are natural events which cannot be prevented, only managed. Both are accelerating due to climate change.
NS NM	1	Fenlands	A long-term (100 year) vision to create a large site could be compromised by rural planning policy and other government controls. It may never become a reality.
			<i>Managing climate change projects means managing humans.</i>

LESSONS ON NATURAL PROCESSES

NP/NM	6	Camargue	There are benefits in restoring natural systems without a defined end-point. Let nature take its course. 'Go with the flow'. But there will also be circumstances where changes must be directed.
EM/MO/MD			
NM	1	Isle of Wight	It can be difficult to give emphasis to process, rather than to protection, but the National Trust is impressive on the Isle of Wight in the way that it steps back and gives room for natural processes.
			<i>There can be two possible management aims: conserving rare or characteristic species and habitats, or restoring dynamic natural processes and allowing species and habitats to move, colonise or die. There may have to be a choice. Both are justifiable in the right circumstances.</i>
TW/NT	6	Peatlands	

Lessons in matters of Communication

Lessons learned

by

Name/org	No	Visit	
MS/NM and others	2	Camargue; Peatlands, Rhinedelta	Large-scale, long-term, consistent, ambitious visions for the future, with positive goals, are impressive.
EJ/Nabu and others	3	Camargue; Peatlands, Rhinedelta	Transparent, honest and empathetic communication, cooperation and dialogue with local people, neighbours and stakeholders, covering different management options, are essential. The effects of climate change and the adaptation strategies applied in Britain provide a strong argument for communication about the subject in Holland.
BH/NM	1	Brown&Wa	
RW/NM	3	Brown&Wa	<i>"No people, no money!"</i>
CB/JF/CdL	6	Brown&Wa	<i>The questions about climate change are the same in France, England, the Netherlands and Germany.</i>
Summ.		Brown&Wa	Disasters influence politics and ways of thinking, and have a direct effect on the possible solutions
JR/SH/NT	1	Rhinedelta	Both France and the UK have a lot to learn about effective interpretation from the Netherlands. The MaasVakte 2 harbour building project is explained in a big multi-media 'edutainment' centre. The message is communicated very well with a combination of high-quality entertainment, exhibition technology and aesthetics. In this way acceptance and support are established.
RS/EJ/ML/AP Nabu	4	Rhinedelta	An impressive peatland communication device in the Netherlands was a tower allowing views across a wide area, and also a transparent tube (thermometer-like) that showed the current water level of the bog (on a green/yellow/red basis). Both of these techniques (i.e. allowing people to experience the site and showing them what the objectives are) are potentially replicable elsewhere.
TW/NT		Peatland	
CD/JP			
TT/JL/AB/CMC			
NT		Normandy	<i>The biggest challenge for organisations (eg both CduL and NT) is changing perceptions of local communities on the inevitability of the effects of coastal change, and the acceptance of change (eg. coastal re-alignment strategies).</i> Success is dependent on public cooperation. This can only be achieved by a change of values and awareness – very laborious and long-term processes, maybe taking many years, without guarantee of success. The public needs to be drawn into decision making and sometimes compromise measures must be taken.
EJ Nabu	3	Isle of Wight	<i>Involving local volunteers as "ambassadors" and mediators between site managers and the public is a good idea: they can be effective in conveying difficult messages. Site managers themselves can also be the best ambassadors.</i>
CD/JP	1	Normandy; Isle of Wight	Time out for communicating with a beer or vodka is time very well spent. A personal approach, over a long time period, are very effective. Someone born and bred in the area to act as an ambassador pays off.

CD/JP	1	Normandy	<i>Monitoring, including photo-monitoring from air or land, and long-term data sets which show change, constitute the most useful tools for visualising the evolution of the coastline and the shifting of coastal habitats. These are effective in catching the attention of the public (site users, elected people, ...)</i>
EM/MO/MD/NM and others		Isle of Wight	Show the public what the impacts of climate change are. For example show what the impacts of bigger dikes would be on the landscape and ecology of Texel, or use artwork as at Birling Gap to represent the shoreline 100 years ago and 100 years from now. These can be very persuasive.
TT/JL/AB/CMC Nat. Trust	2	Normandy	The NT could be more proactive in identifying land that could be acquired and used for strategic management changes well into the future.
WG/NM; CG/NM, NABU	7	Camargue; Peatlands, Rhinedelta	<i>Stakeholder management, adaption to climate change and nature management are closely intertwined. Many nature conservation measures have a positive impact on climate change adaptation and mitigation. This message should be more strongly emphasised as it can have a positive effect on investment decisions, as well as persuasion.</i>