

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 :
TRAINING AND MATERIALS FOR SITE STAFF**



Annex 2

TABLE OF CONTENTS

| | |
|--|-----------|
| GENERAL CONTEXT | 5 |
| INVENTORY OF TOOLS AND TRAINING FOR THE MANAGEMENT OF NATURAL SITES DEALING WITH CLIMATE CHANGE | 6 |
| 1. GENERAL OVERVIEW | 6 |
| 1.1 List of useful materials | 6 |
| 1.1.1 European & International scale | 6 |
| 1.1.2 United Kingdom | 6 |
| 1.1.3 The Netherlands | 7 |
| 1.1.4 Germany | 7 |
| 1.1.5 France | 9 |
| 1.2 Training provision | 10 |
| 1.2.1 United Kingdom | 10 |
| 1.2.2 The Netherlands | 10 |
| 1.2.3 France | 11 |
| 2. ECOSYSTEM-BASED ADAPTATION TO CLIMATE CHANGE ON THE COAST, AND IN ESTUARIES AND RIVERS | 12 |
| 2.1 List of useful materials | 12 |
| 2.1.1 Europe scale: | 12 |
| 2.1.2 United Kingdom | 13 |
| 2.1.3 St Helena | 15 |
| 2.1.4 Netherlands | 15 |
| 2.1.5 Germany | 15 |
| 2.1.6 France | 16 |
| 2.2 Training provision | 19 |
| 2.2.1 United Kingdom | 19 |
| 2.2.2 The Netherlands | 20 |
| 2.2.3 France | 21 |
| 3. PEATLAND RESTORATION AND CLIMATE CHANGE MITIGATION | 22 |
| 3.1 List of useful materials | 22 |
| 3.1.1 United Kingdom | 22 |
| 3.1.2 Netherlands | 23 |
| 3.1.3 Germany | 23 |
| 3.1.4 France | 24 |
| 3.2 Training provision | 26 |
| 3.2.1 United Kingdom | 26 |
| 3.2.2 France | 26 |
| 4. APPROACHES TO INVASIVE SPECIES RELATED TO CLIMATE CHANGE | 27 |
| 4.1 List of useful materials | 27 |
| 4.1.1 European & International scale | 27 |

| | | |
|-----------|---|-----------|
| 4.1.2 | United Kingdom | 28 |
| 4.1.3 | Germany | 29 |
| 4.1.4 | France | 29 |
| 4.2 | Training provision | 30 |
| 4.2.1 | United Kingdom | 30 |
| 4.2.2 | France | 31 |
| 5. | CARBON FOOTPRINTS OF ACTIVITIES AND ORGANISATIONS..... | 33 |
| 5.1 | List of useful materials..... | 33 |
| 5.1.1 | European & International scale | 33 |
| 5.1.2 | United Kingdom | 34 |
| 5.1.3 | Netherlands | 34 |
| 5.1.4 | France | 35 |
| 5.2 | Training provision | 36 |
| 5.2.1 | United Kingdom | 36 |
| 5.2.2 | France | 37 |
| | OVERALL ANALYSIS, CONCLUSIONS AND RECOMMANDATIONS..... | 40 |
| 1. | ANALYSIS FROM THE PROJECT PARTNERS..... | 40 |
| 1.1 | ANALYSIS FROM THE NATIONAL TRUST: | 40 |
| 1.2 | ANALYSIS FROM NATUURMONUMENTEN : | 41 |
| 1.3 | ANALYSIS FROM THE NABU: | 41 |
| 1.4 | ANALYSIS FROM THE CONSERVATOIRE DU LITTORAL: | 41 |
| 2. | OVERALL CONCLUSIONS | 44 |
| 3. | RECOMMANDATIONS : | 45 |

EXECUTIVE SUMMARY

Rivers, coasts, estuaries and peatlands now often feature many protected areas that are threatened by climate change, and staff of nature conservation organizations are increasingly having to deal with new issues in their daily work as a result (e.g. erosion, sea level rise, invasive species, carbon footprint, flooding).

The present VET (Vocational Education and Training) analysis consists of an inventory of the tools and training materials linking climate change issues and nature conservation (focused on 4 major themes: Ecosystem-based adaptation to climate change on the coast, and in estuaries and rivers ; peatland restoration and climate change mitigation ; different approaches to invasive species related to climate change ; carbon footprints of activities and organisations) among the 5 Leonardo partner organizations.

Even if a lot of information (either technical, practical, juridical) can be found, better communication is needed to share information about existing training and materials. Training programmes considering site management in the face of climate change are needed to develop and reinforce the capacity building of site managers and other stakeholders on these emerging topics. On-site knowledge exchange (local, regional or international scale) seems to be one of the most relevant ways of sharing best practice and experience.

GENERAL CONTEXT

From July 2010 to July 2012, an innovative Leonardo da Vinci Partnership project was implemented by five European nature conservation organisations: the National Trust (UK), the St Helena National Trust, the Natuurmonumenten (the Dutch society for nature conservation); the NABU Nature and Biodiversity Conservation Union (Germany) and Le Conservatoire du Littoral (French public agency for coastal and lakeshore conservation).

This project entitled “Interchange for the Training and Development of Staff and Volunteers among European Nature Conservation Trusts” aimed to enhance the exchange of experience and know-how about the integration of climate change in the management of natural sites. The projects partners agreed to focus on four main themes :

- Ecosystem-based adaptation to climate change on the coast, and in estuaries and rivers ;
- Peatland restoration and climate change mitigation ;
- Different approaches to invasive species related to climate change ;
- Carbon footprints of activities and organisations

In the framework of this project, different activities were implemented by the 5 organizations: mainly multilateral meetings in the Partnership countries (to learn directly in the field about the approaches, methods and projects), the development of a website (to better communicate about the project, share information and raise awareness), and other means of exchanging information.

One of the goals of the project was also to undertake an analysis of the current VET (Vocational Education and Training) situation linking climate change issues and the nature conservation sector. An inventory of the known tools and training materials, internal and external, among the 5 European partners has been prepared. The choice taken by the project partners has been to identify the most appropriate materials and training available for integrating the climate change impacts, rather than making a detailed catalogue. Considerably more detail is given on provision in France than in the other countries. The target audience is nature conservation professionals ranging from conservation experts, site managers, wardens or volunteers of conservation organisations.

INVENTORY OF TOOLS AND TRAINING FOR THE MANAGEMENT OF NATURAL SITES DEALING WITH CLIMATE CHANGE

1. GENERAL OVERVIEW

1.1 List of useful materials

1.1.1 European & International scale

❖ Climate adaptation :

A toolkit developed by the European Commission, this Climate Adaptation Platform aims to support and share initiatives and information about ways to adapt to an expected climate change in Europe. The website already provides a lot of data, case studies and action plans implemented in EU member states.

<http://climate-adapt.eea.europa.eu/>

❖ Ecosystem-Based Approaches EbA :

The key-point is to protect and preserve natural habitats and species. Restored ecosystems will allow a significant decrease in vulnerability to climate change impacts, increase biodiversity goods and services and raise local and national resilience to the impacts of climate change.

The International Union for Conservation of Nature (IUCN) is promoting Ecosystem-Based Approaches (EbA) to tackle climate change impacts and vulnerability through action plans and guidelines.

http://www.iucn.org/what/tpas/climate/key_topics/eba/

1.1.2 United Kingdom

❖ Statutory nature conservation agency websites with overviews of climate change issues :

England:

<http://www.naturalengland.org.uk/ourwork/climateandenergy/climatechange/>

Wales: <http://www.ccg.gov.uk/environmental-change.aspx>

Northern Ireland: http://www.doeni.gov.uk/niea/index/about-niea/climate_and_the_environment/climate_change_policy_and_the_evidence_base.htm

Scotland: <http://www.snh.gov.uk/climate-change/>

Joint Nature Conservation Committee (an inter-agency body representing the 4 country agencies above) <http://jncc.defra.gov.uk/page-1428> Published useful report Biodiversity and Climate Change - a summary of impacts in the UK (2010)

http://jncc.defra.gov.uk/PDF/Pub10_Bio_&_CC_IACCF_2010_Web.pdf

England and Wales - Environment Agency: <http://www.environment-agency.gov.uk/homeandleisure/climatechange/default.aspx>

Department for Environment, Food and Rural Affairs (Defra)
<http://www.defra.gov.uk/environment/climate/>

1.1.3 The Netherlands

In the Netherlands there are several websites on which you can find a lot of best practises, plans, projects concerning climate change, river restauration, peatland, e.d.: On the site's there are also more links to management plans, positon papers and processes. We like to recommend to you:

www.ruimtevoorderivier.nl

www.rijkswaterstaat.nl

www.rjninbeeld.nl

www.maasinbeeld.nl

On this sites one can find information about projects concerning Room for the Dutch rivers

www.rijksoverheid/onderwerpen/deltaprogramma (or google on Deltaprogramma. The Deltaprogramma is the new Dutch management program for water-safety, which includes nature based solutions)

www.klimaatbuffers.nl and www.rijksoverheid.nl/ministeries/ienm

www.buildingwithnature.nl

On this Internet sites there is information about the Dutch pilots of Climate Buffering. These are pilotprojects in which we experiment in using nature to solve the consequences of climate change. There are also brochures and fact sheets in print about climate buffers anb building with nature (send an e-mail).

1.1.4 Germany

❖ The German Federal Agency for Nature Conservation (Bundesamt für Naturschutz - BfN).

This is the German government's scientific authority with responsibility for national and international nature conservation. BfN is one of the government's departmental research agencies and reports to the German Environment Ministry (BMU).

- Activities among others: Information and education

BfN is the central service provider for all issues relating to nature conservation. Therefore it provides a wide range of information for practitioners in all areas of nature conservation and for the general public.

- BfN has one of the largest nature conservation libraries in Europe, with some 120,000 books and media plus over a 1,000 subscribed and archived specialist journals such as the BfN journal "Natur und Landschaft". The BfN documentation service catalogues this literature in a continuously updated database containing more than 100,000 references
- International Nature Conservation Academy (Internationale Naturschutzakademie auf der Insel Vilm INA).

At the Academy, BfN holds scientific conferences and workshops on a wide range of nature conservation topics. Results, background documents and presentations for workshops and seminars can be downloaded.

<http://www.bfn.de/index+M52087573ab0.html>

http://www.bfn.de/06_akademie_natursch.html

- ❖ KOMPASS - Competence Center for Climate Impact and Adaption of the Federal Environmental Agency (Kompetenzentrum Klimafolgen und Anpassung - Umweltbundesamt UBA)

Tasks: Counterpart for Climate Adaption Activities in Germany, interface between Climate Impact Research, Society and policy.

KOMPASS provides expert information and an environmental database. This offers catalogues of projects aimed climate impacts and adaption in Germany and worldwide.

Content: Time and local relation, climate scenario, researched climate impact and measures of adaption, information about vulnerability, costs, contact informations of the partners

www.anpassung.net

- ❖ Potsdam Institute for Climate Impact Research - Potsdam Institut für Klimafolgenforschung PIK

The institute is a member of the Leibniz Association, and was founded in 1992 as a non-profit organization; active cooperation in the Intergovernmental Panel on Climate Change (IPCC)

Researchers examine the earth system's capacity for withstanding human interventions and devise strategies and options for a sustainable development of humankind and nature. Four Research Domains: Earth System Analysis, Climate Impacts and Vulnerabilities, Sustainable Solutions and Transdisciplinary Concepts & Methods i.e. options for a sustainable development of humankind and nature

<http://www.pik-potsdam.de/institut>

- ❖ Action Plan of the German adjustment strategy of climate change - Aktionsplan der Deutschen Anpassungsstrategie an den Klimawandel

Government's decision on 31.08.2011 and published:

http://www.bmu.de/files/pdfs/allgemein/application/pdf/aktionsplan_anpassung_klimawandel_bf.pdf

- ❖ BANU Academies

Group of government-supported educational organisations of the federal states in the field of nature conservation and environmental protection (*Bundesweiter Arbeitskreis der staatlich getragenen Bildungsstätten im Natur- und Umweltschutz*)

www.banu-akademien.de

1.1.5 France

❖ National Adaptation Plan to Climate Change - Plan National d'Adaptation au Changement Climatique PNACC :

The French National Adaptation Plan (PNACC) was published by the Ministry of Ecology on July 20th 2011. It is taking into account the uncertainties of climate change predictions and provides 3 main priorities:

- increasing current knowledge related to the impacts of climate change, including the use of a socio-economic approach
- defining methodologies for implementing adaptation
- reinforcing observation and alert systems

This plan provides several measures and actions related to observation data and research progress. Overall, 84 actions expressed in 230 measures are listed and will be implemented in the next 5 years.

<http://www.developpement-durable.gouv.fr/spip.php?article24619>

❖ National Observatory of Global Warming effects - Observatoire National des Effets du Réchauffement climatique ONERC :

French organization created in 2001, the National Observatory of Global Warming Effects (ONERC), aims to help and support the issues related to the climate change and contributing to increase in global warming. It provides climate indicators, simulator and a database of national research projects about mitigation strategic plans which are or have been developed to adapt to the new potential climatic and economical conditions. The main purposes are:

- To collect and disseminate information, case studies, research projects, and forecasting works about risks related to climate change (especially extreme climatic events)
- To produce recommendation/advice about prevention and mitigation to reduce and manage climatic risks.
- To coordinate this mitigation and implementation of action plans in France
- To set up a global strategic framework to implement the national 'Plan Climat'

<http://onerc.developpement-durable.gouv.fr/>

❖ Program "Management of Climate Change and its Impacts" - Programme « Gestion et Impacts des Changements Climatiques » GICC :

Started in 1999, the management and the impacts of climate change (GICC) is a programme orchestrated by the Ministry of Ecology and Sustainable Development, in partnership with ECOFOR (Forestry Ecosystems), ADEME (Agency for the Environment and Energy Management), and ONERC (National Observatory of Global Warming Effects).

This project covers fields of expertise by mobilizing multi-disciplinary and complementary teams in various disciplines (human and social sciences, physical and biological sciences). The point is to handle a large number of research themes such as future climate conditions, international climate policy, adaptation, impacts, and attenuation measures to reduce GHG emissions ...

Seminars, events, projects, and article publications are indexed on the website to provide for sharing of knowledge and experiences.

The GICC programme aims to develop calls for research projects each year and a call for tenders in partnership with the French Institute of Biodiversity (IFB) on the theme "Biodiversity and Climate change"

<http://www.gip-ecofor.org/gicc>

❖ Public interest group « Climate, Environment and Society »

This website is providing a database in partnership with the National Observatory of Global Warming Impacts (ONERC). Since 2008, a list of national and international research projects has been published on this website. It aims to reinforce knowledge and interdisciplinary research about climate change and its impacts in different regions over the world especially in France and French overseas territories.

This inventory aims to cover numerous field of research and some of them fit with the objectives of this Leonardo project. So on, research projects such as “Adaptation to Climate Change in the region Rhône-Alpes”, DRIAS

An existing European database about climate change adaptation is inventorying research projects at an European scale: <http://infobase.circle-era.eu/>

❖ Inventory of the regulation about the protection of natural areas

The national Ministry of Ecology and Sustainable Development in partnership with the Technical Workshop for Natural Sites (ATEN - Atelier Technique des Espaces Naturels) have compiled a list of the various juridical/legal toolkits (regulatory and contractual texts, land management...) useful for the protection and the preservation of natural sites.

<http://ct78.espaces-naturels.fr/>

1.2 Training provision

1.2.1 United Kingdom

EXTERNAL

- ❖ Countryside Jobs Service Training Centres and Providers <http://www.countryside-jobs.com/Training/Centres.htm> lists short courses, long courses, distance learning and centres and providers covering a wide range of training from practical skills to identification skills, renewable energy or community engagement.
- ❖ Main providers of training in the UK for our themes include National Parks, Areas of Outstanding Natural Beauty, Wildlife Trusts, Royal Society for the Protection of Birds, British Trust for Conservation Volunteers, Field Study Council and other Field Centres, Institute of Ecology and Environmental Management, Plantlife, Flora Locale and others - all accessible via the Countryside Jobs Service Training website given above.
- ❖ Professional and specialist societies run events, symposia, field meetings and surveys which are good training grounds in ecological sciences and identification. Examples include the Botanical Society of the British Isles, the British Bryological Society the British Trust for Ornithology, British Ecological Society, Vincent Wildlife Trust, Mammal Society and many others.

1.2.2 The Netherlands

Training facilities on the subject of climate change can be found on the sites of universities and Highschools. Here are some connections

www.larenstein.nl

www.helicon.nl

www.WUR.nl

www.saxion.nl

www.alterra.nl

1.2.3 France

EXTERNAL/Description of the structures providing training

❖ ATEN (Atelier technique des Espaces Naturels) training provision :

ATEN is a public interest group created in 1997 by the Ministry of Environment. This organization gathers 19 other organizations (including the Conservatoire du littoral) which are all responsible for nature management and the protection of biodiversity.

Also, each year since 1995, a forum is organized by ATEN and the League for the Protection of Birds (LPO) to gather site managers to consider a specific theme. Last year, the forum was about the management of natural, industrial, and health risks in natural areas.

<http://www.espaces-naturels.fr/A-ne-pas-manquer/Forum-des-gestionnaires>

This organisation is providing a portal for different kind of training in the fields of land-use planning, management of natural sites and urban areas, public communication, awareness and education, nature policy and regulation and environmental responsibility. As the Conservatoire is member of the ATEN, the training provided is free for all its staff.

<https://formaltis.espaces-naturels.fr/formaltis>

❖ IFORE (Institut de Formation de l'Environnement) training provision :

IFORE, an institute for training in the field of the environment, list its continuous training provision according to themes such as energy & climate, management for sustainable development, risk and pollution prevention ...

<http://www.ifore.ecologie.gouv.fr/>

❖ CNFPT (National Centre for Management of Territorial Service) training provision :

A catalogue is available on the CNFT website which provides plenty of training in France region by region. The management of natural sites is one of the training subjects offered by the National Centre for Management of Territorial Services (CNFPT).

Such training is provided by CNFPT in France, at La Garde (13), for 3 days in November 2012. It aims to support technical expertise and to help site managers in diagnosing characteristic territory issues, handling visitor/tourist usage and establishing and leading a management plan.

http://www.catalogue.cnfpt.fr/site/fr/formation/cat_cnfpt/detail-stage/ids/28979/rang/11/dpt/83

❖ ONEMA (French National Agency for Water and Aquatic Environments) training provision :

This organization provides training provision concerning 4 main themes: biology in aquatic ecosystems; hydrology, hydromorphology and ecological continuity; pollutions; Information systems and database management.

More information is available on the ONEMA website:

<http://www.onema.fr/Formations-2012>

A seminar was organized in June 2009 by ONEMA in partnership with the programme “*Gestion et Impacts du Changement Climatique*” (GICC) of the National Ministry of Ecology. This conference was addressed and presented by water management stakeholders (actors and managers). The aims were to disseminate information and existing knowledge, to initiate the dialogue between scientific researchers and site managers, and to suggest new research leads, operational, technical and mitigation strategies. <http://www.onema.fr/Changement-climatique-impacts-sur>

The free access to this meeting helped to gather plenty of different public bodies such as water agencies, natural parks, local public basin organisations (*Etablissements Publics Territoriaux de Bassin* - EPTB), scientists,...

2. ECOSYSTEM-BASED ADAPTATION TO CLIMATE CHANGE ON THE COAST, AND IN ESTUARIES AND RIVERS

2.1 List of useful materials

2.1.1 Europe scale:

❖ Inspire Directive (INfrastructure for SPatial InfoRmation in Europe)

The European Inspire Directive was submitted on March 4th 2007 and entered in force on April 25th 2007. This legal framework aims to support the formulation, implementation, monitoring activities and evaluation of the community policies linked with the environment at different scales (European, national and local)

<http://www.ec-gis.org/inspire>

❖ The web-platform EuroSION: www.euroSION.org

○ Reports online:

On the following website, a list of various reports is available, such as guidelines about coastal erosion management practices in Europe or about an incorporation of coastal erosion issues into Environmental Assessment (EA) procedures.

<http://www.euroSION.org/reports-online/reports.html>

○ Shoreline management guide:

This guide provides a state-of-the-art of coastal erosion management solutions existing in Europe. Also, a database has been created as a list of case studies in various countries all over Europe. This list gives an overview of the measures, policies and types of specific coastal areas. Further details about each of the study case can be downloaded on the website.

<http://www.euroSION.org/shoreline/table.htm>

- GIS database:

This database concerns mapping and monitoring the coastline evolution and then identifies the maritime areas exposed at high risk of erosion. Free access to the data should increase awareness and prioritize public actions.

<http://www.euroSION.org/database/index.html>

2.1.2 United Kingdom

COASTS AND ESTUARIES

- ❖ National Trust internal Coastal Risk Assessment and coastal plan for each property at risk http://www.nationaltrust.org.uk/main/w-shifting_shores_ni.pdf

- ❖ Coastal Futures - a project run by RSPB, the Environment Agency and Defra to support communities dealing with coastal change and sea level rise. Resources, case studies, reports, conferences, contacts etc. available.

<http://www.coastalfutures.org.uk/problem.html>

- ❖ Government (Environment Agency) Shoreline Management Plans for managing flooding and erosion risk in coastal cells (England & Wales) <http://www.environment-agency.gov.uk/research/planning/104939.aspx>

- ❖ European Centre for Nature Conservation is considering information on climate change impacts on Natura 2000 sites. <http://www.ecnc.org/coastal-and-marine> (covering some similar questions to this project)

IMCORE (Innovative Management for Europe's Changing Coastal Resource) <http://www.imcore.eu/> has lots of relevant materials, conference reports etc. and has a website of documents on initiatives for managing coastal site linked to climate change <http://coastnet.org.uk/tagazan/>

Coastal Partnerships Working Group is a network of government and local government agencies working on Shoreline Management Planning and marine management, designed for information exchange. They hold annual forum meetings.

<http://www.coastalpartnerships.org.uk/>

An example is the Cornwall and Isles of Scilly Coastal Advisory Group -

<http://www.ciscag.org/>

- ❖ Coastal Observatories have responsibility for coastal inshore monitoring (sediments, waves, tides, seabed mapping, LiDAR data, etc.) The information is freely available and useful to consultants, researchers etc.

<http://www.channelcoast.org/>

RIVERS

The Statutory Nature Conservation bodies with overviews on river and floodplain SSSIs, and climate change are as given in the General Overview section above.

With overall control of rivers, the statutory body for England & Wales is www.environment-agency.gov.uk with many useful websites, particularly on the Water Framework Directive and River Basin Plans. “What’s in Your Back Yard?” is an entry portal for grid reference / postcode of any site in England and Wales. It gives access to information on rivers (and other water bodies) reach by reach - ecological and chemical status; supporting data including records back to 1990s, and identified measures to reach good status. <http://www.environment-agency.gov.uk/homeandleisure/37793.aspx>

All the major nature conservation NGOs in England work under an umbrella organization Wildlife & Countryside Link. This has a Water Group which regularly publishes a challenge to the government to fully implement the Water Framework Directive - the Blueprint for Water. River restoration and floodplain management are included in the 10-point plan

<http://www.wcl.org.uk/blueprintforwater.asp>

For rivers the main NGO dealing with management of rivers (primarily channels, banks and river corridor, but now increasingly the whole catchment) is the Rivers Trusts - an association of over 40 individual trusts for rivers and their catchments. They co-ordinate management for improvement of fish and fishing, water quality and bankside habitat, among other actions. Recently they have implemented catchment risk mapping by remote sensing to identify pollution and sedimentation hotspots. They are leading on accessing the Environment Agency’s Catchment funds.

<http://www.associationofrivertrusts.org.uk/>

For rivers, the main organisation dealing with the technical aspects of river restoration, apart from the statutory bodies, is the River Restoration Centre

http://www.therrc.co.uk/rrc_

The Wild Trout Trust promotes the conservation and enhancement of trout rivers and streams, awards good management, and provides on-site management advice (often free).

<http://www.wildtrout.org/>

The WTT produce Guides on management, eg controlling invasive plants, and more substantial publications that can be purchased, or in low resolution downloaded free, namely the Chalkstream Habitat Manual, the Upland Rivers Habitat Manual and the Urban Rivers Restoration Guidelines.

Communications and Management for Sustainability (CMS) is a consultancy for all aspects of the aquatic environment specialising in conferences and e-communications

<http://www.coastms.co.uk/>

The British Hydrological Society majors on science and research, and integrating these with policy and practice. http://www.hydrology.org.uk/about_bhs.htm The current BHS annual symposium includes many sessions on floodplain and flood management

British River Classification by vegetation communities - standard UK work is Holmes et al, 1999 - <http://jncc.defra.gov.uk/page-2619>

RSPB Management manuals are excellent - 2 examples are:

- Rivers and Wildlife Handbook - reprinted 2001; practical guide to techniques of river management that integrate requirements of flood defence, wildlife and other interests (£20 to purchase)

http://www.nhbs.com/the_new_rivers_and_wildlife_handbook_tefno_24767.html

- Wet Grassland Guide - Managing Floodplain Grassland and coastal wet grasslands for wildlife (£18 to purchase)

http://www.nhbs.com/the_wet_grassland_guide_tefno_50196.html

Managing Woody Debris in Rivers, Streams and Floodplains - excellent free download from Staffordshire Wildlife Trust <http://www.staffs-wildlife.org.uk/page/woody-debris>

2.1.3 St Helena

Implications of climate change for biodiversity in the UK Overseas Territories. JNCC Report, No. 427: http://jncc.defra.gov.uk/pdf/jncc427_web.pdf

2.1.4 Netherlands

- ❖ <http://wn.com/PMSLtt> : sea level rise
- ❖ Presentation Sand Engine to be included in the website www.dezandmotor.nl/-GB/
- ❖ www.climatebuffers.org
- ❖ Brochure: “More nature, dry feet”
- ❖ www.alterra.wur.nl/UK/research/Specialisation+water+and+climate
- ❖ Ecosystem based adaptation to climate change :
 - www.roomfortheriver.com
 - www.deltanatuur.nl
 - www.rijkswaterstaat.nl/water/plannen_en_projecten/bprw/noordzee_en_kust
 - www.ecoshape.nl

2.1.5 Germany

- ❖ “KLIMZUG - Managing climate change in the regions for the future”

This programme is one of the KOMPASS-projects (see above).

It is a research programme, funding by the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung- BMBF).

English language: <http://www.klimzug.de/en/index.php> (with links to the regional programmes)

- ❖ BfN: German Flood plains:

http://www.bfn.de/0324_floodplains+M5054de7a952.html

2.1.6 France

- ❖ Loi Littoral (Coast Law)

This national law has been created in 1986 in order to control the urban planning and development and preserve the environment in the local communities located near seas, oceans, saltmarshes and lakes of more than 1000ha.

Four main objectives are implemented:

- To protect the biological and ecological balance
- To preserve natural sites, landscapes and cultural/natural patrimony specific to coastline areas
- To preserve and develop economical activities linked to the coasts (fishing, aquaculture, harbours, maritime transport, ...).
- To implement real effort in the fields of research and innovation about the shoreline specificities and resources.

This regulatory tool can contribute to the fight against the impacts of climate change on the coasts, by reducing the urbanization and encouraging the strategic retreat from the coasts.

<http://ct78.espaces-naturels.fr/loi-littoral>

- ❖ Conservatoire du littoral:

Created on July 10th 1975, the Conservatoire du littoral is a public administrative body which leads land policies for the preservation, protection and evaluation of the coastline.

The Conservatoire du Littoral has a long-term vision because all land acquisitions are inalienable and unbuildable. The areas acquired (along the seashore or lakeshore -more than 1000ha) are managed by communes, local authorities or associations in the respect of natural sites and ecological balance.

<http://www.conservatoire-du-littoral.fr>

Prospective analyses prescribed by the Conservatoire du Littoral to establish strategic guidelines:

The consultancy agencies SOGREAH and STRATYS coordinate a prospective and strategic reflection process to define guidelines for the Conservatoire du Littoral, based on ideotypes representing the different types of shoreline, particularly concerning climate change impacts.

This approach has the advantage of applying climatic scenarios on various types of dummy territories. Indeed, these ideotypes represent the real conditions (stakes, vulnerability, ecosystem evolution...) in a specific area and scenarios can be tested in a way to get an idea of the potential impacts. In the end, this concept aims to take preventive actions instead of reactive ones.

❖ Visiolittoral

Visiolittoral is a collaborative website especially addressed to staff and professionals from the Conservatoire du Littoral but everyone is free to register and become a “coastal observer”. The website provides operating instructions and a reminder about the sites of the Conservatoire du Littoral. This is a database which is completed by all the Visiolittoral members.

Visiolittoral works in collaboration with 3 partners: the foundation Protect & Gamble, the League for Protection of Birds (LPO - *Ligue pour la Protection des Oiseaux*) and the network visionature.

The aim is to share all the data in a way to get a complete map of the French coastline with number of species present on each site of the Conservatoire du Littoral.

Also, the website supplies a “toolbox” with a listing of awareness for fauna, flora and habitats. Moreover, this toolbox provides a programme called STOC-EPS which has been realized by the Research Centre by the Bird Population Banding (CRBPO - *Centre de Recherches par le Bagueage des Populations d'Oiseaux*) and the League for the Protection of Birds from Alsace (LPO).

The goal of this STOC-EPS programme is to assess evolution trends of the common breeding species in France.

<http://cdl.biolo vision.net>

❖ A circular about integrated management of the Public Natural Maritime Domain (DPMN - Domaine Public Maritime Naturel)

The Public Maritime Domain is a public space which is also inalienable and unbuildable. The circular insists on the fact that a territorial and strategic analysis which combines knowledge about uses, issues and occupation areas of public maritime domain, is needed to implement an integrated management of the DPMN.

The law “Grenelle II” has evolved the legislation framework about coastal and maritime policies. Indeed, national specifying objectives such as the marine protected areas result from the transposition of the European Directive 2008/56/CE establishing the strategic framework for community action in the field of marine environmental policy.

Moreover, the management of the DPMN must be accompanied by urbanism documents (SCOT, PLU...) on the coastal communes.

http://circulaire.legifrance.gouv.fr/pdf/2012/04/cir_35125.pdf

❖ Prevention Plan for Natural Risks on the Shoreline (PPRNL - Plan de Prévention des Risques Naturels Littoraux)

Plans for natural risks in coastal areas (PPRNL) have been created for low sites which are the most exposed to marine submersion and unconsolidated sediment or reefs threatened by coastal erosion. These regulations are already implemented in some communes in French regions such as Charente-maritime and Pays de la Loire.

Some coastal towns are classified as a priority and the French government will accomplish these PPRNL by 2014.

http://www.developpement-durable.gouv.fr/spip.php?page=article&id_article=24097

❖ Local Urbanism Plan (PLU - Plan Local d'Urbanisme) and Territorial COherent Scheme (SCOT - Schéma de COhérence Territoriale)

The national strategy for the management of the shoreline aims to anticipate the evolution of the coastline by using adapted urban and spatial planning. To do so, these local plans need to integrate and take into account coastal erosion phenomena.

Territorial cohesion is a concept implemented by Territorial Coherent Schemes (SCOT) and defines the evolution of an inter-communal territory through a development project, the Sustainable Development and Planning Project (PADD - *Projet d'Aménagement et de Développement Durable*).

<http://www.developpement-durable.gouv.fr/Presentation-generale,13896.html>

The Local Urbanism Plans (PLU) settles a global urbanism and spatial development project at the scale of a commune or a group of communes. These plans establish the general rules about land-use on a particular area.

<http://www.developpement-durable.gouv.fr/Site-PLU-Temoins.html>

Tools linked to the management of flooding risks :

The European Directive 2007/60/CE was established on October 23rd 2000 and was adopted by the European Commission in 2007. This international regulation called "Flood Directive" aims to evaluate and manage flood risks.

Since it has been implemented by the European Commission, this directive introduces a new regulation under French law which intends to reduce the negative impacts of floods for human health, the environment, the cultural patrimony and the economical activities.

The Flood Directive is an opportunity to manage the risks at the national scale through plans and objectives in order to prioritize actions in the most threatened areas.

- Rapid Submersion Plan (PSR - Plan de Submersion Rapide)

This strategy is made for the safety of the population and their habitats through several measures such as prevention, provision and protection for the next 6 years. The final version was adopted by the Prime Minister in February 2011 after a long consulting period on the Internet and through several meetings.

This plan is built around 4 main lines of action: Control urbanization and building adaptation; improve monitoring, forecasting, vigilance/awareness and alert systems; structural reliability and protection mechanisms; increase or develop a risk culture. These strategies include 60 actions related to marine submersion risk, flooding caused by runoff or flash floods, maritime or river dyke failures.

"PSR" Labelling projects for embankment restoration operations are strictly monitoring the conformity of the technical specifications by the "Flooding Joint Commission" (*Commission Mixte Inondation*)

<http://www.developpement-durable.gouv.fr/Le-Plan-Submersions-Rapides,21330.html>

- Prevention Action Plan against floodings (PAPI - Programmes d'action de prévention contre les inondations)

Contractual plan between the State and local authorities which contribute to the application of a global policy and integration of all the potential risks at a larger scale.

The aim is to prepare the implementation of the European Directive about the evaluation and the management of floods risk: the *Directive Inondation* (flooding directive) through a call for projects for flood prevention intended to be labelled “PAPI” through the same process as “PSR” labels.

<http://www.developpement-durable.gouv.fr/Les-programmes-d-actions-de,24021.html>

- Preliminary assessment of flood risks (*EPRI - Evaluation Préliminaire des Risques d'inondation*) and High Flooding Risk (*TRI - Territoires à Risques important d'Inondation*)

A national evaluation based on the 14 French hydrographical districts is realized to highlight the impacts of national and European events. It provides flood events from the past and actual risk/vulnerability. This study establishes an inventory of the stakes exposed to flooding risk and describes the priorities and shared objectives through statistical data and maps.

<http://www.developpement-durable.gouv.fr/L-EPRI-evaluation-preliminaire-des.html>

This approach allows a sharing of the information with stakeholders in a way that identifies the territories exposed to high flooding risk (TRI).

The national strategy for flood risk management must grade, by September 2012, the risk levels/criteria which are defining the territories exposed to high flooding risk (TRI).

This “ranking” aims to reduce the negative impacts of floods in these areas; local management for flood risk will need to be implemented by local authorities.

<http://www.developpement-durable.gouv.fr/Identification-des-Territoires-a.html>

2.2 Training provision

2.2.1 United Kingdom

INTERNAL

National Trust Coastal & Marine Issues Groups organise meetings and field visits locally and centrally at regular intervals.

EXTERNAL

See the Countryside Jobs Service Training provision link in the Overview above.

Some examples are:

Training in consensus building and stakeholder participation in environmental conservation management. 3 day residential courses at £950. A relevant topic for coastal and river-related change management.

<http://www.dialoguematters.co.uk/Registration.asp?course=1>

Coasts and Estuaries:

- ❖ Coastal Futures conference: Major annual conference covering wide range of coastal change topics. 2 days non resident £180

<http://www.coastms.co.uk/conferences/455>

Rivers:

- ❖ River Restoration Centre runs an annual Conference and Field Meeting with many case studies, practical advice and science. Very good value. 2 days, approx £280.

Also runs themed and training workshops, and bespoke events, though none on calendar for 2012 at present.

http://www.therrc.co.uk/rrc_workshops.php#training

Also promotes river restoration conferences at European level eg.

http://therrc.co.uk/RESTORE/February2012_Lille/RESTORE_Lille_flier.pdf

- ❖ Restoring a lowland river 1 day, £100

<http://www.floralocale.org/content.asp?did=23773>

- ❖ Management of Floodplain Meadows 2 days residential, £228

<http://www.field-studies-council.org/professional.aspx>

Whole Water Environment:

Communications and Management for Sustainability organizes conferences (several a month) and events as one of its major functions. Many are for those involved in the water industry and large consultancies, but there are topics of interest to nature conservation site managers, including flooding, catchment management, climate change and water, marine planning, etc. Cost approx £185 per day.

<http://www.coastms.co.uk/conferences>

2.2.2 The Netherlands

There's training facility within the climate buffer program (www.klimaatbuffers.nl)

There are so called 'veldwerkplaatsen' about Climate Buffering (adaptation) subjects and there are field excursions to the 18 Climate buffer projects.

There are also commercial training facilities (educational) on nature and adaptation subjects on Larenstein transfer (www.Larenstein.nl)

2.2.3 France

INTERNAL

❖ National Forum for coast wardens

Every 3 years the Conservatoire du Littoral and *Rivages de France* organize a meeting to gather approximately 200 site managers, guardians, technical management employees... The aim is to share and debate various themes relating to the policing responsibilities entrusted to coastline wardens, hunting regulations, legal frameworks, site issues, access and management strategies...

This year, for 3 days in October (9th, 10th and 11th), the national forum will take place in Brittany near the Côtes d'Armor between Saint Brieuc and Langueux. For further information about the Forum, please contact Rivages de France (Tel: 01 44 24 00 81 ; rivages@rivagesdefrance.org)

❖ “Journées des gardes” “Warden days”

Each year, the Conservatoire du Littoral in partnership with *Rivages de France*, hold the ‘*Journées des gardes*’ at a regional scale. Through conferences and field trip, the point of this meeting is to allow site managers, rangers and wardens to exchange their own expertise, freely sharing knowledge and best practices. Also, strengthening links between wardens and their organization is one of the main objectives of these discussions.

<http://alfa.desfossez.net/revue/stage.htm>

EXTERNAL

❖ ATEN training “Approaches about coastal ecosystems functioning”

ATEN, in partnership with the Natural Reserve of the Bay in Saint Brieuc (22), organizes this training about the functioning of different coastal type of habitats (sedimentary areas, cliffs, sand dunes, reefs...), the impacts of human activities on these coastal habitats and ecosystems living on the shoreline.

Moreover, a field trip is scheduled on the host site in order to observe and identify the specific species and habitats of coastal areas.

Each year, a session is set up and in 2012 it will take place in Saint Brieuc (22) for 3 days, between September 17th and the 20th.

<https://formaltis.espaces-naturels.fr/formaltis/portal.session.fiche.do?id=464>

❖ ATEN training provision « Public Maritime Domain »

The main purpose of this training session is to provide a better understanding about the management in the public maritime domain: legislative framework, management organization,...

In partnership with the Natural Reserve of Cerbère-Banyuls, ATEN supplies this training offer every year. In October 2012, for 2 days in Banyuls sur Mer (66), wardens, managers, staff members, technical advisors... will have the opportunity to get an overview of the Public Maritime Domain (DPM) and stakeholders involved, to increase knowledge about maritime legislation applied on the DPM. Finally, this training will provide some management examples in the different marine protected areas.

<https://formaltis.espaces-naturels.fr/formaltis/portal.session.fiche.do?id=461>

❖ ATEN and CNFP training « Issues for wetlands preservation/evaluation policy »

Between June 11th and 13th 2012, ATEN and the National Specialized Institute of Local Government Studies (CNFPT - INSET Montpellier) organize a session in Montpellier. This training is not directly addressed to site managers but directors, project officers and regional responsible are requested to come.

Several topics will be under discussion among different speakers:

- To comprehend wetland types and characteristics
- To understand heritage, cultural, ecological, and social issues
- Methods and toolkits for preservation, restoration, and evaluation
- Identify stakeholders and partners

<https://formaltis.espaces-naturels.fr/formaltis/portal.session.fiche.do?id=505>

❖ CNFPT Training “Ecology and management of coastal wetlands”

The training is for 2 days between June 6th and 7th 2012 at Fouesnant (29).

Technicians, agents and site managers are requested to participate in this meeting.

The contents will focus on defining and implementing measures to build, preserve and promote wetland areas (estuaries, swamp, salt marshes,...) in the coastal environment from observation of the ecosystems evolution.

https://www.espacepro.cnfpt.fr/fr/agents/Catalogue/DetailStage/index/fiche/05_ZZ008-Ecologie-Et-Gestion-Des-Zones-Humides-Littorales/num_stage/5271/ajouter/1/numpage/528

3. PEATLAND RESTORATION AND CLIMATE CHANGE MITIGATION

3.1 List of useful materials

3.1.1 United Kingdom

- ❖ Peatland Compendium - website compendium of peatland restoration and management projects across UK <http://www.peatlands.org.uk/>
- ❖ IUCN Peatland Programme has published up-to-date reviews of 7 blanket bog peatland topics, including Biodiversity, Climate Change, Restoration and Hydrology. Also ran excellent annual conferences to 2012
<http://www.peatlands.org.uk/>
- ❖ Moors for the Future co-ordinates moorland and peatland (blanket bog) research and practical restoration, particularly in the Peak District but increasingly widely in the UK, and has excellent resources and information

<http://www.moorsforthefuture.org.uk/>

- ❖ A report on Practical Approaches to Wetland Monitoring on peatland restoration projects in the fens
http://www.anglia.ac.uk/ruskin/en/home/microsites/aerg/research_projects/evaluating_habitat.html
- ❖ Peatbogs and Carbon report by Richard Lindsay - excellent and comprehensive review of peatlands
http://www.rspb.org.uk/Images/Peatbogs_and_carbon_tcm9-255200.pdf
- ❖ Natural England's report on the extent and condition of England's peatlands - England's Peatlands - carbon storage and greenhouse gases.
<http://publications.naturalengland.org.uk/publication/30021?category=24011>

3.1.2 Netherlands

- ❖ www.peatsociety.org
- ❖ www.natuurmonumenten.nl

3.1.3 Germany

- ❖ Department of Peatland Studies and Palaeoecology at the Institute of Botany and Landscape Ecology

Ernst-Moritz-Arndt-Universität in Greifswald and Michael Succow-Foundation for the Protection of Nature

Peatland conservation is one of the main objectives of the foundation

The group is the global leading instance:
 - in developing of wise use concepts for peatlands
 - in developing conservation strategies in Central and Eastern Europe as well as the Russian Federation
 - in developing the global Verified Carbon Standard for peatland rewetting
 - Project partner: Wetlands International (WI Niederlande) and Climate Focus (NL)
<http://www.moorfutures.de/partner/ernst-moritz-arndt-universitaet-greifswald>
<http://www.botanik.uni-greifswald.de/index.php?id=2534&L=0>
<http://www.succow-stiftung.de>
- ❖ Institute of Agricultural Climate Research - Johann Heinrich von Thünen-Institute

The Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, is a German research institute under the auspices of the German Ministry of Food, Agriculture and Consumer Protection (BMELV). It develops scientific basics as decision-making helps for the policies of the German government. The Institute of Agricultural Climate Research focuses on issues relating to agricultural production and climate change.

Research activities among others:

- to assess the climate impact of different agricultural production systems and land uses and evaluate related policy measures;
- to develop scientifically sound solutions for climate mitigation;
- In this context a database for peatland conservation projects is currently being developed

<http://www.vti.bund.de/>

❖ NABU-Position:

http://www.nabu.de/imperia/md/content/nabude/naturschutz/moorschutz/nabuposition-moore_web.pdf (German language)

❖ The German Peat Society (DGMT) is a scientific and technical organization whose purpose is to promote and advance the knowledge and understanding of peatlands and peat in different fields of research and development (English language):

http://www.dgmt-ev.de/index_englisch.html

❖ Some of Germany's federal states (state offices for nature conservation) offer recommendations for practical approaches (German language):

✓ Bavaria:

<http://www.lfu.bayern.de/natur/moorentwicklungskonzept/leitfaeden/index.htm>

✓ Brandenburg:

<http://www.mugv.brandenburg.de/cms/detail.php/lbm1.c.370784.de>

<http://www.mugv.brandenburg.de/cms/detail.php/lbm1.c.213137.de>

✓ Northrhein-Westphalia:

<http://www.naturschutz-fachinformationssysteme-nrw.de/natura2000-meldedok/de/fachinfo/listen/lebensraeume>

3.1.4 France

❖ Website <http://www.pole-tourbieres.org/>

Within the context of significant loss of wetlands (at least 1/3 in 30 years) in France, the national action plan for wetlands (*Plan National d'Action en faveur des zones humides*) has

been implemented in 1995. This plan provides monitoring and assessment toolkits, assuring public policy consistency, enhancing wetland restoration, and starting an informative/awareness campaign. The “Pôle-relais Tourbières” actions fit into this strategy.

This website is an intermediate centre which provides various information and publications about peatlands and their management/restoration techniques.

In 2001, the National Federation of natural areas conservatories (*Fédération des conservatoires d'espaces naturels*) organized, coordinated and developed this specific area of expertise on the knowledge, sustainable management and assessment of peatlands and fens/bogs on French territory.

Such publications are accessible for free:

Guidelines for the restoration and the management of peatlands in French mountains

New elements of knowledge, experiences and management techniques have been published in 2010.

Notably, Digital Elevation Models (DEMs) realized through LiDAR technology, are a very useful monitoring system to help and assist management strategies. Indeed, these 3D models, coupled with a map of the current vegetation might facilitate the interpretation and implementation of proper strategies.

The full report is available in French on the following website:

<http://www.pole-tourbieres.org/montagne.htm>

And several others guidelines are available on this website as well:

<http://www.zones-humides.eaufrance.fr/?q=node/1091>

- ❖ Revue “What form of conservation for peatlands? The interventionist approach challenged”

The volume has been written by Hervé Cubizolle and Céline Sacca. The authors explain how a global approach should be implemented for all the peatland areas.

The natural mineralization and the rate of drainage in peatlands do not need any kind of intervention if a counterbalance with *Sphagnum* is able to generate peat growth. The problem with *Sphagna* is that they are very sensitive to changes in water/moisture balance and climate conditions.

According to this guideline, scientific diagnosis and appropriate monitoring system must be required before starting restoration or regulation operations.

This document has been online since June 4th 2008 and is available in French language on this website: <http://geocarrefour.revues.org/4162>

Bibliographical reference: Hervé Cubizolle et Céline Sacca, «*Quel mode de gestion conservatoire pour les tourbières ? L'approche interventionniste en question*», Géocarrefour, Vol. 79/4, 2004.

3.2 Training provision

3.2.1 United Kingdom

INTERNAL

Annual field meetings of Peatlands for the Future project

EXTERNAL

- ❖ An Introduction to Peatland Restoration on lowland raised mires - 1 day £160
<http://www.ieem.net/20111012peatlandrestoration.asp>
- ❖ Moorland and Heathland Management including blanket bog management and restoration 1 day; £100 <http://www.floralocale.org/content.asp?did=23773>
- ❖ Fens and Bogs - Plants and Processes. Field Studies Council 5 day residential course, £450 <http://www.field-studies-council.org/professional.aspx>

3.2.2 France

EXTERNAL

- ❖ ATEN training “How do peatlands must be managed and restored?”

ATEN has scheduled this training about peatlands restoration in Lacaune (81) from June 4th - 8th 2012 but it has been delayed to October 2012. Such training is repeated each year and the schedule providing all the other training provisions will be available in November.

Main purposes:

- ✓ Knowledge about methods and techniques in peatland restoration and management (especially wetlands in middle mountains regions)
- ✓ Set up a management/restoration project considering the initial context, the issues and financial resources.
- ✓ Prepare an action agenda for a specific site

<https://formaltis.espaces-naturels.fr/formaltis/portal.session.fiche.do?id=504>

4. APPROACHES TO INVASIVE SPECIES RELATED TO CLIMATE CHANGE

4.1 List of useful materials

4.1.1 European & International scale

❖ IUCN Invasive Species Specialist Group

Global network of scientific and policy experts whose work aims to reduce the threats from invasive species by increasing awareness and ways to prevent, control and eradicate them. They operate a Global Invasive Species Database.

<http://www.issg.org/about.htm>

❖ CITES (Convention on International Trade in Endangered Species of wild fauna and flora)

The directive CITES 338/97 aims to regulate the international trade and protect from extinction the species and plants most exposed.

<http://www.cites.org/>

❖ Directive 2000/29 CE:

European law divided into 29 articles which are restricting the introduction of organisations harmful to plants and protecting from proliferation within the community.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0029:en:NOT>

❖ Birds and Habitats Directives

The Birds Directive (2009/147/EC) and Habitats Directive (92/43/EEC) are the basis of the European's nature conservation policy. Natural sites considered as European important 'Habitat types' are managed and protected by the network Natura 2000 as well as species with special interest.

These directives aim to protect natural habitats, indigenous fauna and wild flora from intentional introduction of an exotic species within these areas.

http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

❖ Phytosanitary and veterinary European legislations (*Législations phytosanitaire et vétérinaire européenne*)

Phytosanitary European legislation is regulating the exchanges of plants and vegetables between the Member States.

http://europedia.moussis.eu/books/Book_2/3/5/1/3/?lang=fr&all=1&s=1&e=10

The veterinary legislation restricts animal disease vectors from invasive exotic species.

<http://www.oie.int/fr/appui-aux-membres-de-loie/legislation-veterinaire/>

❖ European regulatory 708/2007 (*Règlement européen 708/2007*)

Risk evaluation related to species introduction in aquatic environments, used for human activities such as aquaculture.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007R0708:en:NOT>

❖ DAISIE (Delivering Alien Invasive Species In Europe)

This website was developed as part of the DAISIE project funded by the sixth framework programme of the European Commission. This project aims to tackle the invasion of non-native species all over Europe:

- Inventory of exotic and invasive species in terrestrial, fresh-water and marine environments.
- Prevention and biological invasion control through a structured plan according to environmental, social, economic and other factors involved.
- Listing of the 100 of the worst species which are the most widespread and/or noxious in Europe threatening ecological and economic industry and human health.
- The species distribution database of the project and the experience of each European country will provide indicators as an “early warning”

More information about the DAISIE project, methods, partners, species involved ... are available on the website <http://www.europe-aliens.org/aboutDAISIE.do>

❖ The Action Plan on Invasive Species of RAC/SPA (Regional Activity Centre for Specially Protected Areas) - UNEP - MAP (Action Plan for Mediteranean)

The approach aims to respond to an increasing number of invasive species in the Mediterranean region. The main purpose of this Action Plan is to reinforce and coordinate Mediterranean countries capacities to prevent and control the introduction of non-native species into the Mediterranean Sea. In other words, the mission is to develop, implement and support Specially Protected Areas (SPA) and to reduce the loss of marine and coastal biodiversity.

<http://www.rac-spa.org/>

4.1.2 United Kingdom

❖ Non-native Species Secretariat website (government website with useful Strategy, newsletters, tools and materials)

<https://secure.fera.defra.gov.uk/nonnativespecies/home/index.cfm>

❖ Fact sheets on invasive species and their control in freshwaters

<http://www.environment-agency.gov.uk/homeandleisure/wildlife/31350.aspx>

❖ Plantlife (NGO) report and website - Invasive species Here today, here tomorrow (2010)

http://www.plantlife.org.uk/publications/here_today_here_tomorrow/

❖ Various county Forums eg. Cumbria Freshwater Invasive Species forum which has information sheets, meetings, a Project Officer, etc.

4.1.3 Germany

- ❖ Clearing House Mechanism (CHM) Germany - Bundesamt für Naturschutz BfN, with useful links (German language, partly in English language):

http://www.biodivchm.de/konvention/F1052472515/HTML_Page105344070

- ❖ FloraWeb (German Language) is a web-based portal which focuses on plant species, plant communities and vegetation. Set up and managed by the Federal Nature Conservation Agency (BfN), FloraWeb links scientifically proven facts in specialist databases with specialist background information designed to inform anyone interested in nature conservation. FloraWeb aims to provide comprehensive information on botanic species conservation to a broad range of users:

<http://www.floraweb.de/>

- ❖ and Neo Flora:

<http://www.floraweb.de/neoflora/neophyten.html>

4.1.4 France

- ❖ Code de l'Environnement - Environmental Code

<http://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006074220>

Some elements within the legislation in the Environmental Code relates to the management of natural sites, native species and their habitats and protects those from the introduction/proliferation/invasion of exotic species.

In particular, the following articles L411-3 restrict the introduction of listed invasive species to protect natural areas and L427-8 fight against harmful alien fauna species.

Moreover, several ministerial decrees are implemented to limit the negative impacts on wild biodiversity caused by some invasive vertebrates and/or plants.

Article L411-3 :

<http://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006074220&idArticle=LEGIARTI000022496815&dateTexte=20120607>

Article L427-8 :

<http://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006074220&idArticle=LEGIARTI000006833976&dateTexte=&categorieLien=cid>

- ❖ Informative presentation « *Plantes envahissantes de la région méditerranéenne* »: A summary sheet has been established by the *Conservatoire botanique méditerranéen de Porquerolles*, the Mediterranean Agency of the Environment (AME - *Agence Méditerranéenne de l'Environnement*) and the Regional Agency for the Environment in Provence Alpes Côte d'Azur (PACA). Indexing 15 of the most invasive plants, it aims to implement preventive measures and raise awareness concerning the threats from non-native invasive species to the local biodiversity.

http://www.tela-botanica.org/client/projet/fichiers/PELR/14436/PELR_14438.pdf

❖ Inventory of invasive species in PACA region:

Completed in 2006 by the regional network of managers in aquatic environment (RRGMA - *Réseau Régional des Gestionnaires de Milieux Aquatiques*). An overview of invasive species, prescribed management strategies and the first results already observed in areas managed by the RRGMA and the Regional Network of managers in protected natural sites (RREN - *Réseau Régional des gestionnaires d'Espaces Naturels protégés*). This informative document seeks to improve knowledge and management techniques against invasive plants for ecological restoration.

www.rrgma-paca.org/docs/infos/docs/20070118_TabEE.pdf

These informative documents aim to implement a communication strategy, and improve knowledge and stakeholders awareness about the biology and threats from non-native invasive species for biodiversity.

4.2 Training provision

4.2.1 United Kingdom

EXTERNAL

Good provision generally on this theme.

- ❖ Flora Locale specialises in promoting native species in habitat management and restoration and runs many one-day courses at approx £100 per day.

Flora Locale training courses (PDF): <http://www.floralocale.org/content.asp?did=23773>

- ❖ Falkirk Invasive species Forum

<http://www.catca.org.uk/UserFiles/bw%20A5%20ALIENS%20flor.pdf>

- ❖ Invasive Species Management

<http://www.harper-adams.ac.uk/short-courses/206/invasive-species-management>

- ❖ IEEM workshop on Invasive and Non-native Flora - identification, legislation and treatment - £180 for one day

<http://www.ieem.net/workshops.asp>

- ❖ Aquatic Weeds and Invasive Species Forum 2 day meeting £55 per day

http://www.robsonmeeting.org/Robson_Meeting_2012.doc

4.2.2 France

EXTERNAL

❖ ATEN training “Non-native invasive species: from knowledge to management”

The main objectives are to identify which species are exotic and invasive and to increase knowledge about fighting, methods and control

A session took place at Montpellier over 4 days (03/26/2012 until 03/30/2012) and this training is renewable each year.

<https://formaltis.espaces-naturels.fr/formaltis/portal.session.fiche.do?id=401>

❖ ONEMA training “Conferences about alien species in aquatic environment”

A seminary was organized in October 2010 by ONEMA (National Organization on Water and Aquatic environment) in partnership with Cemagref (National Research Institute in science and technology for the environment and the agriculture <http://www.irstea.fr/accueil>).

During 3 days on the row, several presentations were made by speakers about invasive alien species management in aquatic environments such as case studies, specific species management strategies, risk analysis, expert networks, observatory, early warning system...

<http://www.onema.fr/cr-seminaire-especes-invasives>

❖ IFORE training “Invasive exotic species: taking up duty”

An action plan to manage non-native invasive species is being implemented at an European scale. The public concerned could be project officers, site managers and associations or organizations involved in the management of natural sites (DREAL, DDAF, DDSV, DDASS,...)

The training aims to be pedagogical and educational in order to increase knowledge of different strategies for the fight against invasive exotic species.

The session was scheduled for April 2012 but it has been delayed because of lack of participants...

Originally, the programme was supposed to focus on these following themes:

- Control strategy: the invasive risk, evaluate and manage it
- Setting up plans and networks for site managers
- National Control Strategy against Pampa grass and Ruddy Duck
- Invasive mammals in island environments: an example of the French sub-Antarctic islands (Mammal species introduction effects on these islands - Control programme).
- Global Warming impacts on the vegetation (native species loss and non-native expansion)
- Exotic squirrels in France: example of the Red Bush Squirrel (*Paraxerus palliatus*)

- National elements and community strategy about non-native species and their negative/invasive impact on biodiversity - Regulation

<http://www.ifore.ecologie.gouv.fr/index.asp?arbo=stage-ifore&sel=STAGE-TH:ID&val=2:12722>

❖ CNFPT training “Ecological engineering & local authority: Invasive species control”

The National Center for Public Service Region (CNFPT) provides this training to increase knowledge about different invasive species; to understand their proliferation and risks threatening local native vegetation; and to implement ecological engineering to preserve biodiversity.

The contents of this training are to increase knowledge about risks induced by the invasive species and ecological engineering resources.

The meeting was schedule in Bordeaux between April 11th and 12th 2012.

https://www.espacepro.cnfpt.fr/fr/agents/Catalogue/DetailStage/index/fiche/02_GO025-G%25E9nie-%25E9cologique-Et-Collectivit%25E9-Territoriale%253A-R%25E9gulation-Des-Esp%25E8ces-Invasives/num_stage/7309/numpage/731

❖ CNFPT training “Management and control invasive plants”

Territorial agents/officers, wardens working in the field in public and natural sites are welcome to join this training. Two meetings have been schedule for October and November 2012 respectively at Sisteron (04) and La Garde (83).

The topics will focus on invasive species within the region Provence Alpes Côte d’Azur (PACA), the bad and good practices, and eradication techniques.

Main purposes: Recognize which plants are invasive, in which regions; Identify their dangers and proliferation mode; highlight risky practice increasing this propagation; classify and identify the techniques allowing risk limitation

http://www.catalogue.cnfpt.fr/site/fr/formation/cat_cnfpt/detail-stage/ids/28881/rang/1/dpt/06/

❖ ORENVA training “Management of aquatic invasive plants”

The Regional Observatory of non-native invasive plants of aquatic ecosystems in Poitou-Charentes (ORENVA) proposes some training on recognition and management of these invasive plants in partnership with CNFPT organization

River technicians and environmental operation officers are intended to assist on this training course. The point is to share the experiences and know-how on implementation of a management plan for invasive plants (specifically in aquatic environments). The contents will focus on proliferating plant characteristics, their reproduction conditions, the issues menacing the environment and human health, the techniques to intervene (manual, mechanic, chemical and biological), and the establishment of action plans.

This training course will take place at Niort (79) from September 10th to 13th 2012.

<http://www.orenva.org/Nouvel-article,189.html>

❖ ONCFS training “Non-native invasive vertebrates in the Loire basin (excluding fish)”

This training course is coordinated by the regional delegation from Centre-Ile de France of the National agency for hunting and wildlife (ONCFS).

This event is organised each year to gather with natural site managers from the region Bassin de la Loire. In June 2012, for 3 days, the small town of Argenton-les-Vallées welcomes local actors to assist at this training which will focus on 4 main themes:

- Train site managers about biological invasive concepts and the evolution of their proliferation through a sharing of knowledge and financial means.
- Presentation of implemented toolkits (or in progress) for the management and control of invasive species in the Loire Basin.
- Sharing strategies and management experiences which facilitate open dialogue between local stakeholders about invasive exotic vertebrates.

<http://www.orenva.org/Vertebres-exotiques-envahissants.html>

5. CARBON FOOTPRINTS OF ACTIVITIES AND ORGANISATIONS

5.1 List of useful materials

5.1.1 European & International scale

- ❖ Sustainable strategy and plans for the environment: LIFE and the European control system for the ‘Eco-Management and Audit Scheme’ (EMAS, 2003).
- ❖ Description of the requirements to be set up in an Environmental Management System quality certificated by EMAS:
 - ISO 14001 (or ISO 26000) is an international standard to certificate an EMS
 - OHSAS 18001: Requirements to implement an EMS about health and safety at work.
 - SD 21000 is a French standard for companies and sustainable development. This standard has been published in France by the AFNOR (*Association Française de Normalisation*) which aim to support corporate social responsibility. These guidelines consider the sustainable development issues in the strategy and the management of a company.
 - HQE®, developed by the French *Association pour la Haute Qualité Environnementale* (ASSOHQE), is a standard for green building and allows certification for initiative and management/maintenance of a sustainable architecture/design.

5.1.2 United Kingdom

Among the many tools available for measuring the carbon footprint of an organisation or activity are:

- ❖ Verified (voluntary) Carbon Standard (VCS) provides a global benchmark and standard for voluntary carbon offsetting which works to a set of rules (eg all GHGs must be counted). There are hundreds of projects world-wide registered with this standard. See www.v-c-s.org
- ❖ UK woodland afforestation projects, mainly in Scotland, are being used by companies for voluntary carbon purchase eg see <http://www.forestcarbon.co.uk/>.
- ❖ <http://www.forestcarbon.co.uk/peat-carbon-capture> (Peatlands +) is developing peat restoration projects for clients.
- ❖ The Forestry Commission's Woodland Carbon Code was launched July 2011 as a validated voluntary code for customers wanting to purchase the carbon credits from new woodland planting. <http://www.forestry.gov.uk/carboncode>
- ❖ Green Dragon Environmental Standards - a methodology for improving environmental management of activities
<http://www.wales.groundwork.org.uk/what-we-do/green-dragon-ems.aspx>
- ❖ CALM (Carbon Accounting for Land Managers) tool - a Carbon Calculator developed by Country Landowners Association to measure Greenhouse Gas outputs from farming activities.
http://www.cla.org.uk/Policy_Work/CALM_Calculator/
- ❖ National Trust internal carbon in soils database for all our sites, with information from our National Soils Map <http://www.landis.org.uk/data/natmap.cfm>

5.1.3 Netherlands

- ❖ <http://nsidc.org/arcticseaicenews/>
- ❖ <http://www.psmsl.org/data/obtaining/>
- ❖ <http://www.milieucentraal> (see o.a. appendix 6 of this report)
- ❖ <http://www.natuurmonumenten.nl> (Nathalie Swinkels)

5.1.4 France

- ❖ Guide for the implementation of an Environmental Management System (EMS) on natural sites - Conservatoire du Littoral and LPO (League for the Protection of Birds)

This guide aims to implement a sustainable development strategy via an operational tool for a continuous improvement of management. The priority is to put into practice an 'eco-responsibility' approach in pilot natural sites and on the other hand integrate the territory issues relevant to each area. Planning programme and environmental awareness strategy addressed to site managers, staff and volunteers involved in an environmental approach of the management.

3 main objectives are illustrated by this EMS: environmental aspect, social aspect, economic aspect.

- ❖ Local Plan Climate-Energy (PCET - Plan Climat Energie Territorial)

The action plan for climate-energy in territories (PCET) aims to support and help local authorities to establish and implement PCET on their own territories.

These plans promote leverage needed for potential actions in urban or rural areas facing the issues of reducing the GHG emission rate and the impacts of a changing climate.

A resources centre developed by ADEME, is providing an observatory which is monitoring PCET already implemented, a methodological strategy to set up a PCET, useful toolkits and efforts, and training provision.

<http://www.pcet-ademe.fr/>

- ❖ Climat-Pratic

Climat-Pratic is a methodological tool providing a list of actions following 4 progress steps (starting, consolidating the basis, implementing, becoming a best practice) for 15 different themes.

This toolkit is quite thorough on local policy and different fields linked to energy-climate issues. It aims to guide local authorities on implementing their own action plans such as the PCET (*Plan Climat Energie Territorial*).

Climat-Pratic is available for free on the website: www.climat-pratic.fr

- ❖ Schéma Régional Climat Aire Energie SRCAE

This plan defines objectives and directions taken at regional scale for 2020 and replaces the old regional plans for air quality and regional schemes for wind energy.

It provides a knowledge inventory in the fields of atmospheric pollution, decreasing GHG emissions, developing renewable energies, and climate change mitigation.

The second step is to implement regional consultation with working groups in 5 domains: agriculture and forest, buildings, transports, industry and territory.

The governmental organizations DREAL are developing these SRCAE in their own regions.

❖ Bilan Carbone®

A method implemented and developed by ADEME, the Agency for the Environment and Energy Management, allows an evaluation of greenhouse gas emissions in a territory and activities from a whole organisation. This strategy is an accounting process which is not measuring GHG rate. The ADEME has selected the NGO « Bilan Carbone » to be the organization in charge of the implementation of Bilan Carbone® diagnostic.

www.associationbilancarbonate.fr

❖ Tool developed by Climat Mundi

The organisation Climat Mundi offers adapted ways to calculate carbon consumptions. This method allows any member of the public to estimate their own carbon emissions for plane travel, the carbon footprint from a conference calculated according to means of transport, the energy consumed (electricity), the accommodation, restaurant services and office supplies and printing. Most of these calculations are based on emission factors of the toolkit Bilan Carbone®.

www.climatmundi.fr/

❖ Tool to calculate its ecological footprint

This methodology is currently being drawn up and evaluates the organization needs in terms of necessary resources per hectare and biosphere capacity to provide these resources sustainably.

http://www.footprintnetwork.org/fr/index.php/GFN/page/personal_footprint/

5.2 Training provision

5.2.1 United Kingdom

INTERNAL

❖ Fit for the Future?

Sustainability, Energy and the National Trust 2 day training course at Centre for Alternative Technology - Machynlleth

EXTERNAL

Commercial companies offer training in measurement, reduction and validation of carbon and GHG emissions - examples are:

❖ British Standards Institute run courses on calculating, reporting and verifying organisation's carbon footprints (£405 per day)

<http://www.bsigroup.co.uk/en/training/environmental-management-iso-14001/training-courses/calculating-your-carbon-footprint-training-course/>

❖ Carbon Action run GHG and carbon emission courses (2 days £850) <http://www.carbonaction.co.uk/carbon-footprint-training>

❖ Carbon Footprint Ltd train employees on their own sites , aiming to inspire carbon-reducing changes

<http://www.carbonfootprint.com/training.html>

❖ Carbon Trust one-day carbon footprint training courses (£400)

http://www.carbontruststandard.com/pages/Training_courses

❖ “Talk Action” training on environmental sustainability in the workplace - concessionary rates for charities (< £200 per day)

<http://www.talkaction.org/training/environment-workplace/>

❖ Friends of the Earth programme of training and events include many environmental topics.

Little provision identified for site staff in the assessment undertaken, although this topic is more relevant at an organisational level. A one-day course is offered by Cambridge University Institute of Continuing Education on Transition to a Low Carbon Future (£55)

<http://www.ice.cam.ac.uk/>

5.2.2 France

EXTERNAL

❖ CNFPT training “Stewardship monitoring in a local authority”

The intended audience could be project officers in charge of carrying out a carbon footprint analysis.

The two main aims of this training are to teach how to use tools and technical knowledge to prepare a carbon footprint balance sheet for every local authority, to manage efficient monitoring and to assess the quality of the report sent by the provider.

These conferences are covering various subjects:

- A quick reminder of the context and issues about climate-energy theme
- Fundamental methods and principles about carbon footprints (objectives and framing of strategies/action plans)
- Inventory of existing carbon footprint calculator tools: main steps, collecting and processing database.
- Handling and computing spreadsheet programmes: a study case.
- Technical specifications, defining and monitoring an action plan, arguments, motivations.

Several meetings (Aix-les-Milles, Montpellier, Limoges, Nancy...) are being set up in 2012 and others will be organized over the next years. Territorial officers do not pay for this except for the cost of travel and accommodation.

❖ IFC/ADAME training provision about the method Bilan Carbone®

The Institute of training on Carbon theme (IFC) has been created in 2011 by the Association of Experts in 'Carbon Advices' (APCC)

✓ Learning the basis of the method Bilan Carbone®

The intended audience could be staff, local authorities, consultancy agencies...

Several meetings are organized in France (Paris, Lyon) and Luxembourg during the month of June 2012. The application form costs 1250€.

The main objectives are to get an overall view about climate change issues, to establish the link between these issues and the method Bilan Carbone®, to discover and understand this method and its tools and to create a first draft version of a Bilan Carbone®

<http://www.if-carbone.com/formations.html>

✓ Mastering the method Bilan Carbone®

3 different meetings are set up in Paris, Lille and Lyon for 2 days in May and June 2012.

Professionals already using the method Bilan Carbone® may participate in this training in a way to get under control the steps to realize a Bilan Carbone®, control over the whole technique and toolkits, be able to initiate a GHG emissions reduction policy, and learn to use the method in diverse contexts

These 2 days training cost 2000€.

<http://www.if-carbone.com/formations.html>

✓ Territories specialisation

This training has been set up in Paris in June 22nd 2012 and is for those aiming to acquire a certification Bilan Carbone® specific to territories and local authorities wishing to implement a Bilan Carbone® in their own territory.

The formation allows participants to understand the particular interest of a Bilan Carbone® for territories in the context of a *Plan Climat Energie Territorial* (PCET) and also, to understand and master specific features of the method Bilan Carbone® related to territories in comparison with other methods.

The amount for participants costs 500€.

<http://www.if-carbone.com/formation-bc-collectivites.html>

✓ Local authorities specialization

People supposed to attend to this event are local authorities' employees, consultant agencies, and agents of the government involved in PCETs and BEGES regulatory obligation.

These seminars will take place in Paris over 2 days and 3 different sessions are available in September, October and November 2012.

The main purposes of this training are to understand the specificities of a Bilan Carbone® related to local authorities and to manage the achievement of a Bilan Carbone® applied to local authorities. Moreover, in the regulatory framework, the legislation topic will be discussed to teach how the method must be used to prepare BEGES regulation.

The training fee is 900€.

<http://www.if-carbone.com/formation-bc-collectivites.html>

✓ From results to action plan implementation

Four different sessions are set up in Paris in October, November or December. This training is addressed to technical advisers, consultant agencies and every kind of person involved in the monitoring of an action plan in accordance with a *Plan Climat*.

The objectives consist of several topics:

- Analysis of results from a Bilan Carbone® to implement an action strategy
- Methodology and toolkits to reduce GHG emissions
- Combination between scientific and economic approaches (cost for action or inaction, CO2 emission avoided per tonne)
- Which indicators, scoreboard should be implemented to monitor an action plan?

The price for this formation costs 750€ to each participant.

<http://www.if-carbone.com/bilan-action.html>

✓ Emission factors

<http://www.if-carbone.com/facteursemission.html>

✓ Vulnerability and mitigation

This training is about the establishment of vulnerability diagnostic which could be consider as a first step towards adaptation to climate change.

Four meetings on the same theme are set up in Paris from July to November 2012 and each of those cost 750€.

<http://www.if-carbone.com/diagvul.html>

OVERALL ANALYSIS, CONCLUSIONS AND RECOMMANDATIONS

1. ANALYSIS FROM THE PROJECT PARTNERS

1.1 ANALYSIS FROM THE NATIONAL TRUST:

- ❖ For both training and materials, provision on individual topics - coasts, rivers, peatlands, invasive species and carbon footprints - is available to the site manager. However, there is very little explicitly integrating climate change impacts into these topics. For example, in this (albeit very brief) analysis, no training courses or other sources of information were found which would help a site manager address the climate change impacts of restoring a peatland, or the mitigation potential of a new flood management project.
- ❖ The 'cutting edge' of the science behind our themes is provided by the scientific and academic community. Meetings (although numerous) are not generally well attended by site managers, even though managers with practical experience are always welcomed with open arms.
- ❖ Training provision for site managers is patchy. There are some main providers, such as the Institute of Ecology and Environmental Management, RSPB and Flora Locale, but whether or not they will provide a course on a particular theme in any particular year is hit-and-miss.
- ❖ Training in understanding the basics behind complex models and monitoring data on hydrology, hydraulics, geomorphology, water chemistry, coastal processes and other disciplines is essential in management of coastal, riverine, floodplain and peatland sites. We did not find any training or materials which would make these subjects 'user-friendly' to site managers.
- ❖ As noted, academic meetings and conferences aimed at government bodies, consultants, researchers and managerial NGO staff are numerous, but these are not generally as popular with site managers and are not targeted at them. There are generally few practically-orientated courses of 1 or 2 day duration and at a reasonable cost which would be available to our site staff.
- ❖ An average cost is c £100 per day - more for conferences, and £400 is normal for corporate training.
- ❖ Provision at UK universities in the 1 or 2-day course category is negligible in the biological / environmental fields (archaeology, art and psychology, for example, being much better served). Many Continuing Education departments have closed in recent years.
- ❖ We have concluded that community and stakeholder engagement is half the battle in implementing a restoration project, especially on floodplains and the coast.

However, there is negligible training on this social science topic available to site staff.

1.2 ANALYSIS FROM NATUURMONUMENTEN :

In Holland there is a lot of information about climate change for site managers on the Internet, the several Internetsite we gave in this appendix. They provide site managers with information about general and specific aspects of climate change, throughout in the form of research reports, project description or programs etc. This is useful as a valuable information offer for trained staff. Specific information about Climate buffer projects (adapation of climate change in nature) is available via the contact persons in the Coalition Natuurlijke Klimaatbuffers. Specific information about the Waddensea is in the program 'Naar een Rijke Waddenzee)

There is literature available in the Deltaprogram, the Program Room for the river, the program naar een Rijke Waddenzee and the Climate Buffer program

Pedagogical edited material for site managers and volunteers about climate change does not exist (as far as we know).

There are some training and learning experiences in the Climate Buffer Program and in connection with High schools and University's like Larenstein.

1.3 ANALYSIS FROM THE NABU:

In general, these links provide comprehensive information about general and specific aspects of climate change, throughout in the form of research reports, project description or programs etc. This is useful as a valuable information offer for trained staff.

This specialized literature is only partially suitable for volunteers because of their wide range of individual learning abilities and experiences. Pedagogical edited material for "normal" lay volunteers does not exist.

1.4 ANALYSIS FROM THE CONSERVATOIRE DU LITTORAL:

Numerous materials relative to the integration of climate change in the management of natural areas can be found on the Internet: website with virtual library and bibliographic resources, databases for the monitoring of biodiversity evolution or meteorological data or coast evolution, guides, carbon footprint calculator, recommendations issued from several projects, European and national regulations... All these websites constitute a huge amount of information, but most of them consist in general guidelines or strategies, and only few parts are directly applicable by the site managers on the field.

Concerning the training, the Conservatoire du littoral does not often organize training, even if the organization of regular meetings such as the “Warden Days” and National Forum of coast wardens (organized in partnership with Rivages de France) provide a great opportunity to exchange experience and information. In France, numerous organisations are providing training addressed to various kind of public (scientific searchers, site managers, staff, volunteers, people interested, politics, local authorities, consulting agencies, NGOs ...). These conferences and training events allow all kind of stakeholders involved in the management of natural sites to meet and exchange their knowledge and expertise about different topics.

Some of the training is not directly related to the impacts of climate change but it provides new procedural aspects and technical strategies through best practice examples.

The cost for these training varies from one organisation to another but most is free for the participants from the nature conservation agencies (for example, the Conservatoire is member of ATEN). In these cases the training organization aims to gather experts and competencies, to increase their know-how about site management including climate change issues.

Mainly, all training can be found via the Internet, but in some cases, it may be postponed or cancelled (lack of communication? people not feeling directly concerned by the themes? price?).

After each meeting, all the participants submit an evaluation about the contents and interventions during the training (conferences, study visit, meals ...). This kind of ‘on-the-spot’ evaluation helps trainers and speakers to improve their programme. Moreover, a ‘follow-up’ evaluation could be interesting to be done after 6 months, for example to check the lessons learned by the participants and what has been replicable on their sites.

Ecosystem-based adaptation to climate change on the coast, and in estuaries and rivers

All the tools and training described are not directly linked to climate change, but integrate it, and can represent solutions to avoid risks and negative impacts of this phenomenon, notably on the coasts (through prevention and protection methods facing the risks of erosion and marine submersion).

Peatland restoration and climate change mitigation

Very little provision on this theme and especially concerning the impacts of climate change. This parameter is not taken into account in the training.

Different approaches to invasive species related to climate change

In some areas, the difficulty is to link the arrival of a new species on a territory with the impact of climate change. However, both habitat fragmentation and global climate change induce an extension of the range and spread of many exotic invaders.

Regulations and professional and public awareness materials (communication documents, leaflets, websites and databases...) are in this way useful tools to prevent the introduction of an invasive species on a territory. The scientific

monitoring of biodiversity can allow the identification of new introductions and spreading rates of non-natives, for a better management of these species.

Today, the networking between scientists and site managers and wardens is a good way to exchange information about the invasive species they have on their site, as there is no concrete tool capitalizing, for each species, on different methods for removal or eradication.

The theme 'Invasive species' is widely provided by various organisations (ONEMA, Ifre, ORENA, ONCFS...). The various stakeholders in charge of maintaining the ecosystem balance on their sites are showing a keen interest on the risk related to the invasions of exotic species, often resulting in a massive loss of biodiversity.

Especially about the training on this theme, the cost is free if participants are member of an organization for nature preservation such as those providing these training.

Carbon footprints of activities and organizations

A great amount of information is available on Internet. A lot of regulations and the emergence of practical toolkits are initiating a trend of eco-responsibility. Indeed, for a few years, citizens and companies are starting to implement strategies to reduce their carbon emissions in their organizations or in everyday life.

Even if several measure toolkits do exist, it remains quite complicated to evaluate the scope of the carbon footprint for a product and much more complex for an entire organization.

About the ecological footprint theme, training offers seem deficient or are not accessible enough, especially concerning price. Indeed, most of the training formations are quite expensive except the one from the National Centre for Public Service Region (CNFPT).

2. OVERALL CONCLUSIONS

- ❖ Training provision about the integration of climate change and its effects in the site management, for site managers and volunteers, is generally rather poor (Climate change is not explicitly covered in most training) and sometimes too expensive
- ❖ There are ways of training that could be developed, that we regard as very useful, particularly well-organised Study Visits (like in the Leonardo program. These visits can be copied if there is enough internal animo for it).
- ❖ Materials and websites for climate change at a high level (government; policy; organisational) provide good information
- ❖ For site managers, climate change information is patchy, and it's sometimes difficult for them to find the appropriated tool which will help them to solve the problem they have on their site
- ❖ For coastal issues river issues and peatlands there is good awareness of climate change, and a lot of potential to build on.
- ❖ Negotiation is critical, in implementing change. Training and materials on negotiation are well developed in the Netherlands, more training provision are needed in UK, France and Germany.

3. RECOMMANDATIONS :

- Reinforce the integration of climate change and its impact in the training sessions (notably about invasive species, and about protection of specific habitats and ecosystems - wetlands, coasts, peatlands ...) and make them more accessible to site managers (frequency, price, ...)
- Improve the exchange of information, know-how and experiences between people -both professional and volunteers - involved in the nature conservation (at both local, national and international scale) about these stakes, notably through exchange visits to learn directly in the field
- Improve the communication and sharing of information about the existing training sessions provided by a great diversity of organisations and helpful materials
- Implement a communication strategy with adapted tools to reinforce people awareness on climate change impacts
- Our own organisations should emphasise change in our own training programmes - particularly the tension between long-term conservation and management of change.
- More Adaptation Case Studies, in which climate change is more explicitly included in coastal, river and peatland themes, should be prepared and promoted in training.
- Reinforce the links and exchange between scientists and the site manager.