



HABIT-CHANGE NEWSLETTER

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Editorial

Finally spring has sprung and as the days are getting longer and warmer again we also gather new energy for the outstanding objectives of HABIT-CHANGE. After a successful workshop on Harmonizing Maps, SDSS and Remote Sensing which took place in Vienna in January (see report on the workshop at page 7) more and more results of various work packages are pouring in.

In this issue you can find an article on the evaluation of management practices (results of core output 3.4.1) at page 9 to 11.

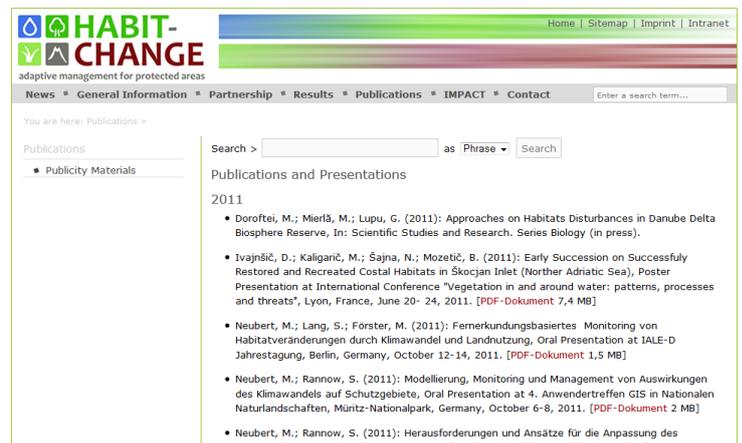
Further results can be downloaded/ accessed via our [project website](#) which has been undertaken a bit of a spring clean too and now features search functions for project results and publications.



Additionally, in this issue of our newsletter you will find an introduction to a further main investigation area, the Biebrza National Park, and a report sharing experiences of stakeholder involvement of Biebrza NP and Triglav NP.

We look forward to seeing all our partners again at the next Partner Meeting in the Danube Delta in May.

Until then, have a lovely spring!



Upcoming Events

-  The 5th HABIT-CHANGE Project Meeting will be held 8-10 May 2012 in Tulcea (Romania). The meeting will be organised by Danube Delta National Institute for Research and Development.
-  Project results will be presented at the scientific event Landscape Systems Management ([PL: Zarządzanie systemami krajobrazowymi](#)) in Zwierzyniec (Poland) from 24th to 26th May 2012.
-  The HABIT-CHANGE project will be represented at the [5th International Scientific Conference on Water, Climate and Environment \(BALWOIS 2012\)](#) held in Ohrid (Republic of Macedonia) from 28th May to 2nd June 2012.
-  HABIT-CHANGE is organising the [“International Conference on Managing Protected Areas under Climate Change” \(IMPACT\)](#) on 24th to 26th September 2012 in Dresden (Germany). The conference aims to inform relevant stakeholders about the HABIT-CHANGE project and disseminate the results.
-  The 6th HABIT-CHANGE Project Meeting will be held 15-19 October 2012 in Gotha (Germany). The meeting will be organised by Thüringen Forst and Vessertal – Thuringian Forest Biosphere Reserve.

IMPACT News - Call for Contributions

Our conference „IMPACT“ will take place in Dresden from 24th to 26th September 2012. It sets out to meet the growing need for sharing knowledge and experiences in the field of biodiversity conservation and climate change. Taking a transdisciplinary perspective, the aim of the conference is to bring together researchers, conservation managers and decision-makers in the field of nature conservation.

You are invited to submit an abstract for an oral presentation or a poster of up to 400 words before 24 April 2012. Abstracts must be related to the conference topics, written in English, and report methods and results regarding the following topics:

- Assessing sensitivity
- Modelling of climate-induced impacts
- Management practices
- Monitoring of climate-induced impacts
- Awareness raising communication and stakeholder involvement
- Managing the unknown/Decision Support
- Legal aspects and policy recommendations
- Climate change impacts on species and invasive species

Publication: All accepted abstracts will be included in the conference proceedings that will be handed out with the conference materials. We kindly ask the authors of accepted abstracts to allow us to present their contribution at the conference website, too.

Abstracts should be submitted using the [online submission system](#).



EUROPARC
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Latest News: We are delighted to confirm that the IMPACT conference will take place under the patronage of EUROPARC Germany, the umbrella organisation of Germany's national parks, nature parks and biosphere reserves, and their brand „National Natural Landscapes“.

As conference preparations are well under way, we are proud to announce the first honorary guests and key note speakers:

- *Dr. Martin Sharman*, European Commission, DG Research and Innovation, Policy Officer Biodiversity and Ecosystems (Belgium)
- *Prof. Dr. Wolfgang Cramer*, Mediterranean Institute for Biodiversity and Ecology (IMBE), Aix-en-Provence (France), Member of the Intergovernmental Panel on Climate Change (IPCC)
- *Dr. Rob H.G. Jongman*, Senior Scientist Landscape Ecology, Biodiversity and Environmental monitoring, Alterra, Wageningen (The Netherlands)
- *Dr. Sándor Csete*, Senior Scientist Geobotany, University of Pécs (Hungary)
- *Dr. Alejandro Iza*, Director Environmental Law Centre, International Union for Conservation of Nature (IUCN), Bonn (Germany)

For further news and information, for example regarding the venue, social events, the programme and important dates please keep checking the [conference website](#).

Portrait of Biebrza National Park

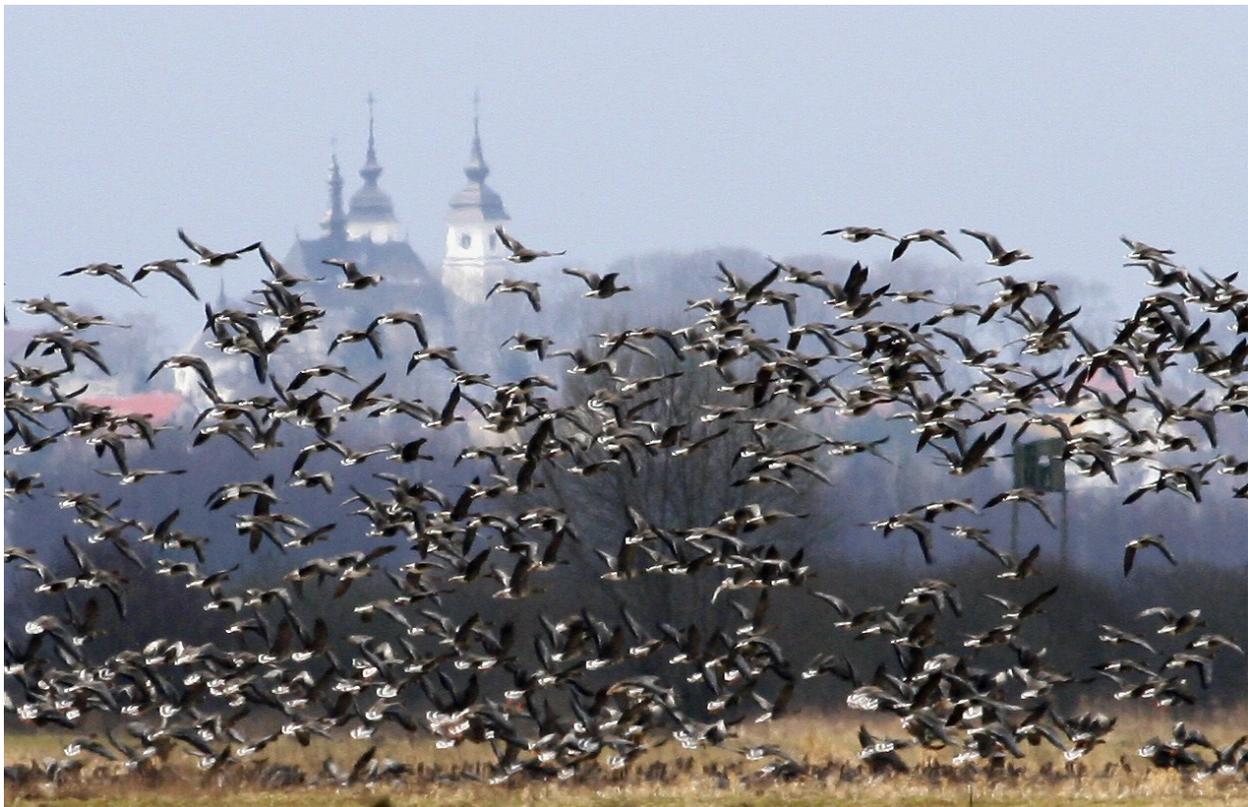


When describing the Biebrza National Park, one can often use superlatives only: Covering almost 60 000 hectares, Biebrza National Park is the biggest national park in Poland. It protects wetlands of the Biebrza Valley – one of the largest coherent complexes of mires and riparian wetlands in Europe.

Among the protected areas of Poland, it is also one of the hardest to access, as the vast share of the core area of the park is all year round highly saturated and – quite often – flooded. Finally, the Biebrza Valley is the largest Polish refuge for wetland and waterfowl birds, and numerous birds of prey, represented here together by approximately 270 species, of which 180 nest upon the Biebrza.



Therefore, the name “Biebrza” is well-known around Europe, especially among birdwatchers, which – while visiting the area in spring and early summer – have a reasonably high chance to spot Aquatic Warblers, White-winged Black Terns, Spotted Eagles, Montagu’s Harriers, Fen Harriers, Great Snipes, Ruffs and the Curlews.



However, the Biebrza Valley has not only become the environmental hot spot solely due to the richness of birds. It is also the most important Polish refuge of the Elk, which – thanks to the Biebrza Valley – has turned from an endangered species into a well established population of the highest national importance. Thankfully, nowadays it is not out of the ordinary to spot a number of elks from one of watching towers, which are strewn across the Biebrza National Park. Additionally, the opportunity of sighting beaver, lynx, wolves and otters just tops up the offer provided to visitors by the nature of the Biebrza Valley.



Biebrza NP in numbers

- Established: 1993
- Ramsar site since 1995
- Total area: 59233 ha, of which 15547 ha forests, 18182 ha agricultural land and 25494 ha wetlands – 3936 ha under strict protection
 - Peatland covers most of the area, at places up to 10 m thick
 - Approximately 270 bird species
 - 90 plant species under strict protection

Such a rich biodiversity of the Biebrza Wetlands is underpinned by the unique physical condition of the Biebrza Ice Marginal Valley, which was formed up to the present shape after the last glaciation, approximately 12 thousand years ago. At that time, the northward-regressing glacier became a source of vast amounts of water, which shaped the basin of Biebrza from the north-east towards south-west. Due to low slope of the terrain, accumulated sand formed a flat surface of the valley. The area became an outlet of big amounts of water, which predestined the area to be suitable for the forming of peat and accumulation of organic matter. Currently, physical processes, which are strongly determined by the hydrology of the area, still prerequisite the development and evolution of unique mires and marshes and keep the valley highly saturated.



The good ecological status of wetlands of the Biebrza Valley becomes a function of physical processes (such as seasonal flooding) and management, which determines the ecological condition of mires and marshes as appropriate habitats for fauna and flora, providing at the same time the income for farmers. Therefore, any alteration of meteorological phenomena (e.g. decent variability of temporal distribution of precipitation in comparison to average monthly values – Fig. 1), which induce the occurrence of summer flooding (Fig. 2.) and the change of the spring flood volume, duration and the time of beginning, becomes potentially negative for the environmental management and agriculture. The conflict of interests between the requirements of environmental conservation and agriculture has been exaggerated recently due to significant increase of flooding frequency in the Biebrza Valley. The conflict intensity was multiplied by legislative constraints as to the (im)possibility of drainage within the protected areas of wetlands. Therefore, comparing the case of flooding with other potential consequences of the climate change such as local peat soil decomposition and observed slight increase of the air temperature, it appears to be the trigger of general conflict between the environmental conservation and management.

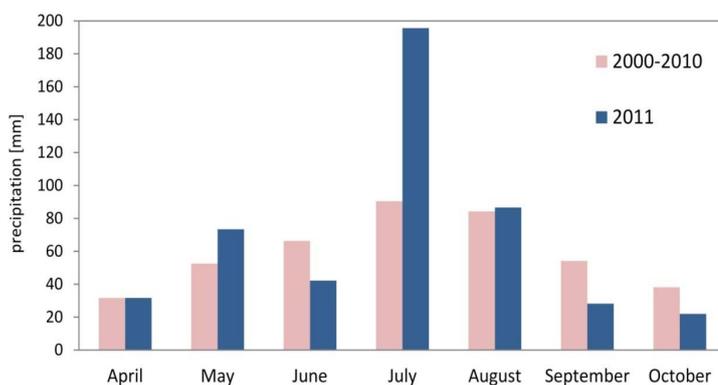


Fig. 1. Monthly sums of precipitation in the Biebrza Valley in 2011 in comparison with the 10-years average

In this regard, to provide the detailed analysis of climate change impact to wetlands in the Biebrza Valley, continuous hydrological monitoring is conducted, including water level and discharge measurements, as well as precise GPS RTK measurements. Vegetation mapping is done on the basis of remote sensing. Flood extent analysis is based on the hydraulic modelling verified with the field measurements. To start the discussion on climate change impact on flood range and frequency, maps of contemporary extent of flooding are compared to historical hydrological conditions. Hence, the results of hydrological measurements can be applied in the stakeholder dialogue, as they show, that the flood extent varies in time and the technical and legal obstacles does not let this climate change impact to be limited. Therefore, this phenomenon becomes the one, that the environmental conservation strategies and management activities should be adapted to within the Biebrza Valley.

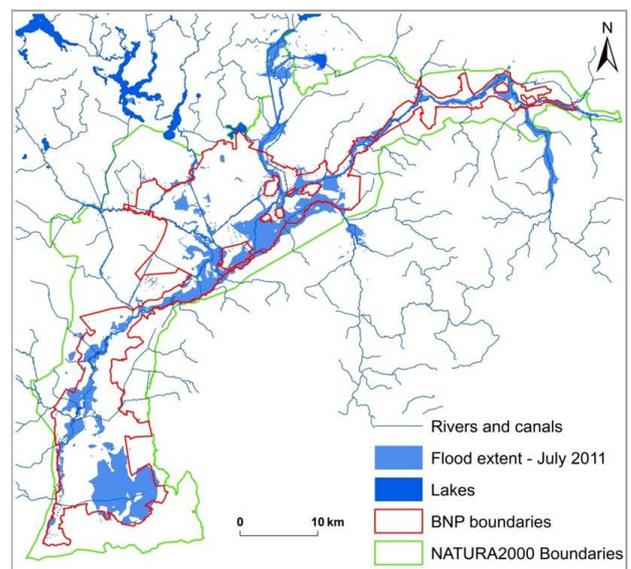


Fig. 2. Flood extent in summer 2011: one of the highest summer floods ever recorded in the Biebrza Valley. Example of the impact map included in the Biebrza National Park CAMP and SDSS. The map was created on the basis of field measurements and a hydrodynamic model.

Text and Graphics: M. Grygoruk, BNP; Photos: C. Werpachowski, A. Wiatr and P. Talalaj

Workshop on Harmonizing Maps, Spatial Decision Support System and Remote Sensing at University of Vienna, Austria, 19th - 20th January 2012

The meeting took place at and was organized by the University of Vienna, Faculty of Ecology, Department for Limnology

The topic of the first day was harmonizing map outputs of the project. As sensitivity maps have been successfully generated since the last meeting, the sessions main objectives were to describe and compare methods used, discuss the results and further develop procedures to generate impact maps factoring in climate scenarios and potential changes of climatic parameters. For this purpose five work groups were formed to fill in tables showing the sensitivity of habitat types on exposures in dependence on different growing seasons. The investigated habitat types were subdivided into functional groups consisting of life forms with their life history. In the plenum discussion which rounded off the session it was found that particularly in habitat types with a high species diversity functional groups are too complex to estimate their sensitivity. Therefore it was decided that the potential impact assessment should focus on the habitat type instead; furthermore it was found that the exposure and precipitation magnitudes need to be evaluated by the local experts in order to get accurate values.

The second day was dedicated to the topics spatial decision support system (SDSS) and remote sensing.

Within the SDSS session it was discussed how to further proceed. For that purpose existing research results and information were sighted, missing data identified and then responsibilities were agreed on in a detailed work plan.

In the remote sensing session the discussion concentrated on the status quo of the work done so far

and the results. Issues raised were in particular the timeframe of outputs. Long term and short term monitoring were assigned and for certain investigation more detailed action plans and deadlines agreed upon.



Participants of the workshop at University of Vienna

Postcard Competition – The Results

Communicating the relevance of adaptation to climate change is complex and time consuming. Particularly impacts of climate change on habitats and biodiversity are hard to project and describe in simple terms. Awareness rising, stakeholder involvement as well as dissemination of results are significant tasks of the project. Therefore we have to provide ideas and means to illustrate and communicate our results to the wider public. To foster this process a postcard competition was started within HABIT-CHANGE in November 2011. Following the proverb “A picture is worth a thousand words” we asked our partners to design a HABIT-CHANGE postcard. It should illustrate the objectives of the project and advertise its results. Following an online poll about the 25 contributions the results are now in and the winning entries will be printed as HABIT-CHANGE postcards and used as promotion for the project and its events in 2012. And the winners are:



Dark clouds draw up ...

Climate change threatens biodiversity and earths natural heritage like here at the Kali Basin, Balaton Uplands National Park.

Photo by M. Jakab

Get ready for the warm up ...

The disappearance of habitats due to climate change has already started.

Photo by M. Neubert



It starts on a small scale...

Invasive water plants in the Kis Balaton area, Balaton Uplands National Park, Hungary, find optimal conditions due to climate change and start to displace native species.

Photo by M. Neubert



If you like our illustrations please vote for them at the CENTRAL EUROPE Programme Photo Competition by [Facebook](#) (through using the Like button) till 15 May 2012.

Results of Core Output 3.4.1: Evaluation of Management Practices

Evaluation of topically implemented management practices regarding their suitability to mitigate impacts of climate change

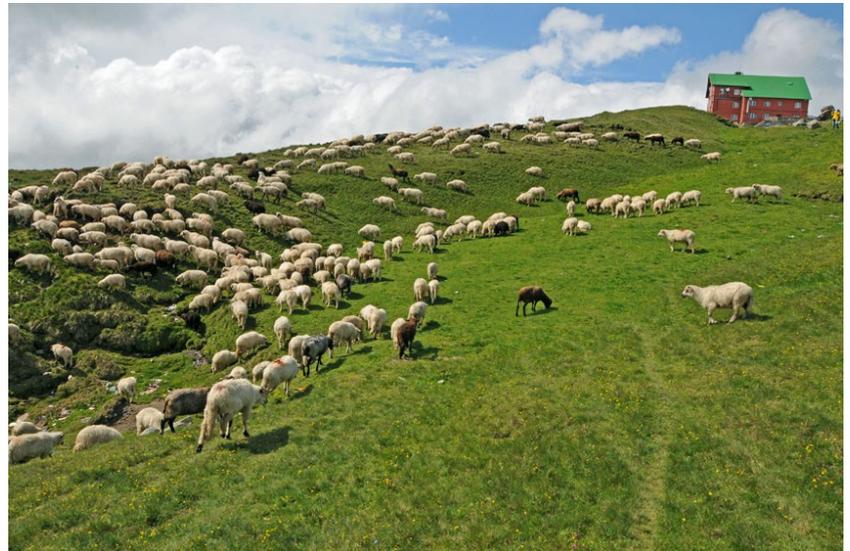
The management of protected habitats under climate change requires detailed knowledge about anticipated climatic changes and their impact on the relevant habitats. HABIT-CHANGE evaluated different response options (management strategies and measures) regarding the suitability to mitigate effects of climate change and of land-use. Profound knowledge about the effectiveness of management practices is essential for an effective and efficient management. Unfortunately only very few systematic evaluations of the effectiveness of management measures already exist and usually they do not refer to the climatic conditions under which they were implemented. Additionally they often focus on measures for species but not for habitat conservation. Some reasons for the lack of a systematic evaluation of management actions were identified within the HABIT-CHANGE project:

-  Descriptions of objectives in management plans are often imprecise, often not detailing measurable criteria, parameters or lack fixed periods of time. Consequently the effectiveness of management measures cannot be evaluated.
-  Often a systematic monitoring plan is missing as they lack a close correlation between objective and monitoring plan. Hence information on the actual development of the managed natural resource can often not be provided. This results in not being able to control the effectiveness of management activities either.
-  Management measures and strategies are often developed by planners or management authorities of protected areas without sufficient stakeholder involvement. This makes the stakeholders acceptance of the objectives doubtful and puts the successful implementation of measures at high risk. If different stakeholders implemented uncoordinated measures at the same site, it would be impossible to correlate observed effects and habitat changes to a specific management measure.
-  A systematic evaluation and assessment of activities of nature conservation is usually not part of the management plan for protected areas. Often the necessary human and financial resources are not available. Experiences made with different management practices are not documented and communicated with other interested persons or groups.

These deficits shall be eliminated with the help of climate-change adapted management plans (CAMPs) in order to improve the knowledge about management effectiveness by implementing the concept of Adaptive Management within HABIT-CHANGE CAMP areas. Part of the CAMPs will be (and already is) an intensified stakeholder involvement, a detailed description of management objectives, an adaptation of existing monitoring programmes and a concept for the systematic evaluation of management effectiveness. For this purpose management practices implemented in HABIT-CHANGE investigation areas for the preservation of protected Natura 2000 habitats were evaluated regarding their suitability to preserve a favourable conservation status under changing climatic conditions and to provide information about management options to mitigate impacts of climate change for protected area managers. For example in our main investigation areas in Balaton Upland NP the optimized number of so called cattle-days to maintain protected meadows were determined and with these experiences we can now advise area managers if and when it is best to mow the areas rather graze cattle.

For the evaluation of management practices area managers were asked to assess management practices implemented in their protected area. To indicate the different degrees of uncertainty regarding the expected effectiveness, managers were asked to judge each management practices with “very likely”, “likely” or “unlikely” regarding the following questions:

-  *Can the strategy or measure be maintained effectively under the expected climate changes?*
-  *Do you have to (slightly) change or adapt the strategy or measure to still be effective under climate change conditions?*
-  *Are additional strategies and measures (absolutely) necessary to maintain and improve the conservation status of the respective habitat types under changing climatic conditions?*



Management of siliceous alpine and boreal grasslands - grazing sheep at Bucegi Natural Park (Photo: A Sârbu, University of Bucharest)

The evaluation showed that almost 59 % of all management practices assigned to specific habitat types are expected to be successful in the future. Together with measures not assigned to specific habitat types they make up 73 % of all topically implemented management practices. For 36 % of the habitat type specific measures and 11 % of not habitat type specific measures uncertainties about the effectiveness exist. These measures deserve special attention because they may have to be adapted or abandoned and their success should be monitored carefully. For less than 6 % of the measures assigned to a specific habitat type it is expected that it would fail under changing climatic conditions.

Evaluation of suggestions for adaptation extracted from literature

A large number of different scientific publications contain suggestions and recommendations on how to adapt nature conservation management to changing climate. The wide choice of suggested response options for adaptation was already compiled in a report about the “Existing management practices in protected areas and climate change related changes of management practices” within HABIT-CHANGE. The suggestions prove that adaptation has to be integrated in all possible strategies and activities of nature conservation: from adjustments of the legal framework to educational and scientific efforts to designation and management of protected sites. Adaptation to climate change already is a comprehensive task for all protagonists involved in the wide field of nature conservation.

One goal of the HABIT-CHANGE project and particularly this output is to identify the possible contributions of protected area managers for adaptation to climate change. In view of the development of CAMPs we identified those adaptation options that can be implemented and tested directly at the respective protected area. Therefore an approach for evaluation was developed that starts from the perspective of protected area managers and aimed to single out those adaptation options that can be implemented by protected area managers and/or become part of an adapted management plan.

Additionally all suggested new strategies were assessed regarding their feasibility. We were interested if the strategy or measure can be implemented without changes in legal framework, without long planning and preparation procedures, and without further scientific evaluation. The main question was, if there are known obstacles that could hinder the implementation of the strategy or measures and their integration into an adapted management plan.

The evaluation of new and additional strategies and measures as they are suggested in literature showed that 57 of the suggested 82 different strategies for adaptation can be implemented or at least initiated by protected area managers. Only 25 suggestions (30 %) address target groups and protagonists in governmental, scientific or administrative institutions that are responsible for the political, financial, and legal framework of nature conservation or for the provision of sufficient knowledge about climate change and its impacts on ecosystems. Regarding the feasibility of suggested strategies, 10 of the 57 strategies addressed at protected area managers are considered not to be feasible without disproportional efforts. Although the feasibility depends very much on the individual situation of the protected area (human and financial resources, existing collaborations, research activities etc.), the national legislative framework and existing conflicts or cooperation with stakeholders and land-users, the suggestions from literature were evaluated regarding the expected workload and necessary efforts for the implementation.



Forest management - not removing dead wood

As a result of the evaluation 47 different suggested adaptation strategies are considered relevant and suitable for an implementation by protected area managers. Not each strategy may be suitable for all areas, some aim at specific habitat types like coastal or marine or forest habitats. The list with 47 generally appropriate response options to manage the impacts of climate change is an important input for the development of climate change adapted management plans. CAMP areas have to check each suggestion carefully and decide whether it is suitable and promising for their respective area and if it should become part of the adapted management plan.

Conclusion

The lists with typically implemented management practices and suggested new and additional strategies and measures shall be used as a „pool“ of possible response options to manage the impacts of climate change. HABIT-CHANGE CAMP areas are asked to check the lists and search for management options that are not yet implemented in their area, but were evaluated positively in other investigation areas or recommended in literature. All typically implemented management practices are listed in output 3.3.1 and suggested and evaluated adaptation strategies from literature are presented in Appendix 1 of the report for output 3.4.1.

Text: Ch. Wilke, TUB

Stakeholder Involvement - Further experiences from Biebrza National Park

Talk to the adults!

The Biebrza National Park, being one of the youngest among the Polish national parks, still has to deal with the problems of building-up the public relations. In regard with the potential climate change-induced impacts, such as frequent flooding, the discussion on economical cost of environmental conservation was started within the HABIT-CHANGE project. The most challenging task is to find an appropriate level of communication, which should always be easily transferable into gains, losses and potential costs, which can easily be recognized and analyzed by farmers and administrative authorities. In December 2011 the general stakeholder meeting – “Local Authority Forum” - was organized, where all the local authorities, including deputies to the national Polish parliament were invited. General discussion during the meeting was aimed at finding solutions of conflicts and problems of local communes, which area partly belong, or is located adjacent to the Biebrza National Park. At the meeting the stakeholders from the other protected areas in NE Poland were present. The park, as a HABIT-CHANGE project partner, provided a complex physical background of all the problems, which can be connected to potential climate change impact on environment and management. The discussion was pushed forward outside of the Park and the results have been spread among the stakeholders of all the protected areas in Poland. Some aspects and messages of discussions within the Biebrza National Park were passed to the general audience, as they were touched on the national debate on management on protected areas in the Parliament Commission discussions.



Additionally to the “Forum”, some local discussions with farmers are continuously organized in order to communicate and discuss management and restoration strategies undertaken by the Biebrza National Park. Some general agreements with local stakeholders were already obtained as to the hydrographic network restoration in the Middle Biebrza Basin. In the communication process materials on hydrological monitoring and modelling were applied in order to present, that most of the occurring problems are independent from the management and though, can hardly be controlled.

A pass to the future – let’s teach children!

Recent educational activity of the Biebrza National Park in frames of HABIT-CHANGE was the special issue of the regular journal for children – “Nasza Biebrza” (“Our Biebrza”). The journal is distributed to all the primary schools, which are located in the neighbourhood of the park. In that newspaper, authors pay special attention to natural processes, which could be altered due to potential climate change impacts and can easily be observed by young environmentalists. Main topics were species shift due to changing climate and meteorological monitoring. The ornithologists put the emphasis into possible shift of particular migratory bird species appearance in the Biebrza Valley, which can be connected to climate change. In addition, we announced a competition for children which’s goal was to measure the air temperature in February and to send the measurement results to the Biebrza National Park Administration. At the end it was our task to determine the lowest and the highest temperature in the Biebrza Valley measured by children. The contest was very successful with more than 140 children participating. Due to an extremely frosty February, we were lucky to find the truly lowest measured temperature among the observations! Surprisingly, the air temperature magnitude measured by participants in February reached 44 degrees centigrade (from – 35°C up to 9°C) (Fig. 1)!

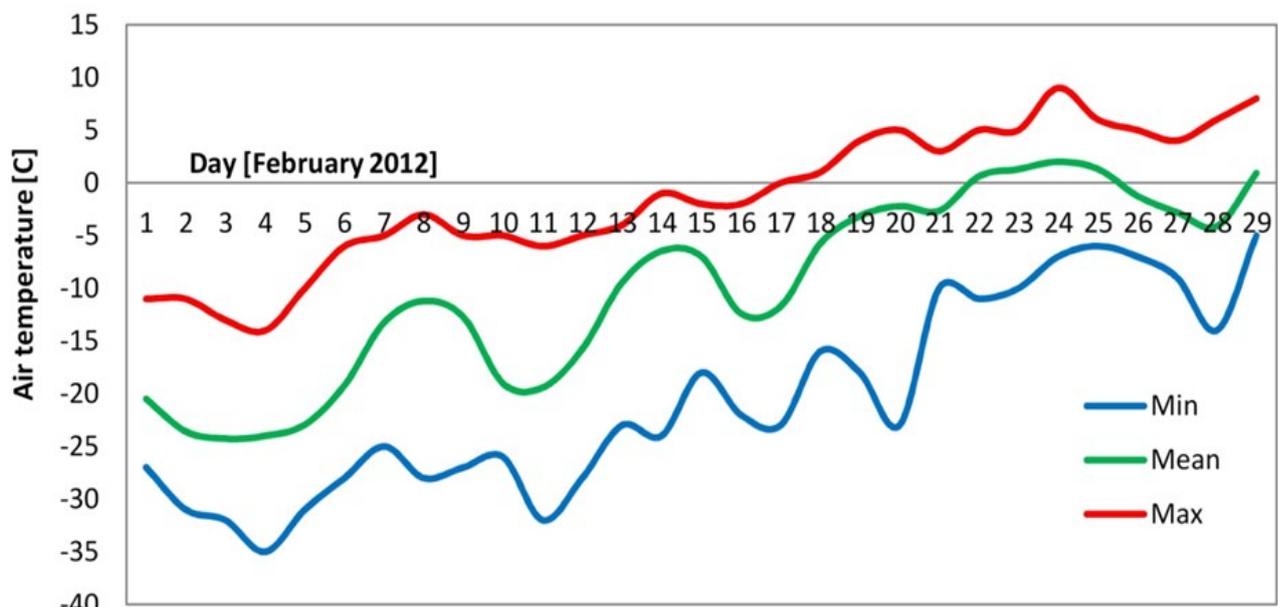


Fig. 1. Air temperature in the Biebrza Valley measured by children in the “Nasza Biebrza” contest. Analysis prepared on the basis of 4089 measurements in total (141 children in 29 days).

We know, that the interest in meteorological measurements among children as a result of the contest remains still high and even now, without the contest, children still observe the weather. That’s why we look forward to visit certain schools and provide special lessons regarding climate change. We hope, that the increasing consciousness of climate change consequences for management and environment among children will benefit in the near future, when the youngsters become adult stakeholders.

Text: M. Grygoruk, BNP; Graphic: BNP

Stakeholder Involvement - Experiences from Triglav National Park

The project partners of Triglav National Park administration take a similar turn on Stakeholder Involvement as the colleagues from Biebrza NP. They too tailored stakeholder events to the audience respectively aimed for the interested public and children.

In March 2011 we took part at a Biodiversity Campaign (“Biodiversity – We are all in this together») in Ljubljana which was organised by the European Commission. The aim was to make people aware of the importance of the biodiversity and the consequences of further losses of earth’s biodiversity (the period 2011 - 2020 is promulgated as the “decade of biodiversity”). We informed passengers about the contribution of Triglav National Park to nature conservation and about the project HABIT-CHANGE. With the help of a Pokljuka bogs model we informed the interested public about the sensitivity of the ecosystems in the park, like bogs and fens, and how climate change, in particular the increase of temperatures and changing precipitation regimes will influence these ecosystems. We further stressed the importance of adapting management strategies to climate change for sensitive habitat types as well as endangered species of animals and plants which will be given with this kind of management a chance to adapt to climate change.



Between 24 and 25 May 2011 the Belar's days were proceeding. Belar's days are intended to give pupils the possibility to recognize interesting facts of the Trenta Valley. A trip along the Soča trail was organized during which the children were informed about different geological, botanical, and zoological aspects of the Soča ecosystem and former ways of living in this part of Triglav National Park. Our group presented basic information on the Soča River and the different life-forms in this water-course between the river's source to its delta. The children were shown in which way different organisms are adapted to different bio-geographical regions of the river and how men is changing the river ecosystem. In the upper reaches of the river we gave the children the opportunity to observe small riverine animals with hand lenses. They were informed on impacts of rising air temperatures on these organisms, which are closely adapted to an environment with low water temperatures. After the Soča trail trip, the children visited the park's Information Centre in Trenta. Here the pupils were introduced to different ecosystems and some typical plants and animals living in the park, in particular to some plants and animals which may be heavily impacted by climate change. We also introduced them to the importance of adapted management measures for endangered habitats and species to prevent their disappearance from the area. On both days 817 pupils from a total of 15 different primary schools visited the Trenta Valley.



Text: T. Petras Sackl, TNP; Photos: A. Zdešar

For further information on the HABIT-CHANGE project please visit www.habit-change.eu
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