

Bioforum II – Kempen, the Netherlands September-October, 2001

The second workshop focussed mainly on the identification and analysis of conflicts, but, largely working within thematic groups, it also considered the management of conflict.

A number of case studies were considered, including the Natura 2000 Implementation in the Wadden Sea Islands, the implementation of agri-environment schemes in the Netherlands and the Iron Link (Iron Rhine). The latter case study involves the current proposal for freight transport by rail between Rotterdam and the Ruhr valley in Germany, running through a Natura 2000 site in the Limburg province (NL) where the Belgian, Dutch and German borders meet. Most time, however, was spent on the Kempen Greenpark case study.

The Kempen Greenpark is a band of several thousands of hectares nested in the rural landscape of southern Netherlands. It is a mosaic of arable field, pasture, woodland (semi-natural second growth and plantation), heath and wetland habitat. Bordered by major metropolitan areas (Tilburg to the north and Eindhoven to the west), it has an important role for tourism both at the regional and national level. The area is also important for farming (arable crops, fodder crops, dairy, beef and pork enterprises are found throughout the area), forestry, corridors for wildlife (terrestrial and aquatic) and habitat restoration. Although human presence is relatively well distributed, overall pressure on biodiversity is important with important land use changes, considerable traffic on the roads and high human pressure. Endogenous sources of conflict are meeting the developing demands for recreational use of the area (including tourism), the management of grazing for agriculture and nature management, intensive dairy activities and corn production within and around the area, the restoration of 'natural' water systems (including surface as well as subsurface drainage patterns) and the enhancement of wildlife and natural vegetation potential in forest and other habitats.

Each of the thematic working groups present considered the potential for conflict in the area.

4.2.1. Forest Working Group:

The forest TWG noted that perhaps too much emphasis has been placed on landscape level issues, while genetic diversity and its protection has received fairly little attention. The discussion moved on to deal with issues in the Netherlands where biodiversity maintenance is one of the goals of forestry by Staatsbosbeheer (the other ones being recreation and wood production). In the Netherlands, restoration of forests is important, in particular re-creation of natural forests. Potential source of conflicts might be between restoration and leaving an area untouched. On the other hand, many plantation forests are being restored back to heathland, which may cause conflicts between people desiring different types of biotopes. Another source of conflict might be the effect of expanding urbanisation on forests. However, this was not considered as a major threat in the Netherlands, since the forests in the Netherlands, albeit often poor in biodiversity are perceived as 'nature' by the people. As a conclusion it was noted that, contrary to other European countries, there are no major conflicts in the Netherlands as regards to forests.

The scale of conflicts was considered important in the discussion that followed. There are several spatial and temporal scales of conflicts. There may be very local conflicts over a forest patch but there may also be conflicts on the regional level, such as the Iron Rhine conflict. Conflicts at the national level may be related, e.g. to the forest policy of a country. Similarly, there are several temporal scales. There are immediate conflicts that may arise from certain activities here and now, but there are also conflicts that may arise later from actions taken now, e.g. because of changing views on forest management.

The TWG then identified four major conflict areas in relation to forests and biodiversity conservation:

- Roads and infrastructure in general as barriers to wildlife vs. implementation of measures to reduce the impact or barrier effect
- Forest practices vs. conservation of biodiversity
- Restoration of forest vs. conservation of current biodiversity in the site to be restored
- Recreation vs. conservation of biodiversity

4.2.2. Wetland Working Group

The wetland group came up with the following conclusion in regards to the Kempen area:

- The river is turbid. There is a problem with water quality that could suggest potential conflict between those responsible for ensuring water quality and farmers. The group agreed that the causes of conflict over water quality could arise at a considerable geographical distance from the area that is affected.
- The meander that has been created in the river is ineffective. Spending public money on pointless projects is bad practice informed by bad science and likely to fuel disrespect by farmers for ecologists/hydrologists.
- Kempen Park seems to be at the limits of recreational use. However, this may have appeared so because environmental managers are directing people towards certain areas, by strategic placement of paths etc., thus releasing pressure on other areas. We did not have enough information to be sure.
- If deer are being encouraged to roam more widely this could lead to conflict between farmers and deer, and hence farmers and wildlife managers.
- The buying up of land by conservation organisations is likely to lead to a reduction in use by private farmers. This is a departure from recent traditions in terms of livelihoods and associated social structures in the area. This could lead to conflict between conservationists and local families who do not want to change their way of life.
- Pig farming is in conflict with the use of the area for recreation and the intensive methods being employed could lead to conflict with animal rights advocates. These methods also lead to what many people might view as unacceptable levels of pollution through slurry.
- The green belts around the lakes are a potential source of conflict if they cannot be properly maintained.
- There is a strong likelihood that agricultural production is resulting in high levels of nitrates entering the water system.
- The high human densities visiting could potentially interrupting the biota (e.g. waterfowl) of the Kempen nature reserve.

Two impacts, namely agricultural practices and disturbance of hydrological regimes, have real or potential impacts on the biodiversity of aquatic or wetland ecosystems of the region. These are also two of the most common activities affecting aquatic biodiversity across Europe.

Examples of how these stressors affect biodiversity are summarized in Table 4.1.

Table 4.1. Possible effects of agricultural land use and disturbance of hydrological regimes in the Kempen area

<i>Activities</i>	<i>Types of expected impacts</i>
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1. Agriculture

- Fertiliser use and ploughing praxis Erosion -> inorganic sedimentation, Nutrient loading -> eutrophication and cyanobacteria blooms
 - Application of agrochemicals and antibiotics Contamination with toxic or eco-toxic compounds -> alteration of population dynamics and community structures
- ## 2. Disturbance of hydrological regime
- Irrigation, drainage (ditching) Change of natural waterflow ->
 - Channelization habitat alteration and destruction
 - Flood prevention and water table management
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As mentioned above, agricultural land use often results in inputs of inorganic and organic nutrients (phosphorus and nitrogen) and particles (sediment) that result in unwanted changes in the biodiversity of adjacent aquatic ecosystems. However, a number of management practices can be implemented to mitigate these effects. For example, it is well known that riparian buffer zones can have a positive affect on aquatic biodiversity, by reducing the nutrient and sediment loading. In addition to acting as a “filter”, riparian vegetation may also be both directly (increase in plant diversity) and indirectly (e.g. aerial phases of aquatic insects are often dependent on the presence of riparian vegetation) affect biodiversity. Where riparian zones exist, as in the buffer zones surrounding many of the aquatic habitats within the Kempen reserve, measures should be taken to insure their structural and functional integrity. Where riparian zones do not exist or are only fragmentary, restoration measures should be encouraged to restore these vegetation zones. Management practices such as fencing-off cattle and other grazing animals from the shorelines of stream and lake ecosystems is a simple and relatively inexpensive means of restoring the structural and functional aspects of riparian zones and subsequently aquatic biodiversity.

Reduction of the application of fertilizers and pesticides should be encouraged and sought by increasing ecological awareness. In addition, measures should be taken to reduce surface runoff and leakage of nutrients to adjacent aquatic systems by land management practices (e.g. decreasing fertilizer input, plowing routines, winter crops). Other, albeit more costly measures of restoring and increasing biodiversity that were briefly discussed included sediment and nutrient removal (dredging) and food web structure manipulation (biomanipulation by fish removal or addition). A number of case studies are available on stream and lake restoration efforts. A summary of the cost-effect benefits of these approaches on ecosystem assemblage structure and biodiversity would increase our knowledge base.

Measures like reserve-usage to paths and bikeways should be taken to focus utilization of the nature reserve by tourists to well defined areas. Control input and removal of fish and other species, and forbid trampling of riparian vegetation are examples of two relatively cost-effective management measures that will positively affect biodiversity.

Although the main problems (agricultural practices and disturbance of hydrological regimes) can be identified using scientific methods, they made need to be addressed using a mix of socio-cultural and scientific perspective. Participatory research could determine what meanings the Kempen Green Park holds for the different stakeholders and users. Until these meanings become apparent it is impossible to gauge what people might be prepared to do to protect Kempen (if anything at all). We do not know which people might refuse, or agree, to do what. It would be necessary to gauge farmer's present state of ecological awareness in regard to the use of fertilisers. We would also need to assess how increased awareness might lead to action, because one does not automatically lead to the other. Maybe they are already

aware and don't care, or do care but give priority to other factors. Another option would be the use of eco co-operatives

4.2.3. Agricultural Landscapes Working Group

In the Kempen area, conflicts could be identified only in relation to intensification of agricultural practices. However, we also noticed one conflict associated with the scale and organisation of farming that was exported to Eastern Europe. Due to tight restrictions for expansion of agriculture imposed in the Netherlands, many farmers move to Eastern European countries to buy land. This causes conflicts politically, socially, and potentially for the environment in Eastern European countries.

The following four main conflicts that are related to intensification of agriculture have been identified both for the Kempen region and across many European regions:

1. Nitrogen output from agricultural land;
2. Land allocation (corridors, ecological buffer zones, and conservation areas versus production areas);
3. Integration of small scale elements to increase landscape structures and biodiversity in intensively used agricultural landscapes.
4. Disagreements between scientists and conservationists.

Nitrogen output and more generally output of agro-chemicals were regarded as one of the most important conflicts associated with intensification of agriculture across Europe. The same applies for land use allocation. In the Kempen area, the conflict is on land acquisition for corridors and buffer zones. This contributes to driving Dutch farmers to emigrate to Eastern European countries to buy land for large-scale and intensive farming. In other European regions the loss of habitat to on-going intensification of agriculture and the conversion of semi-natural land to production land is of prime concern.