ANNEX V

Case study

The Biebrza Valley

1. Environmental values

The Biebrza Valley is the largest and the most natural marshy area in Central and Western Europe with dominating low peat land and a small range of moderate or high peat land. Such vast areas almost untouched by human activity possess a unique diversity of flora, plant, bird and animal species. The valley is an important site for nesting, hunting , and resting for water fowl. Hence, in 1995 the area was put on the RAMSAR list of habitats.

The river bed, together with its meanders and old channels covered by plants to a different extent, is a natural formation. Consequently, vast annual inundation takes place. Long-lasting flooding together with ground water feeding lead to the active process of peat creation while the peat land is many kilometers long. Due to high moistness, and therefore limited access, the area has been cultivated extensively for centuries. The flora of the valley is varied: hydro flora, rushes, emmersive sedge – moss colonies, moss areas, bog birch and alder forests, bog woods, forests on mineral basis, sandy peat, semi-natural and cultivated meadows. Exceptionally valuable are here moss colonies and sedge - moss colonies (*Scheuchzerio-Caricitea nigrae*) which are habitats for many rare and relict species that die out in other parts of the country. However, the most natural colonies of the Biebrza Valley are moss bog woods (*Carici chordorrizae-Pinetum*) and alder swamps, rush colonies, varieties of moss.

A great natural value of the Biebrza Velley is its two-way division into environmental zones, i.e. horizontal and vertical division of plants, soil, and water. Horizontally, from the river towards the verge of the valley, there are five spheres:

- immersive colonies with the longest flooding and the greatest fluctuations in the level of ground water, consists mainly of rush colonies (*Phragmition*);
- immersive – emmersive area – high sedge area (*Magnacaricion*) with long-lasting flooding where the high level of marshness is present regardless of flooding due to the accumulation of ground water;
- emmersive sedge colonies – sedge–moss and grass–moss area of *Scheuchzerio-Caricetea nigrae*, flooded rarely but boggy throughout the vegetation period;
- emmersive moss and sedge-moss colonies of *Caricion lasiocarpae* that are out of the flooding area of river waters, however, best watered in the valley due to the action of ground waters;
- alder swamps (*Carici elongatae-Alnetum*) made marshy by ground waters of highlands and surface waters.

The best developed horizontal division of the Biebrza Valley is visible in the Lower Part of the valley. That type of division is frequently affected by many mineral islands covered with forest and grass colonies of *Arrhenatheretalia* and turf colonies of *Koelerio-Corynephoretea* and *Nardo-Callunetea* within boggy areas. Moreover, the increasing amount of reed, willow brushwood, and birch wood that cover unmowed peat land make the division less evident.

The level of development of the described plant division and the representation of particular colonies in the parts of the valley differ. The changes of the horizontal division in the upper direction of the river: the narrowing of the immersive area and edge alder swamp and the widening of the emmersive area together with high peat land show the vertical division of the Biebrza Valley.

2. NATURA 2000

Almost 13% of the area of the valley is covered by colonies enlisted in Annex 1 of the Habitats Directive 92/43/EEC and almost 1.5% - habitats suggested by Poland to be included in Annex 1. The largest area is covered by valuable transition peat land and swamps of *Caricion lasiocarpae* and *Caricetum appropinquatae* (over 6,000 ha), changeable wet moor grass meadows – *Molinietum caeruleae* (about 3,000 ha), and bog woods (over 1,700 ha). The flora of the valley consists of over 960 species of vascular plants, including over 930 species of flowering plants and nearly 30 species of fern, of which 29 belong to the Polish Red Book of Plants, 45 belong to the Red List of Endangered Vascular Plants, 61 species are under total protection, and 18 species are under partial protection. Five vascular species of Annex 2 of the Habitats Directive are present in the Biebrza Valley, i.e.: *Cypripedium calculus*, *Saxifraga hirculus*, *Loesela Liparis loeseli*, *Pulsatilla patens*, *Thesium ebracteatum*, and *Drepanocladus vernicosus* moss. The Biebrza population of *Cypripedium calculus* is the highest in Poland (over 3,000 flowering sprout).

The presence of a large number of mineral highlands contribute to the variety of the Biebrza flora. The areas are habitats for over 650 species of vascular plants: such rare species as *Irys aphylla*, *Gymnadenia conopsea*, *Coeloglossum viride*, *Cimicifuga europaea*, or *Cypripedium calculus*.

The Biebrza valley is a unique habitat for 275 species of birds, especially water fowl, of which 191 species are breeding species or rarely breeding species. That number constitutes as much as 80% of the number of breeding species of birds in Poland. The variety of bird species in the Biebrza Valley is impressive. Additionally, some of the species that are rare in other

parts of the country densely populate that area. It is a direct consequence of the diversity of habitats and their preservation within the valley. The Biebrza Valley is also an important resting place for birds during their spring passages.

The area of the Biebrza Valley (about 124,000 ha) has been proposed as a Special Protection Area (SPA) and Special Area of Conservation (SAC) – the Biebrza Valley in the planned Nature 2000 Project. 13% of the area of the valley is covered by colonies enlisted in Annex 1 of the Habitats Directive 92/43/EEC while almost 1.5% is covered by habitats suggested by Poland to be included in Annex 1, i.e. subcontinental broadleaved forest (*Tilio-Carpinetum*) and moist meadows with extensive cultivation (*Calthion* group). The largest area is covered by valuable transition peat land and swamps of *Caricion lasiocarpae* and *Caricetum appropinquatae* (over 6,000 ha), changeable wet moor grass meadows – *Molinietum caeruleae* (about 3,000 ha), and bog woods (over 1,700 ha). Out of habitats enlisted in Annex 1 of the Habitats Directive, the Biebrza Valley hosts: above-mentioned bog woods, high peat land, inland sandy grassland, and mat-weed. The size of the latter and some other types of grassland is unknown as they have not been charted. Although they cover a relatively small area, their preservation is extremely important for the diversity of the flora, especially for such species as: *Coeloglossum viridae*, *Botrychium multifidum*, *Gymnadenia conospea*.

Table-1a Percentage of habitats of Annex 1of Habitats Directive in Biebrza Velley

Habitat Type	Biebrza Valley		BNP	
	ha	%[d]	ha	%[d]
Old river channels and other natural, eutrophic water bodies	160	0,1	160	0,1
Dry, inland sandy grassland (*Koelerion glaucae)* and mat-weed *(Nardetalia)*	385	0,3	261	0,2
Changable wet moor grass meadow (*Molinietum caeruleae)*	2960	2,6	2458	2,1
Lowland and verge river herbs (*Convolvuletalia)*	43	0,0	43	0,0
Flooded silty river banks *(Polygono-Bidentetum)*[a]	2	0,0	2	0,0
Lowland and highland extensive meadows *(Arrhenatherion)*	577	0,5	161	0,1
High peat land with peat formative plants *(Sphagnetalia magellanicum)*	118	0,1	6	0,0
Transition peat land and swamps *(Caricion lasiocarpae, Caricetum appropinquatae, Caricetum rostratae)*	6338	5,5	5270	4,6
Alcalic peat land *(Caricion davallianae)*[b]	2458	2,1		0,0
Mosaic *Caricion lasiocarpae* and morass *Sphagnetalia magellanici*	47	0,0	47	0,0
Bog woods (*Thelypteri-Betuletum, Vaccinio uliginosi-Pinetum, Sphagno girgensohni-Piceetum, Carici chordorrhizae-Pinetum)*	1731	1,5	1310	1,1
Riparian forest *(Ficario-Ulmetum)*	91	0,1	91	0,1
Wet extensive meadows *(Calthion)*[c]	207	0,2	203	0,2
Subcontinental broadleaved forest *(Tilio-Carpinetum)*[c]	1336	1,2	1315	1,1
Total of habitats of Annex 1 of HD	**16 453**	14,3	**11 327**	9,9

a – partial data, not charted over entire area;
b –data not available for BNP,
c – habitats Poland proposed to Annex 1 of HDę,
d - % of the valley surface (114933ha).

The subregion of the Biebrza Valley within the Environmentally Sensitive Area of the Biebrza and Narew Valleys has borders similar to the Nature 200 refugium – The Biebrza Valley.
Due to its environmental values, especially rich bird life, the Biebrza National Park was put on the list of RAMSAR protection areas in 1995. Therefore, BirdLife International approved the Biebrza Valley as one of the most important habitats in the world.

The Biebrza Valley is the largest habitat for elk in Poland (recent counting, 17th February 2004, proved there are 588 animals in BNP). To protect that species, the largest reserve in Poland, *The Red Swamp*, was created in the Biebrza Valley in 1926. There are also 6 species of mammals enlisted in Annex 2 of the Council Directive 92/43/EEC among which there exists an endangered species of bats, i.e. *Myosotis dasycneme*. The winter colony of the species in Osowiec Tower is one of the largest in the country. In the Biebrza river, there have been also recorded four species of fish enlisted in Annex 2 of the Council Directive 92/43/EEC, among which there are bitterling, a rare and endangered species in Poland, and lamprey, a rare representative of Pontic-Caspian ichthyofauna in Poland. The latter has been recorded in five places in central and south-eastern Poland.
It is noteworthy here that the environmental values of the Biebrza Valley are a direct consequence of the wide range of well preserved water-mud habitats and extensive farming within the valley.

3. Traditional farming

In the early times, the Biebrza Valley was covered by vast forests. Hunters, fishermen, reapers, and shepherds were coming. In the forest there were summer shelters for bee-keepers. Such a situation took place from the 14th century while in the middle of the 16th century, there were over twenty villages, manor houses, and farms in the area of the Biebrza Swamps. At that time the swamps were already used intensively as meadows. In 1565, foresters started working in the southern forests of the Red Swamp in Kopytkowo and Jesionowo. Their task was to protect the forest against wood stealing and the animals against poachers in the area of Knyszyn. For their service they were entitled to take from forty to sixty haystacks which was an equivalent to scything about 160-240 ha of marshy meadows.

Until the 1970s most areas of the valley were scythed, or grazed after scything; only locally sole grazing was practised.

Meadow scything usually started after 26th June. The scything height was 20-30cm (or more if water was over the ground's surface) so that hay could dry afterwards. It was collected in the for of haystacks after one week if the weather conditions were favourable. The haystacks were taken out of the valley already after winter. Since these were time-consuming activities, collecting hay for winter took a month or even a month-and-a-half. The meadows in the valley were cultivated without fertilizing. Scything was to provide fodder and bedding.

In the past, there were a few forms of pasturage, e.g.: shepherd pasturage, free day pasturage when cows go back to the shed for the night, stake pasturage after second scything, quarter pasturage close to the farm site (up to 1km), common or individual free day after-grass pasturage, etc. Pasturage was an integral part of agricultural traditions of that region and created a specific atmosphere of the area.

Most farms in the Biebrza region practise a two-way production: cereal crop (wheat, rye, oat, barley) and bulb and root plants(mainly potatoes). In the upper and central parts of the valley, there are tobacco plantations. In most farms they have cattle (black-and-white breed, rarely Polish red breed), pigs, poultry, and sometimes horses. Only in the central part the main production focuses on milk cows and breeding young cattle. Crop and bulb and root plants production provides only fodder for animals. Only in some cases, the overproduction of plants, mainly potatoes, constitutes some additional income. A traditional production in many villages of the Biebrza region in the 19th and the 20th centuries was flax production.

Extensive agricultural production in the Biebrza Valley allowed for preservation of its unique environmental features. Abandoning cultivation of meadows in the Biebrza Valley triggered changes in the structure of plant colonies and the growth of willow bushes, young growth birch, reed expansion which resulted in a lowering population of plover birds such as black-tailed godwit, lapwing, redshank, or ruff.

4. **Share of local people who live on farming.**

Since the counties and boroughs of the Biebrza Valley are typically rural areas, traditional farming constitutes basic income for most inhabitants. There are no industrial areas in the region; therefore, in 1978, 76.3 % of the population was employed in farming. Namely, in the Upper Biebrza 75.2%, Central Biebrza – 72.0%, Lower Biebrza – 87.2%. In 14 counties that have their land within BNP, farming constituted the main income (according to farming registration of 1996) for 72.5% of rural population (from 59.0% in Sztabin to 84.4% in

Jedwabne). The structure of employment is a consequence of limited possibilities to find a job out of agriculture as the Biebrza Valley is one of the least industrial regions in Podlasie (eastern Poland). Also the field of services is not well developed. Farming in the researched area, which is often the main income, is more difficult due to low quality agricultural space, little access to grassland in boggy areas, the complex ownership structure of the land, and distance from agricultural centers.

In 1996, 99 farms in 10 villages in the Biebrza Valley were researched. As a result, there is no tendency to abandon farming as the main income. Most respondents (85.8%) declared a solely farming income. Only 14 households declared income from out of the agricultural sector.
In the National Park, there are 17,278 private land owners, potential beneficiaries of budgetary payments, who possess 42 % of the area of the Park. Meadows and pastures (10,893 ha) and wasteland (11099 ha) that require extensive cultivation and are owned by individual farmers constitute 37% of the BNP surface. In the case of the Valley, ownership structure differs depending on the region. In the Upper Biebrza, 97% of meadows belong to individual farmers. In the central part, 58% of land, mainly grassland, belongs to individual farmers, however, half of them live between 10 and 20 km away from the valley. In Lower Biebrza in 1981, over 59% of marshy meadows belonged to individual farmers, out of which 66% lived out of the valley.

Farmers' actions towards diversification of production

A high rate of people employed in farming seems to be the characteristic feature of the area. The recent tendency of abandoning agriculture as the main income has been barely noticed here. However, more than half of respondents (59.6%) declared some non-agricultural income like pension, unemployment benefit, or contract employment. Among other sources of income there were also: picking mushrooms or forest fruit, seasonal employment, unofficial services, foreign jobs. Every seventh respondent (out of 99) had a non-agricultural income. Apart from one case, there was no non-agricultural business.

There was also a weak tendency to arrange any future business providing non-agricultural income. Intentions of the respondents were rarely connected with non-agricultural activity (there were analyzed only answers of heads of households and their spouses). Until the year 2000, only five respondents declared such intentions. All projects were connected with

services: trade, tourism, construction works. Moreover, six respondents declared their interest in tourism.

The dominating here type of farm, i.e. small and medium households lead to the creation of environmentally friendly farms. The development of qualified tourism, environmentally-friendly production, and the production of a specific regional product is a chance for an alternative income for farmers which might lead to the abandonment of the intensive type of agricultural production.

5. Current actions undertaken to protect biological biodiversity of rural areas within the Polish law.

At the moment there is the national agri-environmental programme, which is a part of the National Rural Development Plan (NRDP). That is the main and the only instrument that has a direct influence on the preservation of biodiversity of rural areas. There are seven packages:

- Sustainable Agriculture,
- Maintenances of pastures,
- Maintenances of meadows,
- Organic farming,
- Protection of native livestock breeds,
- Preservation of water and soil,
- Buffer zones.

The first three packages are conducted only in priority zones pointed by the Ministry of Agriculture and Rural Development together with Voivodeship (Regional) Teams while others are accessible all around the country. The area of the Biebrza National Park is in one of the zones.Although the agri-environmental programme is not varied and the number of accessible actions and packages is relatively small, by the end of May 2005, there were over 8,500 applications for agri-environmental subsidies. Unfortunately by the end of May 2005 the Polish Agency of Restructuring and Modernisation of Agriculture (ARMA) was not accredited by the European Commission in terms of conducting agri-environmental programmes in Poland. Hence, formally the implementation of the programmes has not started yet.

To conduct the programmes appropriately there is a group of trained advisors needed. To date, the number of trained advisors is rather low in relation to landowners, namely there are **8** people for the region of Biebrza. Currently, due to difficulties affecting farming and lack of

relevant payment in some regions, which can discourage from sustainable farming, there can be noticed:

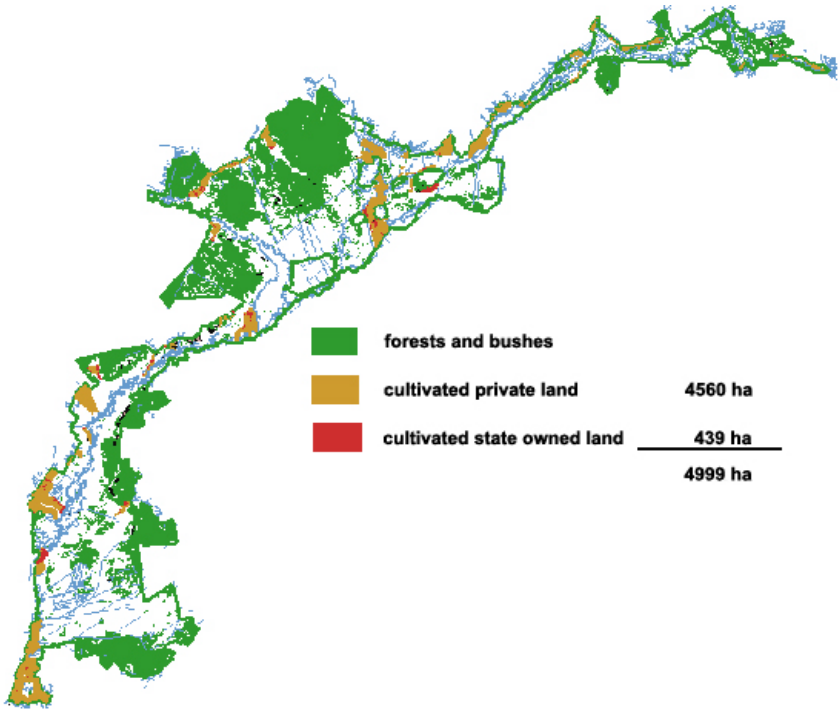
- a tendency to abandon moist meadows which leads to the growth of invasive plants,
- a tendency to neglect the most marshy meadows which leads to the growth of invasive plants,
- changes that lead to intensive agricultural production due to lack of alternative sources of income,
- a gradual transformation of in-meadow grasslands, old river channels, rushes, tree clumps, or shrubs into farmland.

It is necessary to take the above-mentioned difficulties into consideration for the next Rural Development Plan 2007-2013.

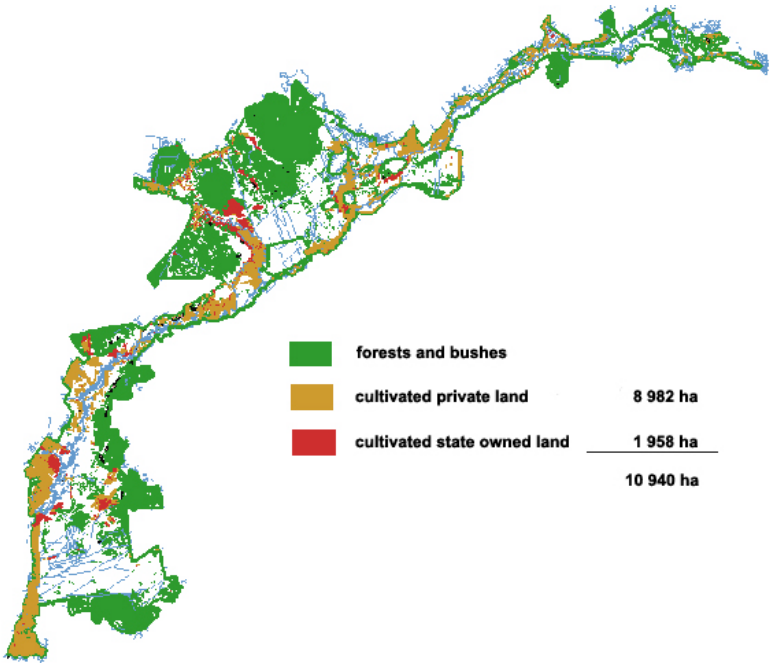
6. Dangers for environmental values of the Biebrza Valley.

- The observed since the 1970s abandonment of extensive cultivation of vast peat land areas enables the growth of invasive plants, which leads to the endangered existence of valuable peat land areas (moss, sedge-moss, sedge) and the connected fauna, especially avifauna. Currently cultivated Biebrza areas are presented in: Pic 1 – wet year, Pic.2 – very dry year.

Pic. 1. Land cultivation in a wet year (2001)



Pic. 2. Land cultivation in a dry year (2003)



- Reenacting the process of the succession of forests, bushes, or reed leads to the limitation of biotopes of many rare species of plover birds, wading birds, Acquatic warbler, restrictionof feeding grounds of rare or endangered species of predatory birds like spotted eagle, lesser spotted eagle, hen harrier, montagu's harrier. The process of overgrowing within non-forest ecosystems is a high danger for those species of birds and might lead to their withdrawal from the Biebrza Valley. The scale of the danger of the succession within non-forest ecosystems in the Biebrza National Park is presented below:

Tab.1. Overgrowing of non-forest ecosystems in BNP [Matuszkiewicz i in., 1999]

Non-forest overgrowing ecosystems:	Area [ha]
Overgrowing reed	2 690
Overgrowing bushes	5 897
Overgrowing trees	1 454
Overgrowing reed, bushes, and single trees	360
Non-forest ecosystem mosaic with bushes and/or trees and/or reed	4 750
Total:	**15 151**

To maintain non-forest ecosystems of the Biebrza National Park it is necessary to undertake protective measures or to continue and restore the extensive type of farming in the area of over 40,000 ha (Tab. 2).

Tab.2. Protective measures necessary to to maintain non-forest ecosystems in BNP and their urgence [Matuszkiewicz (ed.), 1999]

Action and its urgence	Area[ha]
Mowing and pasturage:	32 562
▪ urgent	8 478
▪ within a few years	14 130
▪ further future	9 954
Removing shrubs and young birch growth	8 000

The implementation of carefully planned actions, e.g. within agri-environmental programmes in the Biebrza Valley may be much more effective than the measures undertaken by the National Park that were financially restricted and limited in terms of their range.

Other environmental dangers for the valley:

- The dehydration of bog habitats caused by hydrotechnical works to a great scale (creation of the Augustowski Channel, the Woznawiejski Channel, the Rudzki Channel, the Kapicki Channel, and a few others) at the beginning of the 19th century in the central part and irrigation works on the verge of the valley after the war. The consequences of the actions are as follows: a lowered level of ground water, a halt to peat creation processes, soil degradation, changes in physical and chemical properties, and unfavourable changes in plant colonies. Previous marshy colonies of *Magnocaricion* were replaced by grass colonies of: *Agrostis canina-Festuca rubra, Deschampsia caespitosa-Potentilla anserina, Poa palustris-Alopecurus pratensis, Molinietum caeruleae panicetosum* and herbs of *Filpendulo-Geranietum* or forest colonies. The dehydration of wetland leads to the loss of habitats by birds connected with *Magnocaricion* colonies and triggers their withdrawal from the Biebrza valley. Hence, it is a great danger..
- The eutrophication of habitats due to mineralisation of peat land, inappropriate sewage management leads to surface and ground water pollution. Eutrophication may trigger unfavorable changes in the structure of the flora of the Valley. Due to “draining” features of the river, it can lead also to excessive amounts of biogenes; hence, mass growth of weed, dying fish, massive growth of nitrophilous plants in the river basin might be the consequence.
- Fire that brings losses in the fauna and peat land.

- Agro-technical mistakes, i.e. inappropriate fertilization, or lack of fertilization on dehydrated cultivated meadows.
- Grazing in the conditions of high moisture of habitats that leads to the destruction of turf and structural changes.
- The presence of communication channels that divide the environment, cross migration passages of animals, impoverish the fauna, pollute air, soil, and water provide danger for ground and surface waters of the valley.
- Excessive collecting of herbal sources that leads to poorer natural sources.
- Climatic changes affect the hydrological system of the valley and lead to changes in the pace of the accumulation and decision processes and to fluctuations in the level of ground and surface waters.
- Growth of strange species of animals and plants that constitute a danger for local species..

Currently, after the Polish accession to the European Union, a danger for the environment can be caused by a vast intensification of agricultural production in the valley and in the surrounding areas which can be noticed in:

- the renovation and conservation of irrigation devices,
- a higher level of fertilization to boost the efficiency of farmland which can lead to soil and water pollution,
- the consolidation of farming parcels to intensify agricultural production,
- the mechanization of field work,
- earlier and more frequent mowing,
- increased volume of animals and earlier grazing,
- the introduction of farms aimed at intensive animal and milk production without appropriate devices to manage the manure,
- the rolling of meadows to avoid the destruction of the bedding due to low temperatures,

the abandonment of land in some places which might lead to succession towards forest and shrub areas.

Environmental results of the above-mentioned actions might be as follows:

- reduced biodiversity and landscape diversity,
- the loss of habitats of many valuable species,
- increased losses in the hatching of birds and reduced survival rate,
- utrata cennych zbiorowisk roślinnych;
- unfavourable changes in the composition of species of the communities,

- eutrophication and increased pollution of soil and water,
- reduced retention properties of the soil.

Predicted results of the agricultural abandonment of the Biebrza Valley :

- reduced area of non-forest ecosystems,
- monoclassification of the landscape,
- the loss of valuable species and their reduced population,
- reduced biodiversity and diversity of the landscape,
- changes in the composition of species,
- the reduction of valuable plant communities.

7. Protective actions – what can we do to retain the existing environmental and cultural variety?

At the moment there is only one device that enables us to retain environmental values of rural areas, i.e. agri-environmental programmes. Unfortunately, in the current form they are reduced to a great extent; therefore, they do not guarantee the retention of the values of the area. That is why we present the most important actions, to the best of our knowledge, that should be introduced to agri-environmental programmes to help to achieve environmental aims.

Packages that should be introduced in the Biebrza Valley in the future

1. It would be advisable to extend current agri-environmental programmes by the following packages:

- **Meadow package of the reduction of invasive plants**. Due to the abandonment of large peat areas in the valley, the process of the succession of forests, bushes, or reed was reenacted. That leads to the limitation of biotopes of many rare species of plover birds, wading birds, Acquatic warbler, restriction of feeding grounds of rare or endangered species of predatory birds like spotted eagle, lesser spotted eagle, hen harrier, montage's harrier. The process of overgrowing within non-forest ecosystems is a high danger for those species of birds as it concerns the area of a few thousand hectares (almost 15,000 ha) within the BNP, out of which 5,000 ha is the area of a mosaic of overgrowing and non-forest ecosystems that are difficult to be charted. Subsidies for the removal of invasive plants, especially in the case of the above-

mentioned mosaic, would increase the area of extensive meadows for cultivation and the area of biotopes for many species.

- **Meadow package with compensation for cultivating distant meadows and pastures.**

This is an important package as it concerns about 31,600 ha of land that is possessed by individual or institutional owners away from their place of living. 13,800 ha belongs to owners within the valley while 17,800 ha to owners from out of the valley, often from very distant places. In the central part, more than half of the land belongs to individual farmers who live between 10 and 20 km away from the valley. In the Lower part, more than 66% of individual meadows belong to owners who live 15-20 km away or even further. Some of the areas were not cultivated already at the beginning of the 1980s and some were cultivated according to the need for fodder and access to the area in a particular year. These are unmowed private and national meadows that spoil the values of marshy meadow ecosystems in the process of succession. Agri-environmental programmes together with compensation for the cultivation of distant meadows may encourage to cultivation, hence to the preservation of many valuable habitats.

- **Packages aimed at retaining natural peat land, rushes, and herbs.**

It is advisable to introduce the package "peat land retention" although non-forest colonies of high or changeable peat constitute only a few percent of the area. Moreover, it is advisable to implement the package on the area of low peat land of rare mowing as in the areas of the habitat of aquatic warbler there is no overgrowing. It would also be advisable to introduce the package for herbs, which quickly change into bushes when not mowed. Although rare species are not frequently met in such conditions, they make the landscape of the valley exceptional.

- **Package aimed at transforming cultivated meadows into semi-natural meadows**. Due to the fact that drained and cultivated meadows (with poor flora and a few dominating types of grass, usually fertilized) cover the area of over 11,000 ha in the Biebrza Valley, compensation for transforming them into semi-natural meadows can lead to increased biodiversity of the valley and higher quality of the environment.

- **Package aimed at transforming arable fields into permanent grassland**. Transforming some arable land into permanent grassland in some enclaves or on the slopes of the valley would positively influence the environment.

Additionally, it would be advisable to introduce actions aimed at:

1. introducing payments for the permit to flood agricultural areas during river inundation – at the moment it is a significant problem all around flood land. Many farmers would like to drain flood land to increase agricultural production that generates income, however, changes the water structure of the area.
2. retaining „small ponds" that are places of breeding of amphibians;
3. retaining natural orchards, which are still a characteristic feature of Biebrza villages;
4. retaining shrubs and bushes that a natural feature of the Polish rural landscape;
5. retaining cultural and historical values of the region;
6. creating specialist packages that would include the needs of the most prominent bird species, e.g. "aquatic warbler," corncrake," or "black grouse;"
7. implementing new actions aimed at retaining the traditional rural landscape of the areas of high environmental value.

It is also essential to:

1. enforce the Polish law on environmental protection and the Code of Good Agricultural Practice, which would help to prevent an uncontrolled increase in soil and water pollution;
2. wide promotion of Code of Good Agricultural Practice among farmers and rural land managers;
3. increase the number of agri-environmental advisors who could advise on the matter of agri-environmental programmes and environmental requirements, which could prevent inappropriate management of manure;
4. valorization of agri-environmental payment rates as their current level does not comprise the element of financial encouragement, therefore, many farmers find it unbeneficial to join the programme;
5. involve local leaders in the decision-making process concerning priority zones on their territory and local development plans that include environmental resources. It is

advisable to establish Local Action Group in frame of LEADER programme what would allow to engage local society in the process of making decisions in Biebrza region;

6. trainings for farmers, authorities of National Park and land managers in the subject of agri-environmental programes, traditional rural landscape protection and Natura 2000;
7. integration of management planes for Natura 2000 sites with planes of implementation of agri-environmental programmes;
8. integration of actions targeted on traditional rural landscape protection into spatial planes.
9. integration of new measures allowing for maintaining of natural values of rural areas into new national programming documents. E.g. additional packages of agri-environmental programmes, new measures for traditional rural landscape protection and floodplains .

The above-mentioned actions are aimed at improving the current situation within the Rural Development Plan 2004-2006. The plan, as the first document after the Polish accession to the European Union, can be completed and improved so that the next plan 2007-2013 is rich in conclusions and experiences from the completion of RDP.