The State of Nature in Flanders in 2001
A Summary
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A Summary
The State of Nature in Flanders

Biennial checkup on nature in Flanders

The Institute of Nature conservation is a scientific unit of the Flemish Community, the regional government of Flanders (Belgium). In the 1997 Decree the Institute was given the task of reporting on the state of nature in Flanders every two years. The Nature Report (NARA) is thus similar to the Report on the State of the Environment and Nature (MIRA), which has been published since 1994. The need for a distinct report on nature comes from the complexity of the biodiversity and the specific requirements in terms of policy and a legal framework. MIRA and NARA together form an important scientific base for the Flemish nature policy on the environment and on nature. The NARA also acts as an inventory as required by the Biodiversity Agreement of Rio de Janeiro, 1992, and is an aid for the reporting on the implementation of the European Bird and Habitat guideline.

NARA 1999 contained a description and evaluation of the state of nature, with a focus on species and biotopes, and an analysis and evaluation of the policies for each area. NARA 2001 covers all this, but also covers disturbing and restoring processes, the way humans view nature and an evaluation of the actual progress made in various areas of nature policy.

The NARA 2001 was a collective effort, possible due to the cooperation with various administrative departments, other scientific institutes, and numerous organisations who either did part of the research or carry some responsibility for the state of nature in Flanders.

Our goal with the NARA is to help policy makers tackle the major obstacles facing nature in our contemporary environment. In addition, NARA wants to be the point of reference for everyone who needs information and knowledge on nature in Flanders. Volunteers and professionals from a variety of disciplines, voluntary organisations and everyone closely involved with nature should find something of interest in NARA. And last but not least, we hope that every citizen truly concerned with the state of nature in Flanders will get something out of this report.
The State of Nature in Flanders
A threefold message

Good news

The Nature Report for 2001 brings good, moderate and bad news. To start with, the good news. Nature policy, often under pressure of EEC directives, is developing a number of initiatives. The total surface of proposed sites of community importance under the Habitats Directives was extended to 102 000 ha in 2001. The drawing up of the outlines of the Flemish Ecological Network is in progress. The total surface of nature reserves amounts to nearly 20 000 ha, a clear increase, which however, is not sufficient to reach the goal of 50 000 ha by 2007.

The government aims to enlarge the Flemish forest surface with 10 000 ha by 2007, but progress is slow.

The awareness and commitment of the Flemish public is growing, but nature responds only slowly. The situation of fox (Vulpes vulpes), badger (Meles meles), bats and some forest birds has stabilised and/or even improved. In most cases, however, populations are still very vulnerable.

Moderate news

The situation is moderate for area's where nature is secondary. Activities such as the reinforcement of riverbanks, increasing productivity of species-rich grasslands and the draining of groundwater affect the quality of nature. Sample efforts in the Flemish polders show a total reduction in the surface of species-rich grassland by 50% during the last 20 years, despite their unique status in an international context. A better legal protection is required. The concern for nature in forest management has strongly increased. The latter might explain the general progress of forest birds (e.g. Black Woodpecker, Dryocopus martius). A general evolution from a sector-based approach to an integral approach is perceivable (e.g. the coast, the "border-Maas", river valleys, ...). However, although the intentions are usually promising, the realisations are often postponed. Most progress occurs where little other conflicting interests are involved. Communal nature development plans, management agreements, ecological involvement and reparation of land are instruments that should contribute to nature conservation and restoration.

Bad news

Bad news is that about one third of the Flemish plant and animal species are vulnerable or extinct. The abiotic environmental pressures barely decrease and constitute a major problem. The water quality of our rivers improves but they still belong to the most polluted in Europe. The input of nutrients in nature is amongst the highest in the world. Species with specific environmental requirements and reduced mobility are most vulnerable. For instance, during the last 30 years, vegetations of nutrient-rich environments gradually replaced the vegetations of nutrient poor environments. Environmental disturbance is also the cause of increased tree mortality in our forests. Due to the continuously increasing urbanisation and traffic, open area's become more and more fragmented. An effective strategy to reduce environmental pressures is an absolute necessity. The realisation of an area specific environmental policy should raise the quality of our natural areas above average.
Plants and Animals

It is estimated that about 40 to 50,000 species occur in Belgium, of which 80% can be found in Flanders. 75% belong to invertebrates, 24% are plants. Birds, mammals, reptiles and amphibians constitute the remaining 1%. The knowledge on many species, especially invertebrates, is very limited and it is impossible to estimate their status. Thousands of species still have to be "discovered" in Flanders. Red Lists were produced for a number of species groups. These lists show that about one third of the species are vulnerable or extinct.

The most important factor responsible is the reduction of suitable habitat. During the last century, especially nutrient poor, brackish and wet environments disappeared. For some organisms (e.g. bats) the decline has slowed down. Some of the larger mammals (e.g. badger and fox) have even expanded their range. In spite of the increased water quality, there is no clear trend for fish populations, except for some species of the larger rivers (e.g. twaite shad, Alosa fallax). It is important to (re)create sufficiently large areas of suitable habitat. Moreover, land use and the resulting environmental pressures should be tuned to the needs of the habitat requirements of the species present. The improvement of the status of vulnerable species is usually only possible by specific active restoration measures. There are practically no standardised monitoring schemes available to assess the distribution and trends of the fauna and flora, which greatly hampers the formulation of policy measures.

One third of the species living in Flanders is vulnerable to extinction. These data are based on the Red Lists of mammals, breeding birds, amphibians, reptiles, fish, aplacopods, butterflies, carabids, dragonflies, spiders, grasshoppers, vascular plants, mosses, lichens and a number of mushroom groups.
Human exploitation of biodiversity influences nature directly. However, data collection to evaluate the impact has only just started. Game management units were erected in 1999. These units have to report annually on the numbers of animals killed and the population numbers of the game species present. An inventory on possible negative effects of sport fishing for natural ecosystems has just started. Exotic species were released into the wild (intentionally, as well as by accident) of which some became invasive. However, there are practically no studies that look at the impact of these species on the natural ecosystems.

The invasive alien Canada Goose (Branta canadensis) breeds in Flanders since 1973. The last years, the number of breeding couples increased exponentially (Project Honker - in Dutch). There are no structured data to assess the evolution of the other alien species occurring in Flanders.

An analysis of the breeding birds in the province Limburg shows that species from marches, pastures, grasslands, arable land and heathland decline, while those of forests increase. The decline outside nature reserves and in the smaller reserves is larger than in larger nature reserves, except for species of arable land. Likewise, the increase in forest reserves is larger (De Ridder & Gabriels, 1999).

The last remaining localities where the Badger can be found are situated in the most south-eastern side of Flanders. After a long lasting decline, the population increases slightly. Bars = number of badgers found in Voeren and Hapertgeleven. Lines = numbers for specific sub-sectors. (Source: Institute of Forestry and Game Management)
The Habitats

Appropriate management practice starts to improve the state of flora and fauna in the large heathlands. Management of small heathlands and fens is inadequate when these are surrounded by agricultural land. Small areas should be better isolated from the influences of intensive agriculture, especially drainage and eutrophication. Special interventions in the water systems and buffer zones are required.

The water labela (Labeo dorflania), an indicator for nutrient poor waterbodies, continuously decreased during the last decade in “Het Zwart Water” at Turnhout. The main causes are the surrounding agricultural activities (drainage and fertiliser input) and atmospheric depositions (Vandenhaegen, 2000).

The fauna and flora of marches and swamps are very rich and specific. Their conservation is only possible through strict protection of these rare habitat types. Marches are also important for water purification and storage, especially in buffer zones and banks of running waters or in flood plains.

Historically permanent grasslands are species-rich grasslands which were mown and or grazed for many years. When ploughed and re-sown, much of the biodiversity is lost. Random samples in the Flemish polders indicated that 50% of the total surface of historically permanent grasslands was lost between 1980 and 2000. There is little legal protection. Adequate rules are urgently needed to stop this negative trend. The remaining biodiversity is also threatened by eutrophication, over grazing and desiccation. The historically permanent grasslands are internationally unique and are very important for migrating birds. Fertilisation limitations and management agreements can bring improvement. However, due to the fragmented and ad hoc application, effectiveness is very low. The multi-functional use of

the historically permanent grasslands causes tension and challenge.

More than half of the historically permanent grasslands are not legally protected. When protected, the latter is often neglected.

Historically permanent grassland in the marches of the Schelde in Avelgem developed and maintained its species richness, thanks to centuries of extensive agricultural use. In 2001 the area was drained and ploughed for the implantation of an industrial plant.
Many Flemish Forests consist of relatively young trees, of all more or less the same age. There is little structural variation. Old trees, bright clearings and dead wood are scarce. As a consequence, many forest species are threatened or extinct. This state is a result of the forest management practices during the previous centuries. Fortunately, forest management changed during the latest decennium. The transformation to more structure diverse, mixed woods, the use of local trees and bushes, the aging of trees, the preservation of dead trees and the creation of bright clearings, are encouraged. Data on the results of this change in management strategy in the field are not available yet. Of course, changes such as the increased age of trees cannot be realised in short term. Although there is already more dead wood in our forests, it is still limited. The trend for a number of forest species improves, especially for birds. The latter is mainly attributed to the aging of trees. Many threatened plants and invertebrates react much slower to habitat improvements. Some factors are also far more difficult to recover. One of these is acidification of the forest soils, which still continues. This is particularly threatening for forests of moderately acidic soils such as our valuable old forest complexes of the loam district. Soil acidification is also one of the major causes of increasing tree mortality in our forests. This cannot be solved by improved forest and nature policy alone. A fine tuned general environmental policy will be needed.

During the nineties, the extension of water purification plants resulted in a reduced water pollution. A number of invertebrate and fish species reappeared in our region. The invertebrate index shows that water quality of most brooks improved during the last decade. Highest improvement was recorded for the most polluted waters. The number of sample points with very high water quality increased too, but is still restricted to 7% of the points. The fish index indicates a critical to poor quality. The basins of the Maas and Nete are the most valuable. Spring brooklets and the larger lowland brooks are amongst the most valuable brooks. However, even in the most precious brooks, the invertebrate vary strongly from year to year, which indicates instability. Only some of the smaller spring brooklets and lowland brooks that flow through pristine river valleys attain a continuously high water quality.

The Flemish forests usually consist of rather young, evenly aged tree species (Waterinckx & Roelandt, 2001). Due to the forest management practice of the last decennia, the structural diversity is limited. Recently, the interest for nature in forest management increased.
Too often, large environmental pressures affect very valuable watercourses. Although direct dumping of waste materials clearly decreases, diffuse pollution continues to grow. In watercourses with naturally very low phosphate concentrations, a small increase is measured due to a gradual influx. Even these limited changes are responsible for changes in the aquatic communities. In addition, historical pollution such as the accumulation of heavy metals causes more and more problems. Intensive land use in river valleys results in reduced water quality and simplification of structural characteristics of the courses. Naturally meandering rivers and brooks are only found in marches, forests or historically permanent grasslands. In agricultural land, these watercourses are usually straightened, while riverbanks are usually reinforced in urban areas. At numerous locations, dams, culverts or waterfalls block the network of watercourses. Migration of many species, especially fish, is seriously hampered or even impossible, which results in isolated and fragmented populations. The new water policy regulation is steered by the European directive for establishing a framework for community action in the field of water policy. The aim is a better integration of water use and water management. To achieve the quality ambitions in the field, a better integration of the "renewed" environmental and country planning is necessary. Together with transport and agriculture policy, these policy fields have to generate more space for water and nature. The development of area specific standards, better tuned to the specific needs of the watercourses, is necessary.

The number of fish species present are an indication of the water quality. Sample points with more than 6 fish species are mainly found in the basins of the IJzer, Nete, and Meuse. More than 60% of the sample points of the Leie basin do not contain any fish.
In general, the standing waters of Flanders are strongly polluted. Most water bodies undergo a vast nutrient influx. Fens in the Campine and the Flemish Sand Region are usually acidified. Only in a very limited number of relict areas, water quality of standing waters is still reasonable. Some smaller and younger systems and deeper excavations are of better quality. To restore the pure quality of standing waters, a general improvement of the environmental quality (atmospheric depositions, ground and surface waters) is needed. The management practice applied in many standing waters is far from nature friendly. Progress is urgently needed.

Photo: Canne Wils

Source brooklets are usually very valuable natural elements that contain rare species

Photo: Jo Packet

Standing waters with structure-rich vegetation became very rare

Photo: Anik Simonis

Brooks are often transformed in narrow drain channels for (polluted) water

Photo: Jo Packet

Excessive nutrient input leads to the disappearance of water and marsh vegetations. Only trees and shrubs can grow along the banks
Nature in urbanised areas are green areas within the surrounding grey urban environment, pockets where man feels good and wild flora and fauna can establish spontaneously. In general, the urban environment harbours less species than the surrounding natural area’s. Many species are very common species, usually adapted to cultivated conditions, or imported (invasive) species. The natural state can be improved by planting native species, or by allowing spontaneous (re)colonisation.

Environmental disturbances

Changes of the environmental quality due to eutrophication, acidification, desiccation or pollution impose heavy pressure on fauna and flora. Nature is flooded by an excessive nutrient influx from the air, surface waters, and ground water and too often through direct overfertilisation. These nutrients are assimilated by the vegetation or animals, fixed to the soil, or are transported downstream by means of ground and surface waters to river valleys, estuaries and, finally to the sea. The nutrient level in our watercourses is amongst the highest in Europe. Because the nutrient input exceeds the nutrient output in most systems, nutrients accumulate practically everywhere. In every ecosystem, the nutrient excess disturbs the ecological balance. In most cases, biodiversity drops. During last century, vegetations of nutrient-rich environments gradually replaced the vegetations of nutrient poor environments all over Flanders.

The soil acidity in half of the studied plots of the Meerdal Forest dropped to a level where toxic aluminium is released in the soil. Acid tolerant species (e.g. Common Wood Sorrel, Oxalis acetosella) replace susceptible species (e.g. Herb Paris, Paris quadrifolia) (Bauwens, 2001).

High amounts of nitrogen reach the Flemish forests through atmospheric depositions. Less than half will leach to the groundwater; the rest remains in the soil or is taken up by vegetation. Leached nitrogen pollutes groundwater and remains a threat for the future. The bound nitrogen disturbs the ecosystem (source: Forestry lab).
Overfertilisation also induces the regression of many species groups such as invertebrates or mushrooms. The present policy that aims to tackle the problems at the source should limit nutrient emissions. However, the atmospheric nitrogen depositions barely decreased. Nutrients continue to accumulate in nature, a disturbance factor that shall last for a long time in the future. Nutrient load can be reduced locally by reducing the input or by exporting nutrients through hay or sod removal. The knowledge on nutrient flows through the landscape and the consequences for nature is still very fragmentary. There is an urgent need for monitoring, norms based on natural limitations and modelling of nutrient flows with particular attention for the most vulnerable ecosystems.

Natural acidification is accelerated by atmospheric depositions, and sometimes by changes in hydrology and vegetation. An important side effect is the release of aluminium. During the last 50 years, the soils of many Flemish forests became more acidic. Biodiversity in these forests, especially for moderately acidic forests, is threatened. The state of our precious old broad-leaved forests of the Loam Region and the mesotrophic waters is critical. Thanks to the reduced emission of sulphur dioxide, the acid depositions decrease. However, these depositions are still too elevated for nature. To reach the policy goals, more effective actions are needed. The area specific policy in relation to acidification has to pay particular attention to ecosystems of moderately acidic environments. More applied research is necessary to formulate recovery actions for degraded forest soils, while data collection should be organised to follow up the state of sensitive ecosystems. The problem of acidification needs more attention.

The legislation and policy plans increasingly recognise the problem of desiccation. However, progress in the field is slow. The implementation of the European directive for establishing a framework for community action in the field of water policy should speed up actions. The total amount of water is crucial in policy actions. The sectors involved should decide which part could be used, based on area specific aspects. Due to the increasing number water extraction points (amongst others for agricultural use), and the additional illegal extractions, the desiccation problem expands. The reservation of ground water for high quality usage (e.g. drinking water) and the use of alternative sources (e.g. rain) where possible, should improve the state of nature. Actions to reduce desiccation go hand in hand with actions to reduce flooding. These are area specific initiatives. These actions are necessary to formulate policy measures. The realisation of primary importance.

Heavy metals constitute an important problem at several localities in Flanders. Measurements in plants, woodlice, spiders, fish and tits (Parus spp.) indicate that heavy metals accumulate in the food chain. The distribution patterns coincide with historical contamination sources. For a number of contaminants, the latter is regionally determined. As an example, important cadmium and zinc concentrations were found in contaminated soils in the Campine Region for both woodlice and fish. There are only limited data available on the possible effects for these organisms. Some point studies indicate deleterious effects in different organism groups from different trophic levels in the food chain. These are growth limitations in plants, genetic adaptations in spiders, a reduced condition in gudgeon (Gobio gobio) and reproductive problems in tits. To assess the effects of pollution such as heavy metals on ecosystems it will be necessary to select appropriate indicator species, and to develop a continuous monitoring system. At the moment, much attention is paid to the reduction of emissions to prevent further pollution. However, parallel to this, additional attention is needed to study existing historical contamination and the contaminant flows through the system. These are not only responsible for the present effects on ecosystems, but will be of continuous importance due to lag effects. In some situations, such as heavy metal contamination of ground and surface waters, important effects have not appeared yet!
Heavy metals flow through the food chain: in the contaminated soils of the Campine Region, woodlice transfer high cadmium concentrations to the higher trophic levels.

Heavy metals flow through the food chain: Eels (Anguilla anguilla) accumulate all kinds of heavy metals. Only the metals which depart most from the reference value (ATR) are shown.
Habitat fragmentation

Fragmentation is the loss of structures and order. Habitats become smaller and more isolated. The connectivity also reduces due to intensified land use and the attendant increase in disturbances, such as pollution and noise. The number and size of barriers increase. Small isolated populations are vulnerable to extinction. The knowledge on the impact of habitat fragmentation is very fragmental. The problem of fragmentation is recognised in present policy and is incorporated in several policy plans and notes. The realisation of these plans is a priority aim for the next years. A small number of defragmentation actions are prepared, but due to elaborate administrative procedures, the realisation in the field is largely delayed. The realisation of these defragmentation actions is not sufficient. It is necessary to assess the effective use by the target species, and to monitor the impact on their populations.

Many fresh water fish decrease because their migration routes are blocked by weirs, water mills and dams. The impulse to migrate disappears because the water speed decreases above a weir. The Benelux Decree concerning Fish Migration postulates that fish migration should be possible, for all fish species in all water courses of the Benelux, by 2010. To comply with this direction, a priority map was constructed. Based on the stand-still principle (nature should not decline any further) it is preferred to start with the most valuable water courses. The migration bottlenecks of this priority map can be consulted at http://vismigratie.institnat.be (in Dutch).
A habitat map shows the suitability of areas for a certain species, here the Fire Salamander. The Fire Salamander has an action radius of 200 m. When there is no suitable area within this action radius, the species risks extinction.

Roads fragment the habitat of many species: road casualty (Barn owl, Tyto alba) (photo: Jan Rodts)

Badger tunnel: a screen prevents the badgers from crossing the road. The tunnel leads them safely to the other side.

Instituut voor Natuurbehoud
The State of Nature in Flanders in 2001: A Summary
Towards more space for nature

The Birds Directive (1979) and the Habitats Directive (1992) are European directives for respectively the protection of birds, and natural habitats and the wild fauna and flora. Special protection area's (under Birds and Habitats Directive) are erected by the Flemish government and are reported to the European Commission for incorporation in the list of Sites of Community Importance (Natura 2000). The European Commission announced in September
2000 that they would take Belgium to the European Court of Justice because the translation of the Habitat Directives into national legislation was not sufficient. The Flemish government decided to accelerate this translation. Nonetheless, Flanders scores well in the designation of proposed Sites of Community Importance: in May 2001, about 10,000 ha were dropped as due to refinements, while 42,000 ha were added. At the moment, about 102,000 ha are designated. Practically all European members experience some problems with the protection of the Special Protection Zones. At the moment, 11 cases on specific violations of the Birds and Habitats Directives are on trial in Flanders. A better-structured organization to handle these cases, and transparent procedures to follow up violations are needed. An important issue is an early realisation of the compensation measures agreed on, in the cases where for "compulsory reasons of general and critical importance" the Protected Zones are affected.
Basically, Protection Zones are included in the "Flemish Ecological Network" (VEN), or in nature zones with mixed function. The VEN is a coherent and ecologically functional cluster of natural area’s wherein management practice is aimed to conservation and development of high standard nature. Here, nature conservation precedes other activities. The Flemish government endeavours to designate 125,000 toward 2003. The VEN is supported by an "Integral acquisition and supportive network" (IVON) that is composed of natural area’s that interconnect the natural area’s of the VEN. Although the aim of the nature management is to preserve high standard nature, other human activities such as agriculture, forestry, military activities or the extraction of drinking water are involved. These connective areas are also important to allow migration of plants and animals between populations. The Flemish government plans to designate 150,000 ha as nature zones with mixed function by 2003.

At the moment, the preparation of the designation process has started. It is a complicated process that requires frequent tuning with other policy fields and lower governments. Agricultural structure, regional planning, regulation of environmental quality, integral water management, and the like are all involved. During the process, much attention is devoted to an easy communication and early policy agreements. This procedure should result in an improvement of the integrated management at the official level. It is recommended that voluntary organisations that are directly involved (forest, agricultural and nature organisations) can play a formal role. In this way they are also more closely involved in the subsequent distribution of information and the enforcement of the plans. Based on the present state of the designation procedure, it is doubtful whether it will be realised toward 2003. More people are needed, both in the administration and the scientific staff.
The regional planning forms an important base to create the necessary space for nature and, as a consequence, the designation of VEN and IVON. The administration of regional planning is occupied in the enforcement of the Decree on regional planning (1997) and Spatial Structure Plan for Flanders (1997). Due to the extensiveness of the assignments, priorities need to be formulated. At the moment, the realisation plans barely take nature into account. The total area of natural areas and nature reserves on the country planning schemes is increased with 6411 ha during the period 1994-2001. To realise the goal of an extra 38,000 ha green area toward 2007, as fixed in the Spatial Structure Plan for Flanders, an accelerated realisation is needed. Old, not yet expired land parcelling and illegal weekend cottages in green areas remain important obstacles. It is important to formally inform the provinces and communities on the progress made in the designation of the regional VEN and IVON. The provinces can actively contribute through the associated Provincial Spatial Structure Plans. For the time being, it is necessary that both the Provincial and the Municipal Spatial Structure Plans state that they will give priority to VEN and IVON over their own plans, when more information becomes available to them.

Higher quality for nature

Nature and forest reserves fulfil an important role in the realisation of high quality nature. Early 2001, Flanders comprised 743 nature and forest reserves with a total surface of 19,000 ha nature reserves and 2000 ha forest reserves (these include both ratified reserves and reserves that applied for ratification). It is clear that the total surface of nature reserves increases. However, it is still far from the goal to achieve 50,000 ha by 2007. Many reserves are on rented land. Their status is insecure in the long run. The financial support of the Flemish government has increased. The nature reserves are not evenly distributed over the different ecoregions. There are relatively more nature reserves in the sandy regions in the east of Flanders. Because forests are underrepresented in Flanders, the Flemish government aims to extend the total surface with 10,000 ha toward 2007. However, the present progress is too slow to realise this goal.

Early 2001, Flanders comprised 268 recognized nature and forest reserves with a combined surface of 11,243 ha. The recognition of a reserve entails a contract with specified results which must be achieved, and subsidies for management, monitoring and public access. Management practices should conserve or develop predefined specific nature target types. Manuals for monitoring (focal species and ground water levels) have been compiled or are in preparation (management). In 2000 a monitoring programme was started for forest reserves.

Nature development projects are usually designed for large interconnected areas of which 90% of the surface is situated within the Flemish Ecological Network or in green, park, buffer or forest areas of the country-planning scheme. Nature development comprises a set of measures and activities focussed on the optimal organization for conservation, restoration or creation of nature. In January 2001, 13 nature (total surface of 4190 ha) development projects were finished on paper. Up until now, there has been nothing realised in the field.
Area specific concepts are developed for large areas with a high amount of interconnected nature.

During the last century, the coast was transformed into an urban network where the last natural functions are filled in by the remaining dunes. Within the natural areas nature management and development have made some progress, outside these areas (e.g. inner dunes) however, nature development is much more laborious.

The project "The Living Border-Maas" takes an innovative and international approach to nature development, gravel extraction, river management and flood protection. This project should create a large continuous natural area and should improve the state of a number of species (e.g. Corncrake (Crex crex), Night heron (Nycticorax nycticorax), Kingfisher (Alcedo atthis), Barbel (Barbus barbus) and Greater Yellow Rattle (Rhinanthus alectorolophus)]. The realisation of the project, however, is very laborious due to an obscure setting of objectives and the ineffective cooperation and communication among the different policy levels involved.

The Schelde estuary is a tidal system with a gradient from fresh to salt water, and contains a lot of nature of international importance (Ramsar; Birds Directive, Habitats Directive). Fish biodiversity increased thanks to improved water quality. Several areas with a nature designation are situated along the banks of the Sea-Schelde. In the river forlands this is less the case, but a positive shift from a sectorial to an integral approach in the planning of management is noticeable. The realisation in the field, however, is very laborious.

Integral water management aims at a better integration of the different functions of river valleys. At the moment, two instruments are operational: 1) the ecosystem visions, usually for unnavigable watercourses, and 2) the ecological area visions for navigable watercourses. The possibilities for nature are designated, taking into account the strict basic conditions in the valley. A number of ecosystem visions are finished on paper (Demer, Zwarte beek, Ijzer and Durme), but there is no realisation in the field. In the valley of the Dijle some first initiatives were taken.
Nature everywhere

Agriculture, as the most important manager of open spaces, is also responsible for the state of nature. The program for the development of the countryside (part of the European regulation) offers farmers the possibility to endorse management agreements. They carry management's measures in favour of nature into effect. These include postponing mowing dates, and the construction of hedgerows or water pools. The system just started but there is no monitoring program to follow up the effects. Due to the standstill principle (no decline of nature) and "obligation to be careful" (possible damage to nature has to be prevented, restricted or recovered), the attention for nature grows in land development and re-parcelling of land. Since 2000, the ecological investment and the resulting effects are monitored for re-parcelling of land.

In the scope of the Municipal Nature Development Plans a broad scale of actions are taken.

In March 2001, 94% of the Flemish communities possessed an approved Municipal Nature Development Plan (GNOP), while about 40% had one or more approved nature action plans to carry the GNOP into effect.
The disappearance of small landscape elements has severely threatened the Pygmy Owl. Management agreements and legal obligations have to improve this situation.

The 'Environmental Permit' postulates that an official permission is required for certain activities such as filling up water pools or ploughing up historically permanent grasslands (not all historically permanent grasslands are protected in that way and can still be transformed to agricultural fields. Private persons apply for the permission from the commune, governmental services apply for permission from the provinces. The 'Nature administration' provides advice. The number of applications has gradually increased over time. In 1999-2000, about 75% of the 3000 applications concerned the felling of trees and hedgerows. Many fail to apply for authorisation for activities such as ploughing up historically permanent grasslands. For practically all permissions, special stipulations are imposed, such as re-plantation. A small number of applications are rejected. Often, there is no legal action when regulation is violated. Under other circumstances (e.g. felling down of trees), the regulations are not very relevant for nature conservation. To make regulations more effective and to set free more time for priority aims of policy, one can search for alternative instruments. One of these priorities is to increase the awareness of the community and the public authorities on the Nature Permits.

There is little data available on the integration of nature motives in other systems of permits (town planning, environment, ...). Legislation here is merely symbolic, too vague for actual application. More precise knowledge is needed on how the integration of the nature motives can be better applied in granting permissions. The compilation of directives and the propagation of knowledge concerning nature friendly actions could (hopefully) motivate local administrators.

The application of compensations for habitat loss needs a reference context to offer a guidebook to the administrations that give advice and issue permits. To follow up the compensation measures, it is necessary to make an inventarisation of the measures that were agreed and that were carried into effect. In this way it is possible to check on whether the standstill principle has been respected.

The recent regulations on town planning and land parcelling show an increased interest in nature. The term "spatially vulnerable areas" was introduced in certain implementation regulations on regional planning. The future VEN, as it will be designated, is taken into consideration. According to the new regulations, the administration should give advice on the new applications for land parcelling or town planning, for all area's which are in the framework of spatially vulnerable area's, such as green area's, park area's, forests or agricultural land with ecological importance. The administrations involved, however, are insufficiently trained in the application of the regulations on changes in vegetations and small landscape elements.
Man and nature

A proper nature policy needs broad public support. The concept "public support" is rather new in the Flemish nature and environmental policy. Public support means that the public does not only accept policy measures, but also that the public is actively committed to the conservation of nature. Public support not only concerns the general public, but also civil servants and politicians. Research in Flanders was mainly focused on the general public. In general, 94.5% of the Flemish populations regards nature as important. For more precise questions, social factors such as area of residence, social class (education, profession, income) and age become more determining for the answer. The amount of public support is not static. It can be increased by social (education, communication), legal (legislation, rules and regulations) and economic (taxes and grants) instruments. The present Nature Report stresses the importance of good communication to create a solid public support for nature.

Ecological insight, appreciation of nature and nature friendly behaviour can be stimulated by education. Education is a term with many angles of incidence. In our fast evolving society, it is no longer restricted to children and schools. Teaching about nature is done by the public bodies and volunteer associations in different manners at different levels in society. Many volunteers are involved in nature and environmental education. The primary and secondary education have taken their own responsibility by formulating minimum requirements on what pupils need to know. Higher education also takes initiatives. The most important bottleneck is the division of labour and complementarity. Target groups with high impact on nature get too little attention. They need a specialised education.

Flemish Day 2001: More and more people show an interest in nature...
More data for nature reporting

To compile a biannual report on the state of nature, a solid, well-coordinated monitoring of nature is needed. Far more species need to be monitored. Networks for environmental monitoring need area specific refinements. A (better) formulation of nature target types should allow the comparison of monitoring results with nature aims. A better insight in local hydrological systems should provide scientific based support. A systematic monitoring of policy (both for measures taken, as well as for the results for nature) is needed. Finally, public support and education for nature can only be evaluated based on monitoring of relevant indicators. Monitoring has to be tuned to specific needs of the system (species, habitats, measures, ...) but needs integration where possible.

Conclusions

The nature report 2001 postulates that nature policy in Flanders has three priorities: 1) the designation of sufficient space for nature, 2) a harmonious integration with other policy levels and fields and 3) protection of a good environmental quality. The total surface protected nature has clearly increased, but, at this speed, it will not reach the final goal of 50,000 ha worth of nature reserves by 2007. The integral approach with other policy fields such as agriculture and town planning grows, but is usually confined to planning alone. The overall environmental quality is still critical. The government urgently needs to take more measures to improve the trends. The goals and plans of the Flemish government are to improve, but an actual realisation in the field is still needed. A solid communication is necessary to broaden public support, especially in groups and organisations that have major impact on nature.
Flanders in Europe


2 April 1979 (Official Journal of the European Communities Series L 103, 25 April 1979)

Objective: the protection of populations of naturally occurring wild birds indicated in Annex I of the Directive. Methodology: The EU member states have to:
- designate Special Protection Areas (SPAs);
- take conservation measures, specifically towards bird species listed in Annex I of the directive.

In the Flemish Region 23 Special Protection Areas were designated (Decree of the Flemish Government of 17th October 1988, Act published on 29 October 1988). Out of those 23 Special Protection Areas 7 are completely protected. The 16 remaining areas are partly protected: the areas were designated, but only the habitats and country-planning schemes described in the Decree of 17th October 1988 are really protected within those areas.

The EC Council Directive on the conservation of natural habitats and of wild fauna and flora 92/43/EEG (Habitats Directive)


Objective: to promote the maintenance of biodiversity through the conservation of natural habitats and of wild fauna and flora within the EU.
Methodology: The EU member states have to:
- designate Special Areas of Conservation (SACs);
- to maintain or restore, at a favorable conservation status, natural habitats;
- to maintain or restore, at a favorable conservation status, species of wild fauna and flora.

In 1996 the Flemish Government proposed 40 Special Areas of Conservation to the European Commission. Because of comments given by the European Commission (the total surface of designated areas and the number of populations was too low) the Flemish Government replaced the SACs list on 4th May 2001 by a new list resulting in a larger total surface. The next step in the procedure is the Commission who has to present a list of SACs of major importance for the EU. Those SACs will form the Natura 2000 network. In the meantime the European Council urges the countries to take care that no activities influencing the quality of the SACs should be allowed.
Benelux convention on nature conservation and landscape protection

8 June 1982

This convention contains declarations of intent and is not legally binding. More specifically the convention supports measures for a more effective protection of transboundary natural areas and landscapes. Flanders and The Netherlands did not spend into the realization of this convention. For the Flemish Community this convention is of importance to the nature reserves "Zoom - Kalmthoutse Heide" and "Stamprooierbroek - Wijfelterbroek - Laurabossen".

Benelux convention concerning hunting and the protection of birds

10 June 1970

Operation in Belgium: Act of 29 July 1971 approving the Benelux convention concerning hunting and the protection of birds, signed in Brussels on 10 June 1970 (Act published on 19 October 1971). To implement this convention the Flemish Government issued the Decree of 20 November 1985 concerning the protection of birds.

Flanders in the world

Convention on Biological Diversity

Rio de Janeiro, 1992


The Convention is legally binding: countriesratifying the convention commit themselves to implement the 42 articles of the Convention, including the development of a national biodiversity strategy and national biodiversity action plans (article 6a). Five years after ratification Belgium still has to start with realization of those commitments. Another obligation is the development of a "Clearing House Mechanism". The Clearing House Mechanism is a methodology to distribute information on biodiversity sensu latu. The Clearing House Mechanism is the responsibility of the National Focal Point with its headquarters at the Royal Belgian Institute for Natural Sciences. The information is consultable through the internet (www.kbinirsnb.be/bch-cbd/homepage.htm).

In Belgium the National Focal Point is responsible for information transfer and reporting obligations concerning the Convention. Official positions are prepared by the Steering Group Biodiversity, working under the authority of Coordinating Committee for International Environmental Policy (CCIEP). There advices are used as support to the development of the official Belgian position by the Inter-
ministerial Conference on the Environment (ICE). In the Steering Group Biodiversity Flanders is represented by scientists, scientific institutes, policy makers and the Regional Focal Point Flanders for which AMINAL is responsible.

**CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora**

**Washington, 1973**


The EU adopted 2 EC Regulations (Council Regulation (EEC) N° 3626/82 and Commission Regulation (EEC) N°3418/83) in the early eighties to implement the CITES Convention. In December 1991, the Commission proposed to the Council to replace the 1982 Regulation by a much more comprehensive new Regulation as of 1 January 1993, the date of completion of the Single Market. The virtually complete disappearance of internal trade controls on that date made improvement of the 1982 Regulation necessary, particularly in order to increase the effectiveness of external border controls. On 9 December 1996 this new regulation was adopted (Council regulation (EC) N° 338/97 on the Protection of Species of Wild Fauna and Flora by Regulating Trade Therein). At the same time, Commission Regulation of 1983, containing detailed implementation provisions, particularly on the use of permits and certificates was replaced by Commission Regulation 939/97. These two Regulations not only fully implement the provisions of CITES, but also include provisions to implement the bulk of currently applicable recommendations of the Conference of the Parties on their interpretation and implementation.

**The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)**

**Ramsar, 1971**


Originally Belgium designated six Ramsar sites, four of them in Flanders (Act of 27 September 1984, Act published on 31 October 1984):

1. the reserve "Zwin" in Knokke (Knokke-Heist);
2. the nature reserve "De Blankaart" and "Ijzerbroeken" in Woumen (Diksmuide);
3. "Schorren van de Benedenzeeschelede" including "Schorren van Doel" in Beveren, "Galgenschoor" in Lillo (Antwerpen) and "Groot Buitenschoor" in Zandvliet (Antwerpen);
4. the nature reserve "De Kalmthoutse heide" in Kalmthout;
5. "Vlaamse banen" (these are sandbanks in front of the western part of the coast; legally they...
do not belong to the Flemish territory but to the Belgian territory; this makes them a federal competence). In the meantime the Walloon region designated a number of new Ramsar sites. The Flemish region, however, did not designate additional areas, even when numerous areas are qualified to be designated.

**Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention)**

Bonn, 1979


Operation in the EU: The European Union signed the Convention on 1 August 1983 (entry into force on 1 November 1983).

AMINAL is responsible for the Belgian representation. Belgium is vice-president of this convention. A secretariat under the auspices of UNEP provides administrative support to the Convention. The decision-making organ of the Convention is the Conference of the Parties (COP). A standing Committee provides policy and administrative guidance between the regular meetings of the COP. A scientific Council consisting of experts appointed by individual member states and by the COP gives advice on technical and scientific matters.

**Pan-European legislation: Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)**

Bern, 1979


The European Union signed the Convention on 7 May 1982 (entry into force on 1 June 1982).