



ASN Bank

Biodiversity policy

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A. Introduction

This Policy Paper explains how ASN Bank applies its sustainability criteria with respect to biodiversity. Biodiversity, climate change and human rights are the pillars of our policy. These three themes cover nearly all topics that are relevant to the selection of our investments:

- the Human Rights theme puts focus on how we deal with people through our investments;
- the Climate Change theme addresses the manner in which we affect the climate through our investments;
- the Biodiversity theme indicates how we deal with nature and the environment through our investments.

These three themes are clearly interrelated. What binds them together are the concepts of justice and sustainability.

As a sustainable bank, ASN Bank seeks to contribute to conserving and improving biodiversity and ecosystems. This Policy Paper sets out the sustainability criteria for biodiversity that ASN Bank applies in selecting its investments. It also describes how ASN Bank puts the biodiversity issue into practice when exercising its voting rights as a shareholder of listed companies and in the dialogues it engages in with those companies.

Description and importance of biodiversity

Biodiversity is the diversity of living organisms and the variety of their interrelationships in ecosystems. It is a source of prosperity that can only be partially expressed in monetary terms. To many, biodiversity has an intrinsic value that in itself justifies its protection. Through ecosystems, biodiversity provides services that are of economic, aesthetic, religious and cultural value to mankind, for example the production of oxygen, water purification, food, fuels, raw materials, medicines, protection and recreation [1].

In the ecosystems that provide these services, the balance between the various animals, plants and microorganisms is fragile. That is why it is important to protect biodiversity. In other words, protection of biodiversity and ecosystems is not only desirable based on moral considerations, but also necessary from an economic perspective. After all, many services and products are strongly dependent on biodiversity [2].

ASN Bank and biodiversity

ASN Bank distinguishes investments with a high and a low 'biodiversity risk'. The risk level depends on the extent to which a sector contributes to biodiversity threats as defined in Section C. Examples of sectors with a high biodiversity risk include agriculture, fishery, construction & construction materials, electricity generation, forestry, mining, and oil & gas extraction. Sectors with a far less negative biodiversity impact, and which are therefore low-risk, include software and media & entertainment, for example. The complete sector matrix can be found in the appendix.

ASN Bank can directly and indirectly contribute to improving biodiversity. The direct contribution is seen in the effects related to our office organisation. The indirect contribution can be made through the effects of our core activity: investing. To a bank, and therefore to ASN Bank as well, the impact of the indirect effects far outweighs the impact of the direct effects. It is for this reason that this Policy Paper focuses on our contribution to the indirect effects. Moreover, our investment perspective for our biodiversity policy is global: it is not limited to the Netherlands. This does not alter the fact that we also take responsibility for the direct effects we have on biodiversity, on which more can be read in Section G.

B. Points of departure

The points of departure for ASN Bank's sustainability criteria for biodiversity are a variety of international biodiversity conventions and agreements. For biological diversity – or biodiversity – we apply the definition from the 1992 Convention on Biological Diversity (CBD) [3]:

The variability among living organisms from all sources, including, inter alia, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.

Briefly stated, biodiversity can be described as the diversity of life in all its manifestations. This means that biodiversity is not only species diversity, but also genetic diversity and ecosystem diversity.

Healthy ecosystems provide important services to mankind, such as clean water, clean air and raw materials. A reduction in biodiversity threatens the continuity of ecosystems and with it the supply of these services. Ecosystem services are provided on various levels, such as local (pollination by insects), regional (water purification, supply of timber), and global (climate regulation). In addition to this instrumental value, biodiversity also has intrinsic value to many people and cultures.

With its investment activities, ASN Bank endeavours to conserve, protect and where possible improve the existing biodiversity. In doing so, we pursue the objective as worded in the CBD:

The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

ASN Bank seeks to use its investments in such a way as to contribute to the conservation of animal and plant species and to the conservation and improvement of ecosystem services. All investments in projects, companies and loans are therefore assessed according to their positive contribution to biodiversity.

C. Protecting and improving biodiversity

The Millennium Ecosystem Assessment, MA [4], indicates that human activity causes the greatest problems for biodiversity. Important conclusions from the MA are:

- People benefit from biodiversity beyond its contribution to material prosperity and sustenance. Biodiversity contributes to safety, resilience, social relationships and the freedom of choice and behaviour.
- Human influence has changed biodiversity at a faster rate in the past fifty years than at any other point in history. The causes of changes resulting in a loss of biodiversity and changes in ecosystem services are stable, are not diminishing and are even intensifying. The four probable scenarios of the future sketched in the MA predict that the speed of these changes will increase.

The Millennium Ecosystem Assessment (MA) was initiated by Kofi Annan, Secretary General of the United Nations, in 2000 and was launched in 2001. The objective of the MA was to estimate the consequences that changing ecosystems will have for human well-being. The MA was also intended to lay a scientific foundation for measures to improve the conservation and responsible use of these systems as well as their contribution to human well-being. More than 1,360 experts from all over the world worked on the MA. Their conclusions are collected in five technical volumes and six synthesis reports. These provide a scientific estimation based on the most recent data of the state and development trends of the world's ecosystems and the services they provide (including clean water, food, timber, flood prevention and natural resources). The reports also contain options for restoring, conserving and increasing the sustainable use of ecosystems.

Source: www.millenniumassessment.org

Companies and institutions are responsible for biodiversity. This is not only due to their major impact on ecosystems, but also because their operations largely depend on ecosystem services. In other words, the loss of biological diversity and ecosystem services can be viewed from two perspectives: the impact perspective and the dependency perspective. [5]

In order to protect and improve biodiversity, ASN Bank's sustainability criteria are centred on the threats to biodiversity. The impact perspective therefore has central focus. According to the MA, the main threats to biodiversity are:

1. changes in land use (loss of natural habitat);
2. climate change;
3. the introduction of exotic species;
4. overexploitation;
5. pollution.

Re 1 Changes in land use

More and more forest land is being cleared to create agricultural fields and unspoilt countryside in the vicinity of cities is used for urban development. Activities such as these often ignore biodiversity and species lose their natural habitats as a result. Ecosystems often have a balance of which we know very little. The disappearance of a single species, for example, can sometimes unexpectedly be enough to lose an ecosystem service. Changes in land use may also result in erosion, leading to the disappearance of valuable, fertile agricultural land in what are often the most vulnerable areas.

Re 2 Climate change

Climate change is threatening species and ecosystems. Regions are becoming more arid or more humid, or warmer, causing ecosystems to change. The distribution of species largely depends on the climate, but plant and animal species often fail to readily adjust to climate changes. Other species are expanding to areas where they have never lived and become a nuisance there.

Climate change can also destroy ecosystem functions. The coral reefs are likely to disappear, for example, because the increase in carbon dioxide in the atmosphere is acidifying the oceans. The coral reefs will no longer be around to attract tourists. Climate change also causes diseases to spread into regions where they have never been seen before [6].

Re 3 Introduction of exotic and invasive species

Although the introduction of exotic species is often overlooked as the cause of the disappearance of indigenous species, the introduction of a single exotic species can be enough to eliminate an entirely different species. These exotic species are invasive and pose a threat to other species, ecosystems, the economy or human health. The addition of 'invasive' is important because not all exotic species will always pose a threat to indigenous species. Exotic species played a part in at least half of the instances in which species have disappeared in recent centuries. An example in the Netherlands is seen in the release of foxes on the island of Vlieland, where they have never lived and where they are wreaking havoc among the island's birds.

Exotic species are also increasingly causing economic damage due to the harm they inflict on agricultural and horticultural crops, as the citrus long-horned beetle did in the Netherlands.

Re 4 Overexploitation

The overexploitation of ecosystems has strongly contributed to the extinction of hundreds of species and to endangering many more species, such as whales and many of Africa's great mammals. Most of the extinctions in recent centuries were caused by overexploitation through gaming, fishery, farming and forestry. A possible consequence is that ecosystems subsequently lose their role as a source of food (fishery).

Re 5 Pollution

Pollution, for example by organic and chemical substances such as persistent organic pollutants, known as POPs, is a threat to many species and ecosystems. Toxic substances accumulate in the ecological pyramid. Especially organisms at the top of the pyramid, like humans, run the risk of acquiring concentrations of toxic substances in their bodies that are far too high. Another example is the discharge of large quantities of waste water, which may lead to the disappearance of all living organisms from rivers, lakes and coastal waters.

D. Biodiversity policy

ASN Bank's sustainability policy in the area of biodiversity focuses on investing in companies, institutions and projects that contribute to the protection or improvement of biodiversity or that take effective measures to prevent or set off threats.

Our sustainability policy is aimed at preventing our investments from leading to a loss of species or biodiversity services. Examples are the conservation of forests and nature reserves, safeguarding the continued existence of biodiversity functions, and the construction of purification plants to keep hazardous substances out of the environment. Our investment policy also enables us to improve the conservation of species and ecosystem services, for example by investing in the creation of new forests or even new nature.

The perspective that ASN Bank applies here is that of the customer. Our customers do not want their money being used for the wrong activities; they want it to contribute to biodiversity improvement. We want to guarantee our customers that their contributions to preventing, remedying and reducing the biodiversity problem are as large as possible per euro saved or invested. At the same time, we want to achieve long-term returns that will safeguard a healthy future for ASN Bank, and we recognise the necessity of managing the funds entrusted in a manner that does justice to our customers' expectations.

Biodiversity criteria

In order to achieve our biodiversity goals, we have developed criteria that indicate whether activities are eligible for investment by ASN Bank. A clear description of these activities is important for a proper understanding of our sustainability policy. For the sake of completeness: this Policy Paper only discusses ASN Bank's sustainability policy for biodiversity, and not all of the other aspects that ASN Bank also assesses, such as human rights and climate change.

Our biodiversity criteria apply to all investments in companies and institutions. We have assessed all investments in shares, bonds, projects and government bonds against these criteria. We also adhere to the biodiversity policy explained in this Policy Paper when exercising our voting rights at shareholders' meetings and in dialogues with companies.

In the 'selection policy monitoring' policy process, our internal processes are defined in formalised procedures ensuring that the policy laid down in this Paper is actually implemented and applied.

ASN Bank invests in companies and institutions that contribute to protecting or improving biodiversity. We do this by taking effective measures or developing activities that prevent or set off the threats identified by the MA. As mentioned above, these threats are:

- changes in land use (loss of natural habitat);
- climate change;
- the introduction of exotic species;
- overexploitation;
- pollution.

E. Biodiversity selection criteria for companies, institutions and projects

The activities that may threaten biodiversity are explained below. This is followed by a summary of the sectors in which these activities are commonplace. The section closes with the assessment guidelines companies in these sectors must comply with if ASN Bank is to approve them. ASN Bank therefore approves those companies and institutions that do not pose a threat to biodiversity with their activities and within their sphere of control, or that comply with the assessment guidelines.

To ASN Bank, guidelines are not free of obligation. In actual practice, however, situations may occur in which a desired measure is satisfied in practice but not literally. Guidelines may also evolve, and new and better guidelines may be developed. ASN Bank includes these aspects in its assessments.

The sectors not listed below are low-risk and are not likely to threaten biodiversity. However, this is not an absolute truth. When selecting companies and institutions in these sectors, possible threats to biodiversity must always be considered.

A company's or institution's supply chain responsibility is defined as the activities and sphere of control of that company or institution. With activities and sphere of control we are referring to the company or institution itself and those parts of the supply chain that it controls or over which it can exert influence.

1. Changes in land use (loss of natural habitat)

Activities that threaten biodiversity:

- The production or use of first-generation biofuels.
- Activities that adversely affect protected or official nature reserves.
- Peat extraction and the logging of old-growth forests, tropical rainforests, forests with a high carbon content (High Carbon Stocks, HCS) and mangrove forests are unacceptable to ASN Bank. These activities also result in greenhouse gas emissions.
- Changes in land use that have an adverse effect on what are known as the red list species [7]. This does not necessarily involve nature reserves; they are areas on which red list species depend.
- Wetland drainage (which also causes greenhouse gas emissions).
- Activities in High Conservation Value Areas (HCVAs). In addition to areas protected by law, these are areas with a high biodiversity value that are not (yet) protected.

Relevant sectors:

- Agriculture, especially soy, palm oil and sugarcane cultivation.
- Animal husbandry and aquaculture.
- Forestry, the paper industry and large-scale paper consumers.
- The biofuel sector.

Assessment guideline:

- The company or institution adheres to the IUCN guidelines for Protected Area Management Categories.
- The company or institution does not develop activities in categories I-IV of the IUCN, the UNESCO World Heritage Convention or the Ramsar Convention on Wetlands.
- The company or institution restores the original ecosystem after terminating its activities in an area.
- No wetland drainage.
- Peat extraction is unacceptable to ASN Bank.
- The company or institution identifies forests with a high carbon content, or High Carbon Stocks (HCS), and protects them from logging.
- If the company or institution uses wood from old-growth forests, it solely uses FSC-certified timber.
- The company or institution respects HCVAs by only cultivating palm oil and soy in accordance with the criteria of the Brazilian Soy Platform [8] and the Roundtable on Sustainable Palm Oil (for palm oil), for example, and by only using second-generation biomass.
- Companies or institutions in the wood supply chain prevent the use of illegally logged or traded timber.

2. Climate change

Activities that threaten biodiversity:

- Large-scale use of fossil fuels such as lignite, coal, oil and gas.
- Deforestation.
- Products that consume much fossil fuel while in use, e.g. road and air transport based on combustion engines.

Relevant sectors:

- Power plants using fossil energy sources.
- Large-scale consumers of fossil energy such as mining, the exploration and production of lignite, coal, oil and gas, basic chemicals, base metals and the production of cement.
- Forestry companies, paper mills, large-scale paper consumers (publishing houses).
- Agricultural companies.

Assessment guideline:

- No use of fossil fuels to generate electricity.
- No activities in the area of the exploration and production of fossil energy, basic chemicals, base metals and cement.
- Sustainable forest management based on recognised guidelines for sustainable forest management, e.g. the FSC guidelines.

For a more detailed explanation, see the Climate Change Policy Paper.

3. The introduction of exotic species

Activities that threaten biodiversity:

- The introduction of exotic and invasive species that may pose a threat to local species or ecosystems.

Relevant sectors:

- International transport companies (aviation and shipping).
- Tourism.
- Garden centres and pet shops.
- Agriculture and horticulture.
- Fishery.

Assessment guideline:

- Availability of policy to prevent the introduction of invasive species.

4. Overexploitation

Activities that threaten biodiversity:

- Trading or hunting threatened animal species (whales, for example) on the red list.
- Non-sustainable agriculture, forestry, fishery.

Relevant sectors:

- Forestry, agriculture and fishery.
- Biofuel sector.
- Textile manufacturing.
- Luxury goods.
- Tourism.
- Food industry.

Assessment guideline:

- No use of red list species. Institutions that make specific efforts to protect threatened animal species, e.g. by means of breeding programmes, are not included in this category. The company or institution must comply with CITES.
- ASN Bank assesses whether forestry, agriculture or fishery is sustainable based on the availability of recognised biodiversity certification, such as the Forest Stewardship Council (FSC) for timber and the Marine Stewardship Council (MSC) for fish, or a similar method.
- The production of commodities that may have a serious ecological impact, such as coffee, sugar, soy and palm oil, must at least comply with the best-practice codes for those commodities compiled by international forums, such as the Roundtable on Sustainable Palm Oil for palm oil.

Certification is a useful criterion that ASN Bank can use to select investments. Certification is a commercial instrument. ASN Bank does not want to commit to specific certification standards, as they are subject to change. Moreover, new or even better certification standards may emerge that ASN Bank does not wish to exclude from the outset.

5. Pollution

Activities that threaten biodiversity:

- Activities that could result in 'genetic pollution', e.g. genetic engineering, in which genes end up in species in which they do not naturally occur.
- Activities that release substances into the environment the safety of which has not been demonstrated. (See also the Human Rights Policy Paper for substances that are hazardous to humans.)
- Activities in which substances (e.g. fertilisers) are released into ecosystems in such large quantities that they cannot be neutralised, or insufficiently so.

Relevant sectors:

- Agriculture, forestry, fishery.
- Biotech companies.
- Chemical industry.
- Food industry.
- Mining, oil and gas extraction.
- Metalworking.
- Electronics.
- Waste processing.
- Textile manufacturing.
- Pharmaceuticals.

Assessment guideline:

- Companies' activities must comply with the Cartagena protocol. In practice, this means that a company that works with genetically modified organisms (GMOs) must comply with the applicable laws and regulations. In view of the investment policy that ASN Bank pursues for GMOs, as laid down in the ASN Bank GMO Policy memorandum [9], we are automatically compliant.
- No unpurified discharges into the air and water, no discharges into the soil.
- When exporting pesticides, the company or institution adheres to the Rotterdam Convention.
- For chemical waste, the company or institution adheres to the Basel Convention.
- For persistent organic pollutants (POPs), the company or institution adheres to the Stockholm Convention.
- For substances that affect the ozone, the company or institution adheres to the Montreal Protocol.
- A variety of international rules have been agreed for the registration of the effects of chemical substances, such as Reach for the EU and GHS. The company or institution is expected to participate in these.

Conditions for a positive assessment

ASN Bank positively assesses companies and institutions if they:

- have formulated a policy in the area of biodiversity that addresses the above points;
- monitor that policy; and
- report on this in accordance with the Global Reporting Initiative (GRI) biodiversity guidelines.

Offsetting

A company or institution can set off the loss of biodiversity. This may result in a positive assessment if it satisfies the conditions for proper offsetting based on the principle of no net loss of biodiversity:

- *Same quality*

For example, loss of wetlands in one area can only be set off by creating new, similar (surface area, variety of species) wetlands elsewhere.

- *Same timing*

The time between the loss of one area and the completion of the new area must not be too long, meaning a few years at most.

- *Guaranteed implementation*

Agreements regarding the implementation of offsets must be sufficiently laid down in legal documents.

In assessing these points, we may rely on the assessment of reputable (local) nature organisations.

The Business and Biodiversity Offsets Programme (BBOP) develops offsetting methods and pilot projects, such as the BBOP Biodiversity Offset Principles. ASN Bank includes the BBOP principles and insights in its assessment of concrete offsetting projects. It is too early, however, to apply these as standards.

Reliability of information

On many occasions, we have insufficient reliable information to apply the biodiversity criteria with absolute certainty. We are dependent on third-party information in that respect. If the amount of reliable information regarding points that are essential to ASN Bank is insufficient, we refrain from investing.

Additional conditions

For project loans, we apply not only the above criteria but also the Equator Principles (www.equator-principles.com). According to the Equator Principles, projects must comply with IFC Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management for biodiversity. ASN Bank wants to avoid not only direct involvement in activities that threaten biodiversity, but also indirect involvement in investments in such activities.

Finally, we analyse whether our investments comply with local biodiversity laws and regulations, such as the European Habitat and Bird Directive.

We may also select projects because they contribute to improving biodiversity.

Exclusion versus acceptance

Most times, a distinction cannot be made between not investing in activities that we disapprove and investing in those that we approve. When we do not invest in forestry without FSC certification, for example, this automatically means that we only invest in forestry with FSC certification. The outcome of these two choices is often the same. In both cases we must define sustainable forestry. To us, those definitions are the same. Exclusion of one activity automatically means acceptance of the other.

In practice, however, differences may occur because the question of exclusion (what we do not want) arises much more often than the question of acceptance (what we do want). There is a simple explanation for this: there are many more activities that do not meet our criteria than there are that do. Very few forestry activities, for example, meet ASN Bank's sustainability criteria and all investment conditions.

F. Biodiversity selection criteria for government bonds

We also assess countries with regard to their biodiversity performance. That performance is considered in the selection of government bonds. Countries that do not actively contribute to protecting biodiversity as they do not support the international conventions for the conservation of biodiversity listed below are excluded from investment. These conventions primarily focus on the conservation of species and ecosystems. The most important conventions we take into consideration in assessing government bonds are:

- Convention on Biological Diversity (CBD),
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),
- Convention on the Conservation of Migratory Species of Wild Animals,
- The International Treaty on Plant Genetic Resources for Food and Agriculture,
- Convention on Wetlands (also known as the Ramsar Convention),
- Unesco World Heritage Convention (WHC),
- UN Convention on the Law of the Sea,
- Cartagena Protocol.

Countries must also be among the better performers according to the following international indexes (see also the Government Bonds Policy Paper):

	Topic	Explanation of choice	Indicator
1.	Climate change	One of ASN Bank's main themes	Per capita emission of greenhouses gases
2.	Share of renewable energy	An important solution for climate change and energy issues	Hydropower and renewable energy as a percentage of the total electricity generated
3.	Nuclear energy	Leads to exclusion of companies	Per capita use or production
4.	Water pollution	Excellent indicator of a country's environmental policy	Phosphate and nitrate emissions into the water
5.	Air pollution	Excellent indicator of a country's environmental policy	Per capita emission of sulphur oxides
6.	Waste processing	Excellent indicator of a country's environmental policy	Paper and glass recycling
7.	Nature conservation	Important for biodiversity conservation	Share of protected nature reserves of the total

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Of these environmental topics, climate change (1), water pollution (4), air pollution (5) and nature conservation (7) are particularly important to biodiversity. We would note here that there is currently no good, useful global standard for water pollution.

G. Biodiversity and ASN Bank's other activities

Biodiversity and engagement

Interim evaluations of the investments in the universe of both the ASN funds and ASN Bank may reveal that a certain investment has a lower score than the rest of the sector in terms of biodiversity performance. This may ultimately lead us to withdraw the investment. Before we do so, we actively approach the relevant company or institution and ask that the biodiversity performance be improved. Our objective in doing so is to use this dialogue to encourage companies and institutions in the universe whose biodiversity performance is lagging behind to improve that performance. See also the ASN Bank Engagement Policy [10].

Biodiversity and voting

As investors in shares of listed companies, the ASN investment funds have voting rights. At shareholders' meetings, we vote in favour of measures to improve biodiversity performance and, when applicable, in favour of resolutions that link management remuneration to biodiversity performance. In the United States in particular, and in all likelihood elsewhere as well in the future, shareholder proposals are regularly included on the agendas of shareholders' meetings, asking companies to improve their biodiversity performance. Companies can do so by investing, for example, in offsets (such as planting new forest when clearing existing forests) or in sustainably produced raw materials. ASN Bank votes in favour of such proposals. When applicable, we also vote in favour of improved transparency regarding biodiversity performance and relevant objectives. See also the ASN Bank Voting Policy [11].

ASN Bank offices and biodiversity

Practice what you preach – that is our creed in translating ASN Bank's biodiversity policy for its own office organisation. ASN Bank has a single, relatively small office location. Our direct impact on biodiversity is limited as a result. In managing our impact on biodiversity, we focus on the climate and paper consumption. After all, these aspects are the most relevant to our office organisation. More detailed information regarding this subject can be found in the Climate Change Policy Paper.

In managing the impact its own organisation has on biodiversity, ASN Bank has two main objectives:

- ASN Bank will remain a completely climate-neutral office organisation;
- reduction of paper consumption per account.

ASN Bank's sub-objectives within the context of biodiversity are:

- reduction of the actual CO₂ emissions per FTE;
- use of only green electricity;
- complete setoff of all CO₂ emissions;
- company car scheme aimed at reducing the emission of greenhouse gases;
- organic catering (part of our sustainable purchasing policy);
- ecological garden maintenance;
- use of only FSC-certified, completely recycled paper.

Sources

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- [8] Social Responsibility Criteria for Companies that Purchase Soy and Soy Products, May 2004
- [9] ASN Bank GMO Policy memorandum, 26 November 2008
- [10] ASN Engagement Policy, April 2008
- [11] ASN Sustainable Voting Policy, March 2010

Appendices

Biodiversity, ecosystems and ecosystem services

Biodiversity is the diversity of plants, animals and microorganisms. Collectively these form a wide variety of ecosystems, which in turn provide various ecosystem services to mankind. These services can be threatened if an ecosystem loses strength when certain species disappear. Exactly how that works is something that we often do not know yet. This is yet another reason why we should be careful when interfering in biodiversity and ecosystems.

The services provided by ecosystems can be divided into the following four groups:

Goods	Cultural services	Regulating services	Supporting services
Food	Spiritual and religious values	Pollination	Oxygen production
Wood	Knowledge system	Disease regulation	Water cycling
Fuel	Education	Water storage	Fertile soil
Genetic resources	Inspiration	Climate regulation	Nutrient cycling
Fresh water		Erosion regulation	

Source: *Global Biodiversity Outlook 2, CBD, page 14*

An example of the introduction of an exotic and invasive species:

The Boskoop long-horned beetle

The Netherlands Plant Protection Service found three broad-leaved trees in Boskoop with the citrus long-horned beetle (*Anoplophora chinensis*). This is the second time in the Netherlands that plants in the public greenery have been adversely affected. To prevent the long-horned beetle from establishing a presence in the area, the Ministry of Agriculture, Nature and Fishery decided to remove all broad-leaved trees and shrubs from the area within a radius of one hundred metres from the original find.



Source: *Tuin & Landschap* 17 December 2009

An example of the consequences of climate change:

The oak processionary caterpillar

Oak processionaries are found in oak forests and lanes, and sometimes in gardens. Especially in oak lanes they can form a plague that should and sometimes must be controlled. The oak processionary is originally from South and Central Europe. They like warmth and nestle on the sunny southern side of oak trunks. Due to the warming climate in recent years, the oak processionary caterpillar can now survive in the Netherlands. Under certain conditions, such as a warm and dry spring, the caterpillars can cause plagues. This species was only seen in the Netherlands a few times before 1980. Since 1987 it has been a common species in the Province of Noord-Brabant and the adjacent part of the Province of Limburg. The species has been expanding its habitat since 1996; procreation has now been observed in the more central regions of Achterhoek, Veluwe and Utrecht. Roaming male oak processionary moths can be found virtually everywhere in their habitat. Roaming males are also regularly found to the north and west of the areas mentioned. The number of oak processionaries fluctuates significantly from year to year.



Source: www.natuurkalender.nl

An example of pollution:

Atrazine

Herbicide emasculates frogs

One frog species after another has been disappearing in recent years. This is not caused by climate change, but by an agricultural pesticide.

Atrazine is a herbicide. It is a chlorine compound that degrades with difficulty and remains toxic for an extremely long period. This toxic substance ends up in groundwater and surface water, making male frogs impotent.

Source: *Trouw*, 4 March 2010



An example of overexploitation:

European eel

A well-known victim of overexploitation is the European eel. This fish species was abundant only a few decades ago. However, the popularity of smoked eel in the Netherlands and elvers in England has brought the eel to the verge of extinction. Environmental organisations claim that a complete ban on fishing eel for multiple years is the only way to re-establish the eel population.



Source: IUCN Red List, European Eel

An example of loss of biodiversity due to changes in land use:

Palm oil

Palm oil is used in an increasing number of products: it is already found in nearly 60% of all supermarket products. Due to the increasing demand for palm oil, more and more tropical rainforest is being cleared for use as palm oil plantations. These agricultural sites have no biodiversity value whatsoever, while the extensive biodiversity with many hundreds of species of trees and tens of thousands of other species is what makes tropical rainforests so unique. These monocultures also exhaust the soil, ultimately creating infertile deserts.



Source: www.rspo.org

