

# Advisory report

## **RLG 05/8a: 2004-2005 winter mortality in large herbivores in the Oostvaardersplassen**

**Advisory report by the Council on Animal Affairs and the Council for Rural Areas - June 2005**

The Minister of Agriculture, Nature and Food Quality  
Dr. C.P. Veerman  
Postbus 20401  
2500 EK Den Haag

*Number:* RDA/2005/290 and RLG 2005.174

*Date:* 14 June 2005

*Re:* Advice on winter mortality in the Oostvaardersplassen

Dear Dr. Veerman,

The Permanent Committee on Agriculture, Nature and Food Quality asked you to evaluate, in consultation with the Council on Animal Affairs (RDA), the situation which arose last winter in relation to the red deer, cattle and horses in the Oostvaardersplassen. The RDA advises on strategic issues in the area of health and welfare of farmed animals, while the animals in the Oostvaardersplassen are not farmed. For this reason you also asked the Council for Rural Areas (RLG) to advise on the requested evaluation. Your requests for advice were sent on 26 May 2005.

Delegations from the Councils compiled a joint advisory report, which we present to you here. The Councils themselves will give their definitive opinions in their forthcoming meetings on 23 June (RLG) and 28 June (RDA).

The Councils were unable to reach consensus on the issue of 'birth limitation'. The Council on Animal Affairs argues in favour of research into this management measure which can help to limit the number of animals, while the Council for Rural Areas rejects it on principle as contrary to the principles of the most natural possible management.

Our recommendations are:

- to accept in principle that ecological management leads to periods of reduced well-being in large herbivores;
- to optimise management by refining the 'predator model' and adding extra area to the land currently available in order to reduce suffering to a minimum;
- to raise public awareness of this form of management.

Yours sincerely,

Prof. C.J.G. Wensing  
*Chair, Council on Animal Affairs*

Prof. H.J.L. Vonhoff  
*Chair, Council for Rural Areas*

## **1. Introduction**

The Permanent Committee on Agriculture, Nature and Food Quality asked the Minister of Agriculture, Nature and Food Quality to carry out an evaluation, in collaboration with the Council on Animal Affairs, of the situation last winter in relation to the red deer, cattle and horses in the Oostvaardersplassen. The Minister sought advice from the Council on Animal Affairs (RDA) and the Council for Rural Areas (RLG). In the request for advice he indicated that the RDA advises on strategic issues in the area of health and welfare of farmed animals, while the animals in the Oostvaardersplassen are not farmed. For this reason the Minister also asked the Council for Rural Areas (RLG) for its advice .

The Minister requested that the advice be based in part on data from the State Forest Service and that it should in any case examine the relationship between ecological management of the populations of Heck cattle, Konik horses and red deer on the one hand, and animal welfare on the other.

Delegations from the Councils have compiled a joint advisory report in which recommendations are made for a responsible balance between ecological and welfare objectives, based on the policy and management strategies pursued and their impact on large herbivores.

## **2. Policy context of management strategy**

The Oostvaardersplassen is managed as a 'near-natural' reserve. This form of management was selected in the 1989 Nature Policy Plan. It aims to facilitate natural processes as far as possible and, as an extension of this, to reduce human intervention to a minimum. This policy is elaborated in the development vision 'More natural Oostvaardersplassen' (Oostvaardersplassen Management Committee, 1995).

The Animal Health and Welfare Act (GWWD) and the Flora and Fauna Act form the legal framework for the management of animals. The legislation is given concrete form in the 'Ethical Guidelines' of the State Forest Service and the Dutch Animal Protection Society and in the Guidelines for Large Herbivores laid down by parliament. The legislation is further elaborated by the manager, with the assistance of a scientific advisory committee, in the 'predator model'. The existing guidelines are correctly applied in management. The Councils note that the current legislation is adequate, but that it could be better implemented to improve welfare. The situation which has now arisen is a logical consequence of choices made in the past.

## **3. The herbivore situation**

Data from the State Forest Service show a rising trend in mortality in all three types of animal in recent years. Winter mortality in 2004-2005 fits into the trend but was exacerbated by a cold snap and snow at the beginning of March. This raises the issue of what might happen in future winters. The mortality trends are shown in the appendix. Natural death was caused by poor condition due to food shortage and changing weather conditions late in the winter, which meant that reserves were used up more rapidly. As weather and food conditions vary from year to year, annual fluctuations in mortality and growth mean that the size of the stable population also varies.

The process of death was accelerated by culling 70 per cent of the Heck cattle, 65 per cent of the horses and 57 per cent of the red deer. It was not possible to shoot the other dying animals

for a number of reasons:

- it would cause too great a disturbance to the other animals in the herd
- individual animals could not be located;
- uncertainty on the part of the manager about the animals' individual chances of survival.

The cull percentage is relatively low because with the prospect of the approaching spring, which ultimately took longer to arrive than expected, animals' chances of survival were overestimated, and when selecting for the cull animals were given the benefit of the doubt.

#### **4. Policy and management strategy**

Management in the Oostvaardersplassen aims to give maximum scope to natural processes. This translates into free free-ranging, undisturbed herds of red deer, Heck cattle and Konik horses. The Oostvaardersplassen is one of only a few areas in the Netherlands where the lead is taken from nature. Management in which there is no human direction, and nature takes its course (process management), can have as yet unknown - positive and negative - effects in terms of natural processes and the social behaviour of herbivores.

In other areas there is continual human intervention and the human vision sets the agenda for how 'nature' should be. By estimating in advance how many animals an area can support, in terms of food supply, (the carrying capacity of an area) and gearing the number of animals to this, Man is giving direction and creating the 'nature' which he himself expects. In this ('harvest') type of management, a number of animals have to be removed each year to keep numbers in line with carrying capacity.

The management strategy applied in the Oostvaardersplassen means that the maximum carrying capacity of the area is reached. Of course there are annual fluctuations in the carrying capacity of an area. Consequently the number of herbivores can exceed the carrying capacity and food shortages can arise on a yearly basis. A sudden reduction in carrying capacity can also cause unexpected winter mortality rates in other reserves where animals are culled in summer to keep numbers in line with carrying capacity.

For the animals this type of management means that there are periods when food is scarce. In every ecosystem the number of animals is regulated by the availability of food: scarcity leads to increased mortality as well as natural birth limitation and predation. The carrying capacity of areas is in principle always reached as the number of animals increases, including areas which are bordered by barriers (water in the case of islands, impenetrable biotopes such as open spaces for forest animals, hedges on farmland). A food shortage is a natural phenomenon in winter and animals can even go hungry in situations where there is actually enough food available. As part of their natural behaviour and social interaction, animals sometimes do not seek out sources of food which are available some distance away. They keep to their own territories, even if this leads to starvation. In extreme weather conditions red deer stay in forests and die there, even if food is available outside. Even roe deer, which are capable of penetrating the hedges around the Oostvaardersplassen, are subject to winter mortality.

Despite adapting to food shortages, in some winters the weaker animals cannot survive the period of scarcity. The manager ends the life of these animals by shooting them before they die naturally. In principle they will be shot two weeks before they would die naturally. Removing animals at that point (and not much earlier) ensures that animals are selected which will not survive the winter, so that the herds are still made up of strong animals. The management strategy pursued on the advice of the Scientific Advisory Committee of the State

Forest Service is referred to as the 'predator model', as it imitates natural selection (separating the stronger and weaker animals according to their chances of winter survival). The manager acts as the 'predator' providing for 'natural' selection, where there are no natural predators such as wolves.

## **5. The consequences of the policy and management strategy**

Food shortages are part of the natural processes and animals adapt to this by laying down reserves of fat, and changing their behaviour and metabolism to save energy. The animals rest completely. When fat reserves are reducing in winter red deer go into a winter rest state with a reduced metabolic rate, bodily functions and temperature. By doing this they achieve a state which is functional for survival. It is likely that Heck cattle and Koniks also adapt to situations where their reserves of fat are low. This is in contrast with farm animals which are selected for maximum meat and milk production. In these breeds the ability to lay down reserves of fat is (partly) selected out, so they have fewer mechanisms for dealing with food shortages. If suffering is to be limited animals must be able to behave according to their nature, including ranging freely and seeking out a peaceful place to die, in familiar surroundings. We do not yet know to what extent targeted breeding, increasing wildness and the management strategy of selecting for strong animals have enabled the animals to adapt to food shortages.

The management strategy has a number of implications for the welfare of large herbivores:

- living in undisturbed herds is the best way to enable natural behaviour and gives all the animals complete autonomy within the boundaries of the area. Freedom of movement within an area, self-selection of food in times of plenty, free choice of partners and other social interactions contribute to the best welfare according to current thinking;
- suffering is caused by periods of hunger, and for some animals, death, due to the exhaustion of fat reserves, muscle degradation and ultimately cachexia. This happens at the end of the winter period.

The management strategy within the ecosystems leads to:

- greater diversity of species, which provides new scope for species which had previously died out in the Netherlands;
- the occurrence of natural processes, which is an explicit objective of nature policy
- the occurrence of unknown interactions within the system, for example, unexpected changes in the pattern of vegetation. Knowledge of these processes is important for the purposes of nature management, but unfortunately they are not currently being researched.

In every life there are times of better and worse health and welfare. The Councils consider that suffering must be accepted in principle as part of life. Food shortages and death are a natural factor. Lack of food and subsequent death are the primary process in nature whereby animal numbers are regulated. From the principle of natural selection we can expect animals, particularly those which live in social groups have natural mechanisms to minimise suffering in the event of food shortages and associated death, such as the production of endomorphins which act as an analgaesic.

Any judgement as to how far suffering caused by the management strategy is acceptable must be made in the context of the other consequences of the management strategy.

An assessment of welfare cannot be based on a period of a few weeks in a life of many years which may have a high level of welfare, even over the winters. It is important to consider the 'welfare balance'. In animal welfare policy it is customary to weigh the level of suffering

against the function of the suffering. Examples include decisions made in animal farming (welfare versus economic benefit) and in animal experiments (welfare versus increasing knowledge for the development of medicines).

Set against the suffering at the end of the winter period there is:

- a high level of welfare during the rest of the year for the individual concerned: both in absolute terms and in comparison with farm animals: no disruption of natural behaviour through human intervention and therefore full development of natural behaviour, including selection of food plants, free choice of partner and other social interactions. All the individuals in the Oostvaardersplassen live out a natural life with minimal human interference;
- an ecosystem with scope for the return of extinct species and for natural processes.

## **6. Opportunities to increase welfare by adapting management strategies**

The following options are theoretically available to minimise suffering:

- increasing the area of available land (in the reserve);
- removal of animals prior to winter (by catching them);
- removal of animals prior to winter (by culling);
- supplementary feeding;
- optimising current management practices.

### ***Increasing the area of land available (access to *Hollandse Hout*, *Kotterbos*, link with *Veluwe*)***

Increasing the size of the area offers the animals:

- a greater and more varied food supply, so that they will be in better condition for the winter;
- more varied winter habitat than is currently available;
- more space and therefore better life-long welfare;
- more options for dealing with fluctuating weather conditions.

This option would increase welfare compared with the current management practice. On the main point, winter mortality would not be prevented, because even if an area is larger the carrying capacity will still be reached, and the same processes will take place. However this measure could level out the major differences between the rich summer and poor winter habitat.

### ***Removal of animals prior to winter (by catching them)***

Removal of animals leads to a reduction in numbers and so to more food per individual.

The following factors must be considered:

- catching animals and removing them in cattle trucks places a great deal of stress on both the animals concerned and other animals in the herd;
- animals still die in the winter since it is not really possible to make a proper selection of strong and weak animals in the summer;
- weaker animals remain part of the gene pool as it is not really possible to select for strength and weakness;
- it would necessitate ear-tagging. The legislation does not permit the removal (transportation) of non-tagged animals. If animals are consistently transported out of reserves the law will require tagging;
- in due course there will be difficulty in finding anywhere to send the animals, as all reserves

with a surplus of grazing animals will be confronted with the same problem and a cull will become inevitable.

Compared with current practice this option would not improve welfare, because of the stress caused to large numbers of animals. On this basis the Councils consider this option to be undesirable.

### ***Removal of animals prior to winter (by culling)***

Removal of animals leads to a reduction in numbers and so to more food per individual.

The consequences of a summer cull are:

- loss of welfare, as it shortens the life of the individual;
- weaker animals remain part of the gene pool as it is not possible to select properly for strength and weakness;
- animals still die in the winter since it is not really possible to make a proper selection of strong and weak animals in the summer;
- animals are culled - as an intervention this is diametrically opposed to the principles of natural management.

On this basis the Councils consider this management option to be undesirable.

### ***Supplementary feeding***

Supplementary feeding leads to better condition in the animals and so to fewer deaths.

It also entails:

- deferring the problem: the following winter there will be more animals and the carrying capacity will be further exceeded;
- the need to remove or cull animals;
- increased competition between strong and weak animals, so that it will be mainly the stronger animals that benefit from the extra feed;
- stress due to jostling and crowding at feeding sites and disruption of the social order in the herd;
- counteraction of natural birth limitation caused by food shortage, so that the population growth continues unabated. Because there is limited scope for individual rations (the strong animals will take a relatively large share of the feed) supplementary feeding in winter can lead to [a surge in] fertility late in the season, and late births, just before winter sets in. This reduces the survival chances of both cow and calf. Experiments with supplementary feeding by the Society for the Preservation of Natural Monuments were discontinued for this reason. Compared with current practice, this option would not improve welfare because of the increased stress caused to large numbers of animals. For this reason, barring disasters, the Councils consider this management option to be undesirable.

### ***Optimising current management practice***

Changing management practice offers scope to alleviate the suffering of moribund animals.

Around 30 to 43 per cent of the moribund animals were not culled in the winter of 2004-2005 and lowering this percentage would reduce suffering.

Options are:

- *Culling earlier*

Bringing forward the culling of animals in hopeless situations will alleviate suffering. Earlier culling would have to be incorporated into the 'predator model' so that the element of selection is still present, but action is taken at an earlier stage. There is also an increased risk that animals which are strong enough to survive the winter will be culled. Research will be

required to refine the selection method.

- *Increase opportunities to put animals down without disturbing the herd*

Animals that stay with the herd are not shot, as this would cause unrest in the herd in the vulnerable winter period. By using silencers (which were not previously available) it will be possible in future to cull animals within the herd. Compared with current practice, this option would improve welfare.

### ***Conclusions***

- Supplementary feeding and removal of animals before winter can in principle prevent hunger and winter mortality but they have other very negative effects for the wellbeing of individuals and herds. These management strategies are at odds with the objective of ecological management (letting nature take the lead) in the Oostvaardersplassen;
- Optimising current practice (refining the 'predator model') and increasing the area of available land, particularly if this creates a better winter habitat, will achieve adequate improvement in the welfare of the animals and contribute to the ecological objectives of the management strategy.

### **7. Social acceptability**

Winter mortality attracted attention from visitors, the press and parliament. Experience gained by the State Forest Service and the Society for the Preservation of Natural Monuments in dealing with local people and visitors to nature reserves shows that the greater the distance between the public and the problem on the ground, the stronger the rejection of the management strategy. Explaining the management strategy can improve public understanding, to the point where people realise that domestic pets, farm animals and wild animals are essentially different from each other, and this impacts on their evaluation of the management strategy. Public acceptance depends partly on the availability of information about the significance of suffering. The State Forest Service and the Society for the Preservation of Natural Monuments have found that the majority of people who are initially sceptical have a better understanding and are more willing to accept the management strategy once it is explained to them.

### **8. Summary, conclusions and recommendations**

A political decision was taken to apply ecological management in the Oostvaardersplassen. Current policy is correctly applied in the management strategy. The situation which has now arisen is a consequence of choices made in the past. It led to public debate and a review of the strategy adopted to identify ways of minimising suffering.

The Council delegations drew the following conclusions:

- Supplementary feeding and the removal of animals before the winter may in principle reduce hunger and natural winter mortality rates but will have other and greater negative consequences for the welfare of individuals and herds. These management strategies conflict with the objective of ecological management in the Oostvaardersplassen;
- Optimising current practice by refining the 'predator model' and adding extra area to the land currently available will improve animal welfare sufficiently and contribute to the ecological management objectives, as long as it provides a better winter habitat;
- The adaptations to management practices must be monitored for their impact on welfare and the ecological objectives. Research is required to refine management strategies.

The Council delegations take the view that following the proposed adaptations to management the periodic suffering and natural death of individuals are justifiable since they are outweighed by better welfare during the rest of the animals' lives, improved welfare for the animals that do survive and the raising of nature values in the Oostvaardersplassen.

The Council delegations recommend:

- acceptance of the principle that ecological management leads to periods of reduced welfare in large herbivores;
- optimisation of current management by refining the 'predator model' and adding extra land to the available area to reduce suffering to a minimum;
- raising public awareness about this form of management.

### ***Preparation of the report***

This advisory report was prepared by a working group consisting of Mrs F.G. van Diepen (vice-chair Council for Rural Areas), Mr P. Nijhoff (member of the Council for Rural Areas), Mr S.J. Schenk (member of the Council on Animal Affairs) and Mr J.J. Snoep (Council on Animal Affairs external expert). They were assisted by P.A. Overgaauw, deputy secretary of the Council on Animal Affairs and B.H. van Leeuwen, deputy secretary of the Council for Rural Areas. The following people were consulted during the preparation of the report: Mr C.J.G. Wensing (Council on Animal Affairs), Mr J.T. Postumus Meyjes (Dutch Animal Protection Society), Mr H. Massop (Society for the Preservation of Natural Monuments) and Mr F. Boersma (State Forest Service).

### **Appendix**

In January 2005 there were approximately 3100 animals in the Oostvaardersplassen, made up of: around 1550 red deer, 665 Heck cattle and 880 Konik horses. In the 2004/5 winter period the following numbers died: 340 red deer (22 per cent of the population), 231 Heck cattle (34 per cent) and 126 Koniks (14 per cent).

The table below shows the trend in mortality in recent years (as a percentage of the total population):

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Edelhert	2	2	3	2	5	4	4	2	9	8	22
Konik	1	6	4	4	5	5	6	8	10	14	14
Heckrund	4	7	6	9	20	7	20	13	26	7	34

Source: State Forest Service