



Literatuur over de stuurbaarheid van ganzen d.m.v. bejaging of ondersteunend afschot

Geachte bestuursleden,

Vanuit de CO werd de vraag gesteld, of er wetenschappelijke studies verricht zijn die de stuurbaarheid van ganzen onder invloed van bejaging of ondersteund afschot aantonen. Aanleiding hiervoor waren de resultaten van het onderzoek t.b.v. de tussentijdse evaluatie van het beleidskader faunabeheer (van der Zee *et al.* 2009 en deelrapporten) waaruit naar voren is gekomen dat de werking van het opvangbeleid en de stuurbaarheid van overwinterende ganzen slechts beperkt is.

Hiertoe is een beperkte literatuurstudie uitgevoerd. Er zijn weinig Nederlandse studies voorhanden over dit onderwerp. Uit Ebbinge *et al.* (2000) komt naar voren dat ganzen te sturen zijn naar opvanggebieden d.m.v. gerichte verjaging, zoals in Dongeradeel is aangetoond. Ebbinge (2003) bericht dat door bejaging, ganzen geconcentreerd kunnen worden binnen aangewezen gebieden. Waarbij opgemerkt wordt dat hiervoor enige gewenningstijd nodig is, alsook voldoende voedsel binnen het opvanggebied over de opvangperiode.

In Noorwegen bleek het mogelijk door intensieve verjagingsacties ganzen van de schadegevoeligste percelen te weren (Tombre *et al.* 2005). Ook andere studies toonden aan dat bij een bepaalde mate van jachtdruk een ruimtelijke herverdeling van ganzen plaatsvond. Zo werd in Schotland (Percival *et al.* 1997) vastgesteld dat brandganzen zich meer concentreerden in gebieden die niet verstoord werden. In Noord-Amerika bleek de trek van de sneeuwvangans onder de invloed van jacht ruimtelijk beïnvloed te worden (Béchet *et al.* 2003). Verder kwam uit Madsen (2001) naar voren dat ganzen eerder gebieden met een hoge jachtdruk vermijden door verplaatsing naar gebieden met geen of weinig jacht, dan dat ze hun dagritme aanpassen.

De literatuurstudie van Conover (2001) naar de invloed van jacht op ontstane schade, wijst drie mogelijke manieren aan: (1) populatie aanpassen op basis van maatschappelijke draagkracht, (2) populatiereductie en (3) het gedrag van schade veroorzakende dieren wijzigen.

Het technisch rapport voor de omgang met Canadese ganzen in stedelijke gebieden (Smith *et al.* 1999) geeft aan dat gewenning op kan treden bij preventieve middelen, d.m.v. het afschot van enkele dieren wordt gewenning voorkomen. Ook Gilsdorf *et al.* (2002) stelt dat gewenning de werking van preventieve middelen kan verminderen of te niet kan doen. Om gewenning te voorkomen is afwisseling van preventieve maatregelen belangrijk, ook de inzet van dodelijke methoden zoals afschot voorkomt het optreden van gewenning.

Beslispunten:

Is het bestuur met de bevindingen uit deze literatuurstudie voldoende ingelicht over de wetenschappelijke studies die naar de stuurbaarheid van ganzen dmv afschot verricht zijn?

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Mr. Ing. H. Revoort

Referenties:

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Ebbinge, B.S. (2003) Advies aan Faunafonds inzake heropening jacht op kolgans, grauwe gans en smient. Wageningen, Alterra. Rapportnummer 802.

Gill, J.A. (1996) Habitat choice in pink-footed geese: quantifying the constraints determining winter site use. *Journal of Applied Ecology* 33: 884-892.

Gill, J.A., Sutherland, W.J. & Watkinson, A.R. 1996: A method to quantify the effects of human disturbance on animal populations. - *Journal of Applied Ecology* 33: 786-792.

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Madsen, J. (2001) Can geese adjust their clocks? Effects of diurnal regulation of goose shooting. *Wildlife Biology* 7: 213-222.

Percival, S.M., Y. Halpin and D.C. Houston (1997) Managing the distribution of barnacle geese on Islay, Scotland, through deliberate human disturbance. *Biological Conservation* 82 (3): 273-277.

Smith, A. E., S. R. Craven, and P. D. Curtis (1999) Managing Canada geese in urban environments. Jack Berryman Institute Publication 16, and Cornell University Cooperative Extension, Ithaca, N.Y.

Tombre, I.M., J. Madsen, H. Tømmervik, K.P. Haugen & E. Eythórrsson (2005) Influence of organised scaring on distribution and habitat choice of geese on pastures in Northern Norway. *Agriculture, Ecosystems and Environment* 111: 311–320.

Abstracts

Béchet, Giroux, Gilles Gauthier, Nichols and Hines (2003) Spring hunting changes the regional movements of migrating greater snow geese. *Journal of Applied Ecology* 40, 553–564.

1. Human-induced disturbance such as hunting may influence the migratory behaviour of long-distance migrants. In 1999 and 2000 a spring hunt of greater snow geese *Anser caerulescens atlanticus* occurred for the first time in North America since 1916, aimed at stopping population growth to protect natural habitats.
2. We evaluated the impact of this hunt on the staging movements of geese along a 600-km stretch of the St Lawrence River in southern Quebec, Canada.
3. We tracked radio-tagged female geese in three contiguous regions of the staging area from the south-west to the north-east: Lake St Pierre, Upper Estuary and Lower Estuary, in spring 1997 (n = 37) and 1998 (n = 70) before the establishment of hunting, and in 1999 (n = 60) and 2000 (n = 59) during hunting.
4. We used multi-state capture–recapture models to estimate the movement probabilities of radio-tagged females among these regions. To assess disturbance level, we tracked geese during their feeding trips and estimated the probability of completing a foraging bout without being disturbed.
5. In the 2 years without hunting, migration was strongly unidirectional from the south-west to the north-east, with very low westward movement probabilities. Geese gradually moved from Lake St Pierre to Upper Estuary and then from Upper Estuary to Lower Estuary.
6. In contrast, during the 2 years with hunting westward movement was more than four times more likely than in preceding years. Most of these backward movements occurred shortly after the beginning of the hunt, indicating that geese moved back to regions where they had not previously experienced hunting.
7. Overall disturbance level increased in all regions in years with hunting relative to years without hunting.
8. Synthesis and applications. We conclude that spring hunting changed the stopover scheduling of this long-distance migrant and might further impact population dynamics by reducing pre-nuptial fattening. The spring hunt may also have increased crop damage. We propose that staggered hunt opening dates could attenuate secondary effects of such management actions.

Conover, M.R. (2001) Effect of Hunting and Trapping on Wildlife Damage. *Wildlife Society Bulletin* 29(2): 521-532.

Hunting and trapping regulations are established so that these practices have little or no impact on those wildlife populations that do not cause damage. However, when wildlife populations cause significant damage, one reported benefit of allowing them to be trapped for furs or hunted is that these practices reduce wildlife damage below levels that would otherwise occur. Yet this reported benefit has not been examined critically. In this paper, I review the scientific literature to evaluate the hypothesis that hunting or fur trapping reduces wildlife damage. Hunting and trapping may reduce wildlife damage by 1) reducing wildlife populations below the environmental carrying capacity, 2) removing animals from the population before they would otherwise die, or 3) changing behaviour of wildlife. It also can increase landowner tolerance of wildlife damage. Use of hunters and trappers is the most cost-effective method available to society to reduce wildlife populations, especially over large areas. Sometimes, efforts to use hunters and trappers to reduce wildlife populations are ineffective because there are too few hunters and trappers or too much

land is off-limits to them. However, hunting and trapping can reduce populations below the environmental carrying capacity and reduce damage to crops from species which are trapped or hunted intensively, such as white-tailed deer (*Odocoileus virginianus*). For other game and furbearer species, hunting and trapping also may alleviate wildlife damage, but do so primarily by changing animal behaviour. Finally, hunting and trapping may increase wildlife value and increase the willingness of landowners to tolerate damage from wildlife.

Ebbinghe, B.S., G.J.D.M. Müskens, J.G. Oord, A.J. Beintema & N.W. van den Brink (2000) Stuurbaarheid van ganzen door verjaging en flankerende jacht rondom het ganzenopvanggebied Dongeradeel. Wageningen, Alterra. Rapportnummer 128.

De stuurbaarheid van ganzen is in 1999/2000 onderzocht in een proefgebied in NO-Friesland. In de periferie (ca. 9.000 ha) van het ganzenopvanggebied Oost-Dongeradeel (ca. 2.200 ha) zijn ganzen bejaagd en verjaagd teneinde ze te concentreren in het opvanggebied en landbouwschade in het perifere gebied te minimaliseren. Het effect van deze verjagingsacties op ganzen is bestudeerd door individueel gemerkte Kolganzen intensief te volgen. Kolganzen werden hiertoe gemerkt met halsbanden en kleine, in de halsband ingebouwde, VHF-zenders. Door wekelijkse tellingen werd verspreiding en talrijkheid van alle ganzensoorten vastgelegd. De landbouwschade in het perifere gebied daalde in vergelijking met een seizoen dat er alleen gejaagd en niet gecoördineerd verjaagd werd (1997/1998) van F.350.000,- tot F.150.000,-. Binnen het opvanggebied kwamen Kolganzen meer verspreid en in kleinere groepen voor en vertoonden meer plaatstrouw. In het verjaaggebied kwamen Kolganzen in veel grotere groepen voor, en doken ook vaker nieuwe ganzen op. Ruim de helft van de ganzen trok direct door naar andere pleisterplaatsen in Nederland en Duitsland. In een gebied, waar ganzen niet verjaagd werden, bleken Kolganzen veel zwaarder te zijn, zodat verjagingsacties zeer waarschijnlijk de conditie van ganzen beïnvloeden.

Ebbinghe, B.S. (2003) Advies aan Faunafonds inzake heropening jacht op kolgans, grauwe gans en smient. Wageningen, Alterra. Rapportnummer 802.

Ter onderbouwing van het door het Faunafonds aan de minister van LNV uit te brengen advies betreffende het heropenen van jachtmogelijkheden op de kolgans, grauwe gans en smient is een analyse gemaakt van de te verwachten effecten van de voorgestelde maatregelen. Dit betreffen effecten op de aantallen en verspreiding van deze drie vogelsoorten in een internationale context en te verwachten effecten op de kosten die binnen Nederland gemaakt moeten worden voor ganzenopvang en vergoeding van landbouwschade. Deze analyse is gemaakt met gebruikmaking van bestaande gegevens, waarbij geput is uit de gepubliceerde literatuur, de populatieschattingen uit de databank van Wetlands International, ongepubliceerde gegevens van het ringonderzoek aan kolganzen door Alterra, en de door het Faunafonds geleverde gegevens over de wildschade sinds 1990. Er is aangegeven aan welke randvoorwaarden voldaan moet worden om te voorkomen dat de aantallen ganzen opnieuw gedecimeerd worden, zoals voor 1970 het geval was. Na 1970 heeft het twintig jaar geduurd voordat de aantallen ganzen zich weer hersteld hadden. Inmiddels zijn de meeste populaties vertienvoudigd. Gezien de lange tijdsduur van herstel is de nodige voorzichtigheid geboden bij heropening van de jachtmogelijkheden. Regulering van de aantallen ganzen en smienten en hun verspreiding door jacht is bij de huidige populatieniveaus een mogelijkheid om toename van de overheidskosten om landbouwschade te beperken die deze populaties niet in hun voortbestaan bedreigt. Door de decentralisatie van het jachtbeleid rust op de provincies een zware taak de internationale verplichtingen ter bescherming van trekvogels die Nederland is aangegaan (*African Eurasian Waterbird Agreement*) concreet vorm te geven.

Gill, J.A., Sutherland, W.J. & Watkinson, A.R. 1996: A method to quantify the effects of human disturbance on animal populations. - *Journal of Applied Ecology* 33: 786-792.

1. The extent and consequences of human disturbance on populations of vertebrates are contentious issues in conservation. As recreational and industrial uses of the countryside continue to expand, it is becoming increasingly important that the effects of such disturbance on wildlife are quantified.
2. This study describes a method of quantifying the effect of disturbance, based on measuring the trade-off between resource use and risk of disturbance. This approach is based on one used by ethologists to study the effects of predation risk on patch use.
3. Pink-footed geese, *Anser brachyrhynchus*, feeding on arable fields, are highly responsive to disturbance from surrounding roads. The extent to which these fields are exploited declines linearly with increasing risk of disturbance. The reduction in use of these feeding grounds caused by disturbance can be quantified by translating the biomass of food not exploited into the number of birds that this food could have supported.
4. This approach allows both quantification of the impact of disturbance on a population, and exploration of the potential consequences of changes in disturbance on the size of populations.

Gill, J.A. (1996) Habitat choice in pink-footed geese: quantifying the constraints determining winter site use. *Journal of Applied Ecology*, 33: 884-892.

1. A number of bird species are considered both as pests of agricultural land and as species of conservation interest. There is a clear need to manage land in such a way as to alleviate this conflict. This requires detailed knowledge of habitat choice and use by the species concerned. Over 85% of the world population of pink-footed geese winter in Britain and throughout their winter range they use crops vulnerable to damage from grazing.
2. The number of geese that a wintering area can support depends on the amount of food in that area and the restrictions limiting their use of this food source. Such restrictions may include travel distance from the roost site, selection of sites within the feeding range and the extent to which these sites are exploited.
3. The geese roosting at Scolt Head Island, north Norfolk were studied from 1990 to 1993. Study fields predominantly contained three crop types: the stubble remains of harvested cereal fields, sugar beet and winter-sown cereals. For most of the winter the geese fed predominantly upon the harvested remains of sugar beet, a crop which only occurred on between 8 and 13% of fields. Beet fields closest to the roost site were used first and the geese fed further from the roost as the beet remains in these fields was depleted. Small fields were avoided by the geese. Fields closer to roads were used significantly less.
4. The harvested remains of sugar beet are of virtually no commercial value in this area. However, the geese also use winter cereals on which they are regarded as pests. By minimizing disturbance of geese on sugar beet, farmers could potentially increase the amount of time geese spend on beet by up to 80%. The total area of beet remains could be increased by reducing winter sowing of cereals; this would be especially effective on fields close to the roost site. These measures together are likely to reduce significantly the exploitation of vulnerable cereal fields by geese.

Giltsdorf, J.M., S.E. Hygnstrom and K.C. VerCauteren (2002) Use of Frightening Devices in Wildlife Damage Management. *Integrated Pest Management Reviews*, 7(1): 29-45.

Wildlife is often responsible for causing extensive damage to personal property, human health and safety concerns, and other nuisance problems because of their feeding, roosting, breeding, and loafing habits. Frightening devices are tools used in integrated wildlife damage management to reduce the impacts of animals, but the effectiveness of such devices is often variable. An animal's visual and auditory capabilities affect how the animal will respond to a stimulus. Frightening devices include pyrotechnics, gas exploders, effigies, lights, lasers, reflective objects, guard animals, bioacoustics, and ultrasonic devices. We examined scientific literature on the use of frightening devices to reduce bird and mammal depredation and compiled results to determine the effectiveness of such devices. When used in an integrated system, frightening devices may be more effective than when used alone. We conclude that the total elimination of damage may be impossible, but frightening devices and/or combinations of devices are useful in reducing wildlife damage. Ultrasonic frightening devices are ineffective in repelling birds and mammals whereas other devices offer some protection. The timely use of a variety of frightening devices can be part of a cost-effective integrated system to reduce wildlife damage to tolerable levels.

Madsen, J. 2001: Can geese adjust their clocks? Effects of diurnal regulation of goose shooting. - *Wildlife Biology*. 7: 213-222.

Since 1994, goose shooting in Denmark has only been allowed from 11/2 hours before sunrise to 10 a.m. (since 1997 until 11 a.m.). The aim of the diurnal regulation was to provide autumn-staging and wintering geese with more undisturbed feeding opportunities, and hence to extend the length of their stay in Danish haunts. A field study was carried out during 1994-1997 to investigate the effects of the regulation on the behaviour and site use by geese, focused on greylag geese *Anser anser* and pink-footed geese *Anser brachyrhynchus* at three important Danish sites. Data from earlier studies and monitoring schemes provided baseline information. In one study area with low shooting intensity, greylag geese did not change the timing of their morning departure from the roost to the feeding areas. In two sites with higher shooting intensities, they gradually delayed their morning departure from the roosts over the years. In the two sites with intensive shooting, greylag geese redistributed themselves during the daytime, albeit in small numbers. In the site with low shooting intensity, greylag geese depleted the waste grain resources, the preferred food. In the two sites with higher shooting intensities, the geese left while food was still plentiful. Pink-footed geese did not change their roost flight departure and only marginally redistributed themselves during the daytime. In sites where shooting-free areas were established, numbers of greylag and pink-footed geese immediately increased. The weak reaction by the geese to diurnal regulation was not due to a lack of behavioural flexibility in response, but reflected the fact that staying and adjusting to the diurnal regulation was a less attractive option than moving on to less disturbed sites. In conclusion, the diurnal shooting regulation did not achieve the intended management objectives.

Percival, S.M., Y. Halpint and D.C. Houston (1997). Managing the distribution of barnacle geese on Islay, Scotland, through deliberate human disturbance. *Biological Conservation* 82 (3): 273-277.

A programme of disturbance was used during 1987/1988 to manipulate the feeding areas used by barnacle geese, *Branta leucopsis*, on the Isle of Islay, Scotland. A reduction in the numbers of

geese using the disturbed areas of just over 50% was recorded. Observations of marked individuals showed that there was increased movement to undisturbed sites and a slightly increased immigration rate, but many individuals persisted in using heavily disturbed sites. There was no evidence of reduced breeding success in the following summer as a consequence of wintering in the scaring zone. High labour costs meant that the scheme was not economic, but modifications for more cost-effective operation in the future are suggested. More birds used protected refuges but the longer-term impact of scaring on population viability would need to be investigated before such a scheme was adopted.

Smith, A. E., S. R. Craven, and P. D. Curtis. 1999. Managing Canada geese in urban environments. Jack Berryman Institute Publication 16, and Cornell University Cooperative Extension, Ithaca, N.Y.

Noisemaking devices (P. 18.)

Use of these techniques in close proximity to human activities or houses may be unacceptable and may require permits or licenses, especially within city limits. Geese often become habituated to these devices, especially if they are used alone. Habituation may be reduced by the occasional shooting of a few birds. To supplement harassment by shooting, however, the proper state, federal, or provincial permits first must be obtained. In addition, people not familiar with firearms should contact their state wildlife agency or USDA-APHIS-Wildlife Services office for appropriate instruction or training materials. If the devices cannot be triggered automatically, labor to fire them will be a major portion of the cost of these techniques. People using these devices should wear eye and ear protection.

Tombre, I.M., J. Madsen, H. Tømmervik, K.P. Haugen & E. Eythó'rsson. 2005. Influence of organised scaring on distribution and habitat choice of geese on pastures in Northern Norway. *Agriculture, Ecosystems and Environment* 111: 311–320.

Animals' habitat choices are often difficult to evaluate in nature due to the influence of various environmental factors, including human impact. In the present study we evaluate how such impacts influence habitat selection and local distribution of pink-footed geese *Anser brachyrhynchus* staging in Northern Norway during spring. In recent years, geese have been scared by farmers who protect their cultivated properties. We identified and classified various habitats by satellite images and field survey. Comparing data gathered in years before and during periods of intensive scaring enable us to evaluate how such disturbance influences habitat selection in geese. The scaring activities were recognised at three levels; no scaring, occasional scaring and intensive scaring, the latter representing repeated scaring during the complete 24 h cycle. Based on area estimations of the various habitat types in each scaring category, it appeared that the farmers primarily protected habitats of highest quality and, as a consequence, geese were more frequently registered at less productive habitats. This represents a contrast to the undisturbed situation some years earlier, where geese distributed evenly on the various field habitats. If the future agricultural policy continues towards an increased intensive agricultural practice, farmers may carry on to protect their intensively managed fields and geese will be banished to less productive farmland. Such polarisation will eventually reduce the carrying capacity for geese, creating a situation where they are unable to move freely to exploit resources of crucial importance for migration and reproduction.