# Hunting disturbance on waterbirds: Scientific truth or illusion?

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## Introduction

The concept of 'disturbance' is a current topic in discussions about hunting in nature reserves and government domains in Flanders (Belgium). It is often stated that hunting is not desirable as it would disturb waterbirds present in these areas. Many studies refer to changes in waterbird behavior [e.g. 2;13;16;17] and waterbird dispersal [e.g. 4;11;12] in response to human disturbance (including hunting). However the one question relevant for nature conservation and biodiversity policy is [6]:

**Does hunting disturbance affects the population dynamics of waterbirds by affecting reproduction and survival?**

## Methods

Based on a literature review it was investigated which effects hunting disturbance has on waterbird population dynamics.

## Results

A synthesis of literature shows that the time frame of the disturbance is of primary importance in the evaluation of the impact of disturbance on population dynamics. Disturbance is most likely to affect waterbird population dynamics:

- During spring migration.
- In the reproduction period.

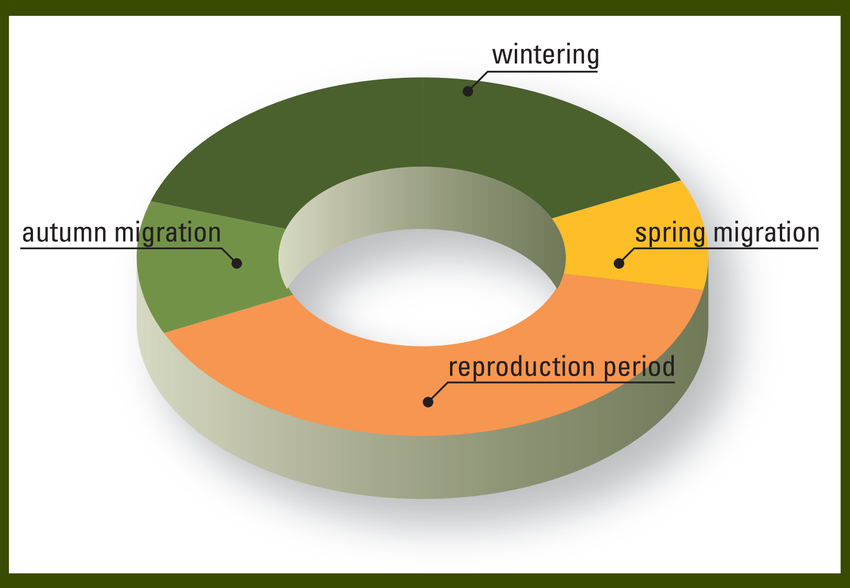


**Figure: Life cycle of migratory waterbirds. The most critical periods towards disturbance are the period of spring migration and the reproduction period.**

### PERIOD OF SPRING MIGRATION [1;5;14]

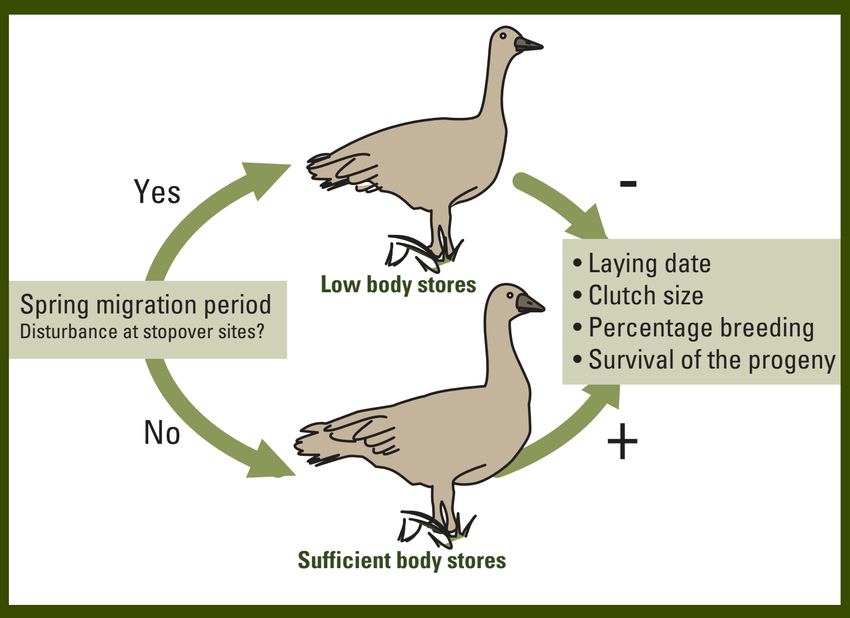


**Figure: Possible effects of disturbance at stopover sites on waterbird population dynamics. Negative effects (-) and positive effects (+) are indicated.**

### REPRODUCTION PERIOD [8;9;10]

Disturbance can have a negative impact on:

- The establishment of nesting birds.
- The nesting success.
- The investment in the progeny.
- The survival of the progeny.

### AUTUMN MIGRATION AND WINTERING

Impacts of disturbance on population dynamics are less documented [8;9;11]. Studies however show that [3;7;15]:

- In general, there is no/little impact of disturbance on population dynamics.
- Exceptions occur when quality and availability of wintering habitats becomes limited (typically during cold spells) and/or when the disturbance frequency is very high.

### HUNTING IN FLANDERS

Hunting is regulated by Flemish hunting law:

- Regular hunting period falls in the autumn and early winter (Mallards: 15 Aug-31 Jan)
- Waterbirds cannot be hunted in the vicinity of water elements of which the water surface (including reeds) is at least half covered by ice. The government is able to impose a total hunting ban in periods of extreme or prolonged cold weather.

Most hunters respect a non-written code of 'hunting ethics': eg. preventing disturbance of breeding birds, limited hunting frequency, …

## Conclusions

The impact of disturbance on waterbird population dynamics should be nuanced. This impact appears to be critically dependent on the time frame, the spring migration period and the reproduction period being the most critical periods.
In other periods of the year disturbance effects are barely documented however it seems to be dependent on the environmental conditions.
Regular hunting season takes place in the period where disturbance seems to have no or little impact on waterbird population dynamics. Flemish hunting law and hunting ethics further ensure that hunting disturbance has no impact on reproduction and survival.
The categorical statement that hunting disturbance has an impact on population dynamics of waterbird populations seems not to be corroborated by scientific studies.


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