

Goldeneye

Bucephala clangula



BASC's evidence review and recommendations for sustainable shooting

2023–2028 Recommendation

Delay shooting until October where resident breeding goldeneye are present.

Goldeneye – BASC recommendation

Delay shooting until October where resident breeding goldeneye are present.

Research required

- Breeding and wintering surveys to better understand local and national distribution and abundance.
- Submission of bag data to better inform harvest estimates (data can be submitted to GWCT National Gamebag Census or BASC Green Shoots Bagged It).
- Shooters should support the BASC wing survey to enable better understanding of adult:juvenile and male:female harvest ratios.
- Increased ringing, ring resighting and ring recovery reporting required.

Shooting restrictions

- Should delay shooting until October where resident breeding goldeneye are present.
- Show restraint, even when resident birds are absent. Shoot what you need, not what you can.

Habitat management

- The installation of nest boxes has been shown to support goldeneye nesting and increase brood numbers where natural tree cavities are limited.
- Pest and predator control.

Stage 2 assessment

Bucephala clangula – Goldeneye

Species summary

Goldeneye declines in the UK appear to be driven primarily by climate change⁶⁻⁹. Enhancement of breeding habitat in the UK will have limited impact as goldeneye are rare breeders¹⁰, however continued monitoring of wintering bird numbers, bag data and hunting bag demographics, for example through the Wing Survey, is recommended. This data will contribute to our understanding of range shifts and recruitment of goldeneye across the flyway.

Species conservation status (see Table 1)

Goldeneye shows a 10-year wintering population decline in the UK of >25% between 2008-2018¹. Within UK countries, the severity of decline is varied, with Northern Ireland showing the most significant decline (-71%) alongside high WeBS alerts for long- (<25 years), medium- (<10 years) and short-term (<5 years)². These declines are reflected but less severe in England and Wales (-22% and -18% respectively). Scotland however, displays marginal increases (+4%)¹. This decline is also seen on the European continent within breeding populations, however the severity of the decline does not push the species into the 'Vulnerable' category³. At a flyway level, this decline has also been identified and action is recommended to prevent a continued downward trajectory⁴. At a global level however, the population appears stable and therefore of 'Least Concern'⁵.

	BoCC ¹¹ (2020)	IUCN UK ¹¹ (2020)	Europe ³ (2021)	EU28 ³ (2021)	AEWA ⁴ (2018)	IUCN Global (Last updated in 2018) ⁵
Category	R	VU	LC (B)	LC (B)	B2c	LC
Trend (time period in brackets)	Decreasing (2008/09-2018/19)		Decreasing (over 3 generations)	Decreasing (over 3 generations)	Decreasing (2009-2018)	Stable
Population size estimate Mature individuals	Breeding: 200 Males Wintering: 21,000 Individuals ¹²		770,000– 990,000 (min-max)	374,000– 481,000 (min-max)	750,000– 1,500,000 (min-max)	2,700,000– 4,700,000
Reason for category	Severe non- breeding pop decline over 25yrs. Breeding Rarity	V small breeding pop/ restricted distribution with less than 15,000 individuals Non-breeding pop: Reduction in the size (either abundance or range) of non- breeding pop. measured over 3 generations. Declines of 20– 30% over 3 generations.	n/a	n/a	Population >100,000 individual but considered to be in need of special attention due to long-term decline	Large range and population size. Stable population trend.
WeBS UK 10-year trend (2008/09–2018/19): -26% ¹ • BBS UK 10-year trend (2010–2020): n/a**						

Table 1. Species conservation status across different scales. *It has been highlighted by BASC that such automatic linkage between IUCN status and levels of protection by AEWA is directly contrary to the IUCN’s advice on the use of its list. **No Breeding Bird Survey data (BBS) due to goldeneye primarily being an over-wintering species in the UK and a rare breeding bird¹⁰.

Population dynamics

Goldeneye declines in the UK appear to be driven primarily by climate change^{6–9}. The species has shown north-easterly distributional shifts in abundance since the 1980’s, with increasing population trends in Finland and Sweden⁸. This shift may result in elevated pressures on more northern populations in Scandinavia (as a result of hunting and unprotected sites). The species therefore requires a flyway-level action plan^{4,6,8}.

Hunting and harvest (see Table 2)

Goldeneye shooting seasons in the UK are compliant with the Key Concepts of Article 7(4)¹³. They are not a heavily hunted species in the UK and bag numbers have remained low over the last 20 years (2004: 680, 2012: 200, 2016: 450)¹⁴. As a result, they are estimated to have low probability of an unsustainable harvest in the UK¹⁵.

Within Europe, Scandinavian countries have the largest harvest of goldeneye¹⁶. However, even within these countries, hunting is not thought to be a major driver of population declines seen in goldeneye^{17,18}. Indirect effects such as lead poisoning are also not prevalent

in the species^{5,17}. However, abundance shifts across the flyway to more north-eastern edges of the range due to climate change may lead to unsustainable harvest levels on these more northern populations^{8,17,18}. Shifts in migration and breeding dates may have a knock-on impact on UK shooting seasons in the future.

Species	Species estimated λ_{max} (95% CI)	Potential excess growth (95% CI)	Mean Sustainable Hunt Index (95% CI)	Probability of unsustainable harvest
Goldeneye	1.713 (1.449 - 2.450)	5,600 (3700 - 9500)	0.201 (0.026 - 0.474)	0.000

Table 2. Estimated sustainability of species harvest in the UK. Table from Ellis & Cameron 2022..

Pressures, action and research

Pressures

Climatic changes over the last 30 years have resulted in shifts in migratory and breeding timing in goldeneye, alongside a redistribution of the species across the European flyway to more north-eastern edges of their range⁶⁻⁹. These changes expose goldeneye to new, potentially unprotected migration and stopover sites, possible changes in hunting pressure and overall alteration to waterbird assemblages^{6,8}. Improvement of water quality and sewage treatment may have driven declines in goldeneye in previously contaminated but productive waterbodies^{5,19}. In parallel, increases in invertebrate-eating fish and introduction of fish into previously fish-free lakes has driven resource competition between goldeneye and fish^{20,21}. Out with the UK, changes to forestry management in breeding grounds have also potentially reduced nest site availability²².

Practical action

Goldeneye regularly utilise large secondary tree cavities for nesting. With increased intensification of forestry and reduced availability of cavities and deadwood, goldeneye breeding success may be limited²². The installation of nest boxes has shown to support goldeneye nesting and increase brood numbers where natural cavities are limited^{5,22-25}. However, this will have a limited impact in the UK where goldeneye is a rare breeding bird¹⁰. Reduction of disturbance and limiting urbanisation around key sites for goldeneye⁹ will likely benefit overwintering birds in the UK^{9,26}. These sites will be more productive for goldeneye and other invertebrate-feeding ducks if fish populations are limited^{20,21}.

Research action

Further understanding of the density-dependent population dynamics will enhance understanding of population trends and density-limiting factors^{27,28}. Much of this research must be undertaken at breeding as opposed to wintering grounds. With population shifts to a more north-eastern distribution, monitoring of reproductive success, recruitment and harvest rates must continue to ensure a sustainable take of goldeneye at both country and flyway levels⁶⁻⁹.

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