

Annual update: duck nest monitoring project

What is the duck nest monitoring project?

The duck nest monitoring project is an international initiative started by the [Waterfowlers' Network](#) in 2021. This network is made up of hunting organisations across Europe, including the UK, Ireland, Germany, Belgium, Netherlands, Finland, and Denmark. The project is dedicated to the conservation of breeding duck populations across the flyway, by installing artificial nesting structures and monitoring breeding success.

Following positive results to date, it is hoped the project will succeed in increasing the UK's resident mallard population, which has been decreasing since the early 2000s (Figure 1). As one of the UK's most popular quarry species, we have a responsibility to ensure the population remains healthy. In doing so we can continue to take a sustainable harvest from the population.

Mallard population abundance

Long-term trend (1994–) in United Kingdom

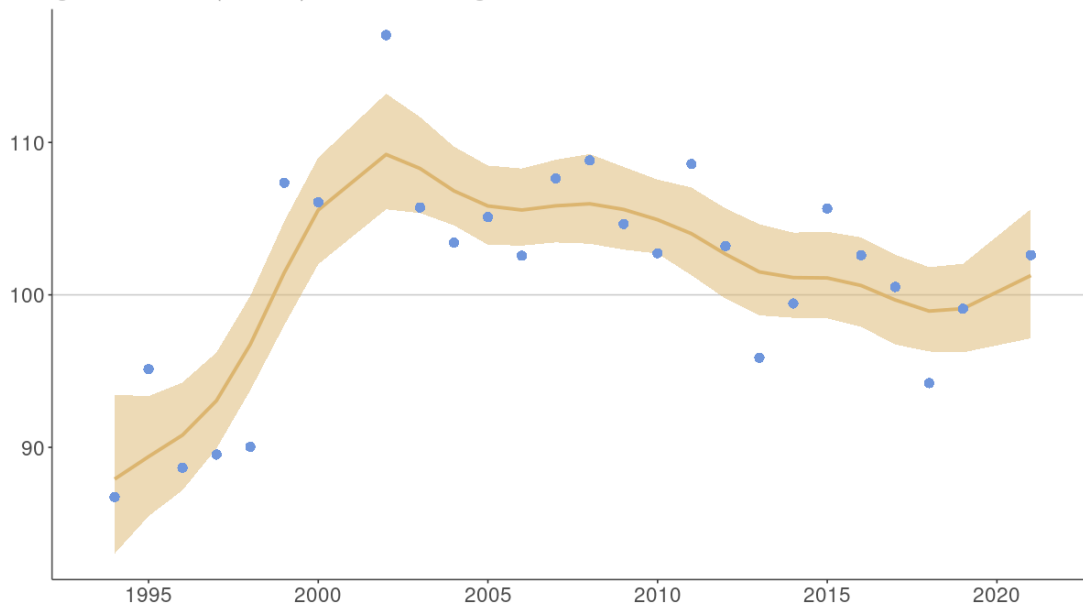


Figure 1.

Mallard population abundance trend from 1994 to 2021 from the British Trust for Ornithology.

In order to understand positive and negative environmental influences on nesting success, we are collecting data on occupancy and hatching success, and other useful pieces of information such as habitat type, management strategies, and pest control. This data is invaluable to our understanding of mallard breeding success and the conditions and management strategies most likely to have a positive impact on the breeding population.

Why is it important?

Mallard are naturally a ground-nesting species, making them highly vulnerable to harsh weather conditions, predation, and disturbance. This results in a low hatching success rate, although an exact figure is not known for the UK as mallard ground nests are not usually monitored. Nest

tubes provide greater protection from disturbance, giving a higher chance of eggs hatching successfully as well as increased brood size.

With a multitude of coastal, wetland and inland breeding habitats across the UK managed by the shooting community, we have the opportunity to make a substantial contribution to mallard conservation efforts in the UK. This project is reliant on participants submitting data at the end of each breeding season (data can be submitted through the [duck nest data form](#)). Without this information we are unable to measure the extent of the influence we are having on mallard nesting success and subsequently unable to show the benefit of shooting's conservation efforts.

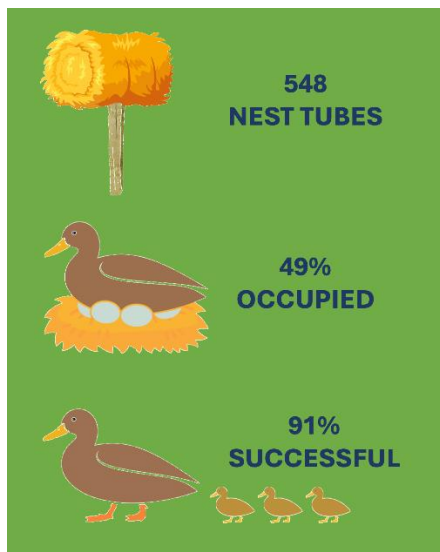
Following discussions with Natural England, there is potential for participation in this project to be incorporated, where relevant, into the sustainability framework of the wildfowling consenting process in the future as a way of mitigating population declines. However, this will only be possible if enough data is received year-on-year to build a robust framework defining the requirements to achieve the potential associated benefits. Therefore by taking part, you can actively help to secure the future of shooting for years to come.

Findings so far

The results presented in this report are based on data submissions from 104 respondents in the UK between 2021 to 2023. Most respondents were active shooters (n=99), 39% of these placed their nests on behalf of a shooting club. The majority of nests (70%) were placed in locations which do not undertake reared mallard release. This highlights the valued contributions and dedication to conservation initiatives from the shooting community.

Occupancy and success rates

Respondents collectively provided 548 nesting opportunities over the course of three years. 49% of nests were occupied, with 91% of these reported to have had successful hatching which is determined by at least one egg in a brood hatching.



Of the occupied nests (n=269), 87% were occupied by mallard, and 5% by common moorhen with 18 observations of other species (common coot, shoveler, teal, gadwall, mandarin, grey wagtail, pied wagtail, and blackbird). As mallard are the target species for this project in the UK, it is a positive outcome that they are the primary users of the nests. Some respondents commented that use by other species, especially in cases where they attempt to use the same nest, caused mallard to abandon their eggs resulting in no hatchlings. Although this does not appear to be common, it would be useful to monitor this in years to come to determine the extent of impact from interspecific competition.

Predator control

Of 103 respondents, 64% of respondents carried out some form of predator control, either for mammals or birds or both (Figure 2). Where predator control was carried out (n=66),

38% of nests were occupied with 87% hatching success whereas only 9% of nests were occupied with a 96% success rate was found for those that didn't use any predator control (n=36). This is an interesting finding which with more years of data could provide a valuable insight into how predator control may influence mallard nesting location selection.

Predator control method	Not a shooter	Not an organisation	Shooting club or syndicate	Wildfowling club or syndicate	Total (n)	Total (%)
No	5	18	5	8	36	35
Yes, birds	0	1	0	0	1	1
Yes, mammals	0	8	1	2	11	11
Yes, mammals and birds	0	37	6	11	54	52
Unknown	0	0	0	2	2	2

Figure 2. The percentage of respondents from different shooting backgrounds that controlled either birds, mammals, both or neither, at the site where their duck nest tube/s is/are located.

Site management

In terms of habitat management, 88% of respondents carried out multiple habitat management activities on the nest tube sites, with just 9% of respondents carrying out no management at all (Figure 3). Those that carried out habitat management (n=62) (artificial islands, weed management, reed management, water levels, and insect margins) had a higher rate of occupancy and success (34% occupied, 93% successful) than the 16% occupancy and 82% success rate for those who did not carry out any habitat management (n=42). With the same occupancy rates, a 96% success rate was achieved where no supplementary feeding took place (n=45) compared to 86% success where feeding supplements were provided (n=59). Continuing to monitor different site management methods, and with more years of data, we will gain a better insight into the ways this may influence mallard nesting selection and success.

Management method	Not a shooter	Not an organisation	Shooting club or syndicate	Wildfowling club or syndicate
None	22	0	33	44
Artificial islands	0	58	11	32
Reeds	3	65	0	32
Weeds	9	71	0	21
Supplementary feeding	2	63	14	22
Water levels	4	54	4	39
Insect margins	7	64	0	29
Hunting	0	59	17	24

Figure 3. The percentage of respondents from different shooting backgrounds that carried out each management method at the site where their duck nest tube/s is/are located.

Goals for the future

The future prospects of the project rely on continued participation from our dedicated participants. In the coming years we hope to see many more nests installed and build up an invaluable dataset to inform habitat management for breeding mallard. This year marks the third year of the project and in 2024 representatives of the Waterfowlers' Network will begin working on a scientific research paper, using data from all seven participating countries, with the aim of understanding what influences the breeding success of duck species across the flyway and the potential positive impacts artificial nesting structures have had.

We would like to encourage nest installation at sites with varying degrees of management and predator control, to allow for a more robust comparison of occupancy and success. This would allow us to determine which methods are most beneficial to breeding mallard. It may also be more beneficial to the wild breeding population to install more nests at sites where mallard are not released, avoiding any potential negative impacts breeding with reared mallard may have on the breeding success of wild populations.

For more information about this citizen science project and how to participate, visit BASC's [duck nest monitoring page](#). If you have any questions, contact monitoring@basc.ork.uk.