



An tSeirbhís Páirceanna Náisiúnta  
agus Fiadhúlra  
National Parks and Wildlife Service

# I-WeBS Trends Report Guidance

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## Introduction

This document provides guidance on how to interpret the I-WeBS Trends Report 1994/95 – 2019/20.

The national and site-level trends are available online at the following location:

[https://birdwatchireland.ie/app/uploads/2022/04/iwebs\\_trends\\_report.html](https://birdwatchireland.ie/app/uploads/2022/04/iwebs_trends_report.html)

## Trends versus Numbers

The site trend describes relative changes of waterbird abundance at a site over time. ‘Time’ here refers to site usage by a species both on an annual basis but also on a monthly basis within each winter. This is because the annual indices that characterise the trends are based on the summed winter counts of waterbirds. The sum of the number of birds recorded in each of the relevant winter months (the seven months September through March for wildfowl and allies, the four months November through February for waders) is used to create a value for each winter season for the species at a particular site.

For an understanding of the actual numbers of a particular species that a site typically supports please refer to I-WeBS **Site Summaries** available from <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/>. Site summary data provide species peak counts in each I-WeBS season as well as the recent ‘five-year mean peak’; the value calculated as the average of the peak counts for each of the most recent five winters. More detailed site data (monthly) or subsite data can be requested via an **I-WeBS Data Request** at <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/i-webs-data-requests/>.

As the annual indices that characterise site trends are based on the summed winter count of waterbirds, they provide a fuller picture of the changing presence of a species at a site over time. However, while these summed annual indices may go up and down and underpin an increasing or declining trend, the site peak counts during winter, recorded in any of relevant months, may actually remain similar over time. For this reason, assessing the trend in waterbird numbers at a site using just season peak counts can be misleading and could mask important changes in site usage.

## Understanding the Trend

The index values presented are based on the sum of monthly winter counts and are prone to significant temporary fluctuation. For this reason, the GAM process is used to smooth these annual values and provided a clearer overview of the overarching trend across seasons. That said, the annual index values can highlight many things. An example is Mute Swan at Kiltiernan Turlough (Figure 1).

## Mute Swan

| Site                | Trend (%) |         |         |
|---------------------|-----------|---------|---------|
|                     | 5 Year    | 12 Year | 23 Year |
| Kiltiernan Turlough | 23.4      | 292.3   | 106.8   |
| National            | 4.6       | 9.6     | 13.8    |

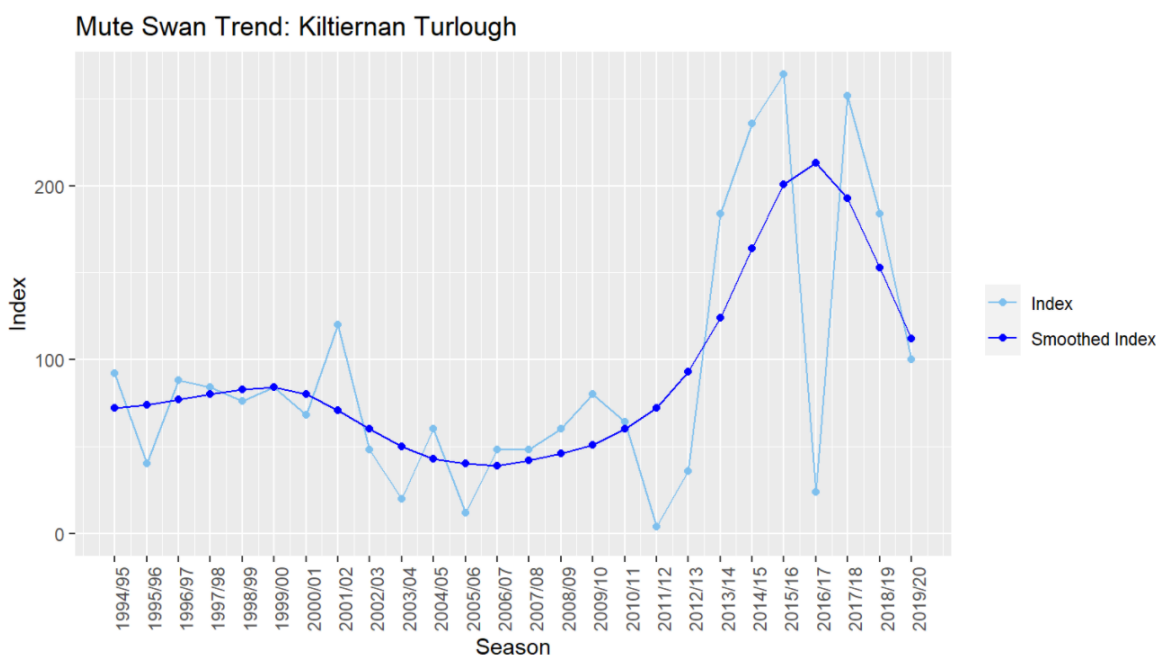


Figure 1: Mute Swan Trend at Kiltiernan Turlough

This trend is telling us that the species increased in abundance up to about winter 2016/17 and numbers have since dropped. But the overall pattern in terms of 5-, 12- and 23-year trends is for increasing numbers. That said, numbers were unusually low in winter 2016/17 (a site peak count of actually only two swans), but the smoothed index (trend) is based on an imputed value, so the smoothed trend line has not plummeted in that winter. Therefore the smoothed trend is better suited to characterising the trend overall because it is less influenced by extreme observations due to atypical events such as severe weather or uncharacteristically

high/low disturbance on survey days (Austin *et al.* 2019). Because waterbirds can show large annual fluctuations in numbers at sites, the trend methods are therefore robust enough to dampen the effects of these large variations.

## Trend Time-Windows

The Trend graphs are converted to Short-Term, Medium-Term and Long-Term Trends as illustrated in the following table.

*Table 1: Short-term, medium-term and long-term trends for Mute Swan at national level*

| Trend       | Trend Range (years) | Trend (%) | Time Window       |
|-------------|---------------------|-----------|-------------------|
| Short-Term  | 5                   | 4.6       | 2013/14 – 2018/19 |
| Medium-Term | 12                  | 9.6       | 2006/07 – 2018/19 |
| Long-Term   | 23                  | 13.8      | 1995/96 – 2018/19 |

Note that the time window extends to the penultimate season in the time series (i.e. 2018/19). This is because the smoothing technique (employing a Generalised Additive Model) takes into account values from both the preceding and following season. The most recent value in the smoothed dataset is therefore likely to be the least robust because it has no count data for the following season. Similarly, the long-term trend compares counts back to 1995/96, because there are no count data for the season preceding 1994/95 and so the imputed values for 1994/95 would similarly be less robust. For more information see the I-WeBS Trends Report Methodology document that accompanies this report.

## Trends and Abundance

Species abundance is an important consideration when interpreting site trends. For species that occur in smaller numbers, smaller absolute changes in numbers are necessary to elicit equivalent proportional changes in population size (Leech *et al.* 2002). For instance, a 50% decline of 1000 birds involves the loss of 500 individuals, whereas a 50% decline of 100 birds involves the loss of only 50 individuals.

Larger changes in absolute numbers are less likely to be due to short-term fluctuations in population size and may therefore be more ecologically significant than smaller absolute changes in the numbers of rare species (Leech *et al.* 2002). Absolute population size should therefore be taken into consideration when interpreting trends.

An example is Black-tailed Godwit at Kiltiernan Turlough (Figure 2). This wader generally occurs in low numbers (<20 individuals) at the site so the 23-year trend of approx. -89% is perhaps not as concerning as a slightly smaller decline (approx. -79%) in the numbers of Golden Plover, as Golden Plover occur in much larger numbers at this site.

Black-tailed Godwit

| Site                | Trend (%) |         |         |
|---------------------|-----------|---------|---------|
|                     | 5 Year    | 12 Year | 23 Year |
| Kiltiernan Turlough | -98.2     | -22.2   | -89.4   |
| National            | 22.5      | 25.0    | 92.3    |

Golden Plover

| Site                | Trend (%) |         |         |
|---------------------|-----------|---------|---------|
|                     | 5 Year    | 12 Year | 23 Year |
| Kiltiernan Turlough | -95.4     | -6.8    | -79.2   |
| National            | -16.9     | -58.1   | -54.1   |

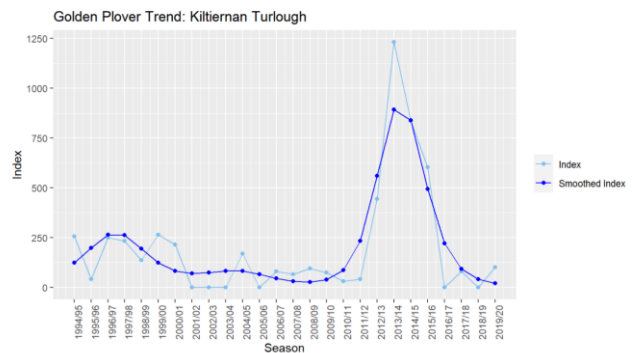
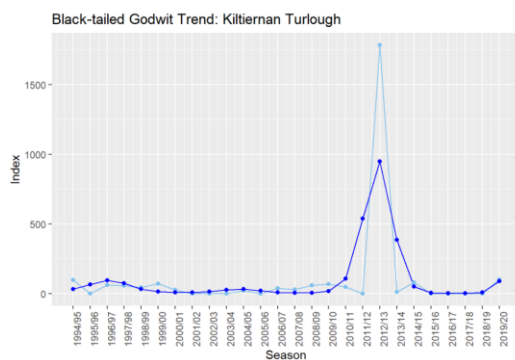


Figure 2: Black-tailed Godwit and Golden Plover Trends at Kiltiernan Turlough

## References

Austin, G. E., Frost, T., Woodward, I. 2019. Guidance to interpretation of Wetland Bird Survey Alerts. British Trust for Ornithology, Thetford.

Leech, D.I., Rehfisch, M.M. & Atkinson, P.W. 2002. A Guide to Waterbird Alerts. BTO Research Report No. 281. British Trust for Ornithology, Thetford.

## Citations

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