

Artificial nest-box projects for the Common Swift *Apus apus* in County Mayo

A report for the National Parks and Wildlife Service

Lynda and Chris Huxley

November 2021

Introduction

A comprehensive survey of occupied Swift nest sites in County Mayo was initiated in 2012 and continued to the present. This survey was conducted on a voluntary basis by Lynda and Chris Huxley with the assistance of a number of other volunteers. The results of this survey showed the distribution of Swift nest sites throughout the County and identified those towns and villages with apparently significant populations and those with either low numbers or no Swifts at all. The nest sites identified are referred to as “traditional sites” in that they occur in cavities in buildings and not in artificial nest boxes. The results of these efforts showed that County Mayo has around 300 occupied traditional Swift nest sites. It is important to note that we refer throughout to “occupied nest sites” rather than breeding pairs since it is not known what proportion of the occupied nest sites hold a breeding pair. We do know from our observations and other research conducted both in County Mayo and elsewhere that a proportion of occupied nest sites are occupied by singleton Swifts, or by a non-breeding pair.

Concurrently with the nest site survey, a project to install artificial nest boxes for Swifts was started in 2012 (at GMIT in Castlebar) and has been extended across most of County Mayo since then. This was initiated in response to the reported (and perceived) massive decline in Swift populations throughout the country over the last few decades (perhaps in the order of 50%). This decline was attributed to the loss of traditional nest-sites as a result of renovation or demolition of buildings. Thus, the nest box projects were aimed at providing new nest site opportunities for Swifts in as many towns and villages as possible across the County.

By monitoring the nest boxes and the traditional sites, where possible, it was aimed to assess the success, or otherwise, of the nest boxes and determine whether the conservation status of the Swift can be raised through the provision of artificial nest boxes. The Swift is now red-listed in Ireland (as a result of continued decline overall) and if it can be demonstrated that loss of traditional sites can be mitigated or reversed through nest box provision, then a powerful conservation tool has been identified.

Furthermore, as there are two major differences in the nest box projects, it is possible to compare the success of each in order to determine the optimum approach. The differences relate to whether the nest boxes are externally-mounted on a building wall or built-in to the wall itself. There are other variables that affect each project, such as aspect, height above ground, proximity to an existing colony, etc., etc., but these are beyond the scope of this report.

The provision of built-in nest boxes has the clear advantage that the nest sites should be available to Swifts for the life of the building, whereas externally-mounted boxes have a limited

life (anything from 5 to perhaps 30 years maximum depending on the material and site conditions) and also carry the risk that they might be removed. As a result of observations made prior to this work, it also seemed probable that built-in boxes are taken up more rapidly than externally-mounted boxes. For these reasons, it is desirable to provide information for planners, architects and builders to assist in understanding all aspects of the process of building-in Swift nest boxes.

Therefore, the aims of this report are

- to establish a baseline for the number of traditional sites in County Mayo;
- to provide data regarding the occupancy of nest boxes in County Mayo;
- to assess the overall success of the nest box projects;
- to compare the success of externally-mounted boxes with those built-in; and
- to prepare and produce a best-practice guide on building nest boxes into new buildings.

Methods

The general survey methods for traditional nest sites is described in detail in the attached document “Surveying the Common Swift – Guidelines”. Surveying for new nest sites involves watching Swift behaviour to identify possible buildings containing colonies or single nest sites and then spending usually around two hours, either evening or morning, watching very carefully to record any Swifts entering nest sites. Resurveying involves the same activities, but without the time spent in initial identification of the occupied buildings.

Surveying and resurveying nest box projects mostly involves similar procedures, but is simplified in several projects with externally-mounted boxes through the installation of cameras in some, or all of the compartments. For example, at GMIT it is possible to know exactly which compartments are occupied as they all have cameras and the feed is both live-streamed and recorded. Similar facilities occur in Claremorris, Charlestown, Westport, Cong, Swinford and Newport and Lough Lannagh and Linenhall in Castlebar, although not all have cameras in all compartments.

For the purposes of this project, a separate record sheet was prepared and completed for each nest box project (see sample sheet attached).

Results

The data from the field survey work are presented in the spreadsheets attached to this report.

Baseline for the number of traditional sites in County Mayo

As a result of Covid restrictions, weather conditions and several other difficulties, it was not possible to re-survey in 2021 all the known traditional sites in the County. However, by compiling all the data from previous surveys with the most recent work, it is possible to state with some degree of confidence that there are around 300 traditional sites remaining. One of the limitations to this type of survey work is that sites can easily be lost or just not re-used from one year to the next and new sites might be found (by both Swifts and observers!). Re-

surveying a traditional site with just one occupied cavity requires at least one visit from an observer, and a colony consisting of several occupied cavities requires perhaps three or four visits in order to obtain a reliable estimate of the numbers. The person-power needed for this makes it very difficult to carry out completely comprehensive coverage. However, we are confident that the figure of 300 can be used as a reliable baseline for the number of occupied traditional Swift nest sites in County Mayo over the period of 2013 to 2021.

The distribution of the traditional sites is shown in the attached spreadsheets which illustrate where the major centres of population are.

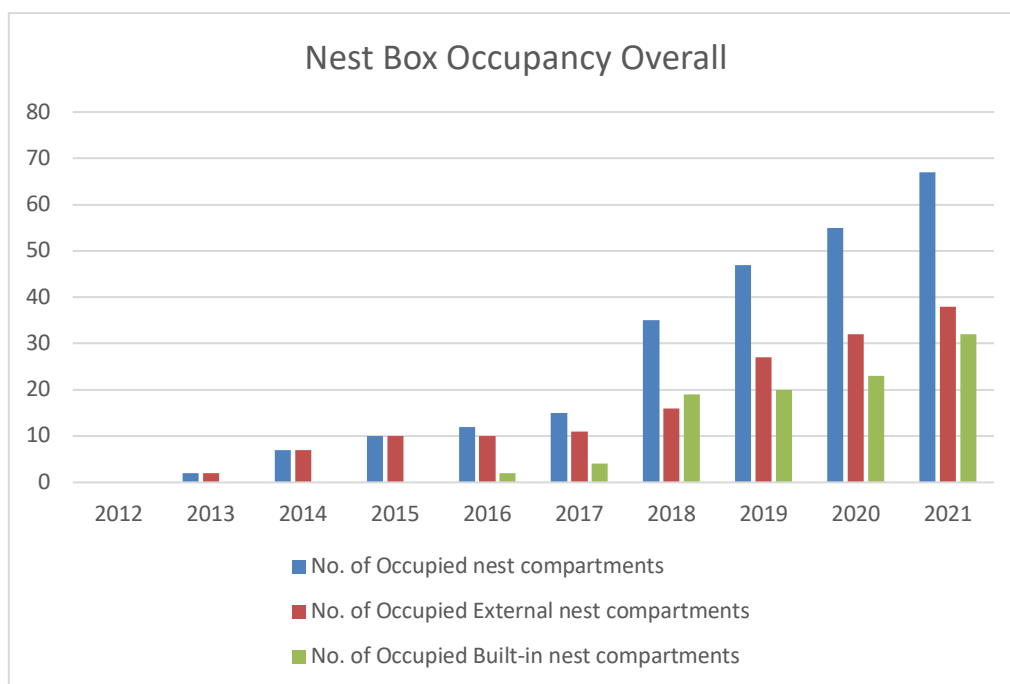
Occupancy of nest boxes in County Mayo

A total of 263 nest box compartments have been established in County Mayo with accompanying attraction call systems (see spreadsheet for full details).

Also attached is a spreadsheet which includes nest box projects that, for various technical reasons are considered to be inactive and, therefore excluded from overall analysis. The notes in that spreadsheet describe the reasons for this exclusion.

Of the 263 compartments, 155 are in externally-mounted boxes and 108 in built-in boxes. Of the total number of compartments available, 70 (26.6%) have been occupied by Swifts, 38 in external boxes (24.5%) and 32 (29.6%) in built-in boxes. Although these figures suggest similar results for external and built-in boxes, they are skewed in favour of the former because the external boxes have, on average, been installed for longer. This aspect is explored further below.

It should be mentioned that the results of the surveys of traditional sites and those of nest boxes are treated in the same manner in order to ensure compatibility. This involves using the maximum number of occupied nest sites recorded at each location/project over the period of study.



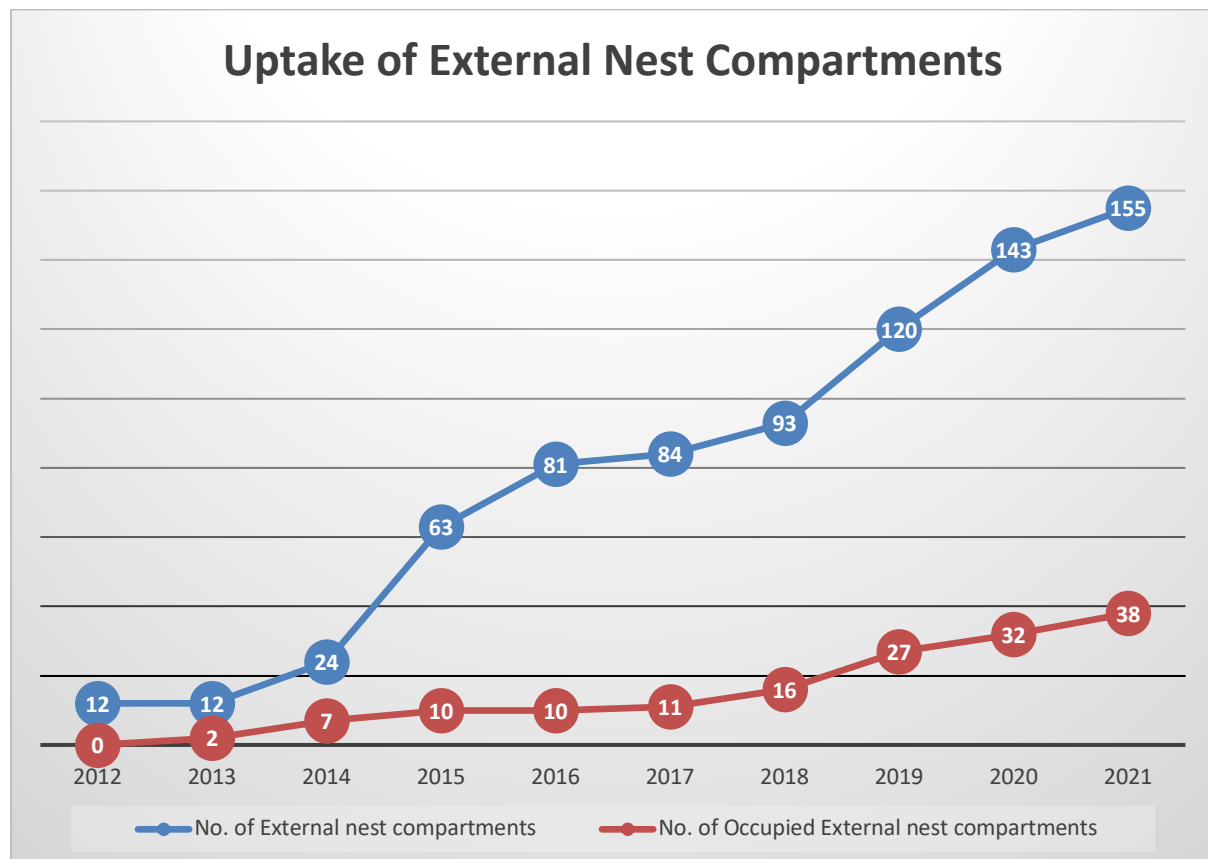
Overall success of the nest box projects

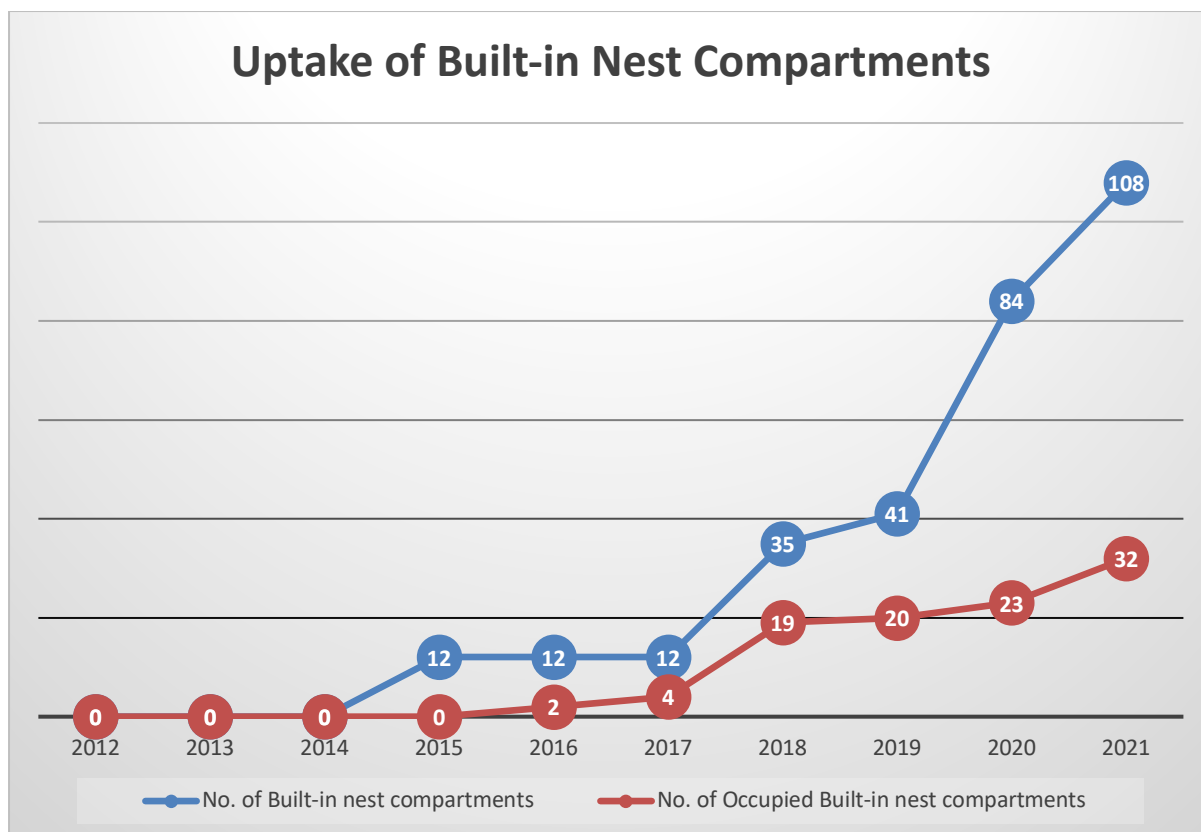
The key figure with respect to Swift conservation in County Mayo is that the nest box projects have increased the number of occupied nest sites by 70, i.e. by 23.3% over the nine-year period from 2013 to 2021. This figure is based on the assumption that the total number of traditional nest sites has remained more or less stable at around 300. This assumption is supported by the data from those traditional sites that have been re-surveyed in the last two years. The significance and implications of this increase are discussed below.

Comparison of the success of externally-mounted boxes with those built-in

In order to carry out the comparison between external and built-in boxes, it is necessary to take into account not just the number or proportion of compartments occupied, but also the speed with which the boxes are occupied. Both types have been established gradually over the years since 2012, but the project started with only externally-mounted boxes for the first three years, with the first built-in boxes installed in Westport Townhall in 2015. There are, of course, other factors that affect the speed of uptake, especially the proximity of existing colonies, but the data available thus far are insufficient to take these variables into account.

The following two figures show the relative speed of uptake in external and built-in nest compartments.





Best-practice guide on building nest boxes into new buildings

A best-practice guide has been prepared, designed and is being printed as an A5 booklet. A pdf copy is attached to this report.

Discussion

The long-term survey/re-survey of traditional nest sites in County Mayo has demonstrated several points of importance. Firstly, that there are around 300 such nest sites and, although a small number have been lost since 2012, these losses are balanced by equally small numbers of new “traditional” sites, i.e. nest sites that were previously available but unoccupied, or existing nest sites that were previously unrecorded. We conclude that the dramatic decline in such nest sites prior to 2012 appears to have either halted or at least slowed down. It is known from the literature that Swifts used to breed on Achill and at Belmullet, but these colonies have been lost. There are locations where it is known that there were good colonies previously which no longer exist: Westport Quay being a notable example. The nest box projects are addressing these issues by establishing nest boxes as widely as possible throughout the County in an effort to attract Swifts back to areas from which they have vanished. There is already some indication of success in this as the built-in boxes at Louisburgh and the external boxes at the NPWS Ballycroy National Park Visitor Centre have already had Swifts flying past (the first sign of interest in a potential nest site).

The overall success of the nest boxes demonstrates that the previous decline in Swift numbers was almost certainly due mainly to the loss of traditional nest sites. It seems probable that the limiting factor for Swifts in County Mayo, and probably in much of the rest of Ireland, is not food supply or climate, but access to suitable nest sites. The 23% increase in occupied nest sites since 2013 might not seem to be particularly high, but it is necessary to take into consideration the facts that Swifts rear, on average, only around two young per pair per year, i.e. recruitment rate is very low. Mortality prior to breeding is quite high and our calculations suggest that the rate of increase in County Mayo cannot be accounted for solely by recruitment from local breeding Swifts, i.e. we believe that part of the increase must be due to immigration from outside the County. Thus, we consider the 23% increase thus far to be excellent and a clear indication of the overall success of the initiative.

Furthermore, the centre of effort has been Castlebar and it is notable that the population there has increased to the point where the number of occupied nest box compartments (36) now exceeds the number of occupied traditional sites (34), i.e. the total number of occupied nest sites has doubled in nine years. Taken in isolation, this presents the optimistic projection that the total population of County Mayo might eventually recover to at least 600 occupied nest sites (or even more?).

The comparison between the success of externally-mounted boxes and built-in boxes suggests very strongly indeed that Swifts prefer the latter or find it easier to locate the entrance holes. This is significant for future conservation efforts as it indicates that it is worthwhile pursuing the building-in of boxes not just because they are longer-lasting, but also because they are more successful in attracting Swifts. This was already suspected as a result of the quick uptake at Westport Townhall and the even quicker uptake at Castlebar Leisure Complex, and this is why it was thought valuable to produce the best practice guide on building Swift nest boxes into new building walls.

Attachments

Surveying the Common Swift – Guidelines

Sample Nest Box Survey Record Sheet

Excel spreadsheets (4) in one document

Booklet PDF Best-practice guide on building nest boxes into new buildings