The Common Swift *Apus apus*

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How it can be affected by high-intensity lighting at the Nest Site

By Lynda Huxley, November 2020

Introduction

The Common Swift (*Apus apus)* is the only species of swift that occurs in Ireland. They come here to breed between the months of May and September, spending the rest of the year in Southern Africa. They do not breed in Africa but spend their time feeding and sleeping on the wing, flying 24 hours a day. The only time in its life that a swift lands is at the nest site.

Throughout its breeding range the Common Swift population has declined, mostly caused by loss of nest sites when buildings have been renovated or demolished. In Ireland this decline was estimated to be close to 50% since the 1980s. Through the conservation efforts of Swift Conservation Mayo, by providing nest box projects and protecting existing nest sites, the swift population in County Mayo has increased by at least 16% in the last 6 years.

Where they nest

Originally swifts would have nested in cliff faces but when man constructed stone buildings they started to nest in buildings because stone buildings appear just like a cliff face to a swift. Today, more than 90% of swift nest sites are found in our urban buildings.

The types of buildings that contain swift nests are usually stone buildings dating from around the 19th century, however, they also occur in some older buildings and some newer buildings from the 1900s.

However, modern buildings rarely contain swift nest sites because there are no gaps or crevices where they could enter a building to find a space to nest. Today's building designs and techniques strive to make buildings without any crevices and thus have few or no spaces for swift nest sites.

Swifts are known as 'hidden nesters' because their nest is hidden away inside a building, either on top of the wall plate (which they usually enter by climbing behind the fascia board) or in a gap in stone work. There is usually no sign of their nest on the outside of the building or below the nest because they do not make any mess (no sign of faecal droppings).

Once the swifts have found a nest site they nest there for life – which can be up to 12 years. They usually nest in colonies so most buildings contain more than one pair and can be occupied by nesting swifts for hundreds of years.

Their behaviour

Swift behaviour is unlike other birds. They have evolved to fly and so do not land on roofs, wires or branches. They use their strong claws to cling onto vertical walls and to climb into their nest sites.

Bearing this in mind, it is important to know that they find new nest sites whilst flying at very fast speeds – listening out for birds in existing nest sites – skimming close to the parts of buildings where existing nest sites are located.

They approach their nest site at great speed (around 60kph) and need a clear flight path to the nest entrance.

When exiting the nest site they need to drop down out of the nest site so that they can then get lift to fly away (similar to a person jumping off a cliff on a hang-glider). For this reason nest sites are usually at 5m or higher.

When and How does bright lighting affect them

High-intensity lighting shining onto a building where there are nest sites

Exiting the nest site is a dangerous time for the swifts and they usually look out of the nest site entrance before launching themselves. They need to make sure there are no predators around and to look for any obstacles to avoid.

When the parents are feeding their young in the months of June, July, August and early September, they are often active collecting balls of insect food from between 5am to 11pm. For this reason, any high-intensity light shining onto the nest entrance may make exiting the nest site very difficult for them. They will most likely be blinded (just like we would be if trying to exit a building with a bright light shining into our eyes) which will make it very difficult for them to make a safe exit.

Most at risk, however, are the swift chicks when they fledge i.e. leave the nest for the first and only time. When most bird species fledge they are able to do this as a gradual process being able land on a nearby branch or ledge. However, the swift chick only gets one chance. It must launch itself from the nest entrance successfully and be able to fly off immediately. It must have enough space to drop out of the nest and then fly off gaining height, so it must be able to see any obstacles that might be in its flight path. When the chick leaves the nest it will never return to it and neither will it be fed by its parents – it must now fend for itself. In fact, the fledged swift chick will be flying non-stop for around 3 years, flying to Africa and back each year, until it is sexually mature and wanting to find a nest site of its own and start breeding.

It is important to know that many swift chicks will fledge at night, when it's dark. This is possibly to be safe from predators such as birds of prey. These chicks are the ones that could be most at risk from any high-intensity lighting facing onto their nest site because they may be blinded by the lights and may not be able to see clearly. Furthermore, if a swift chick fails to fledge successfully and ends up on the ground it will usually die. The reason being that the swifts have evolved to fly and thus have long wings and short legs which means that they cannot usually take off from the ground.

High-Intensity Lighting Shining from a building

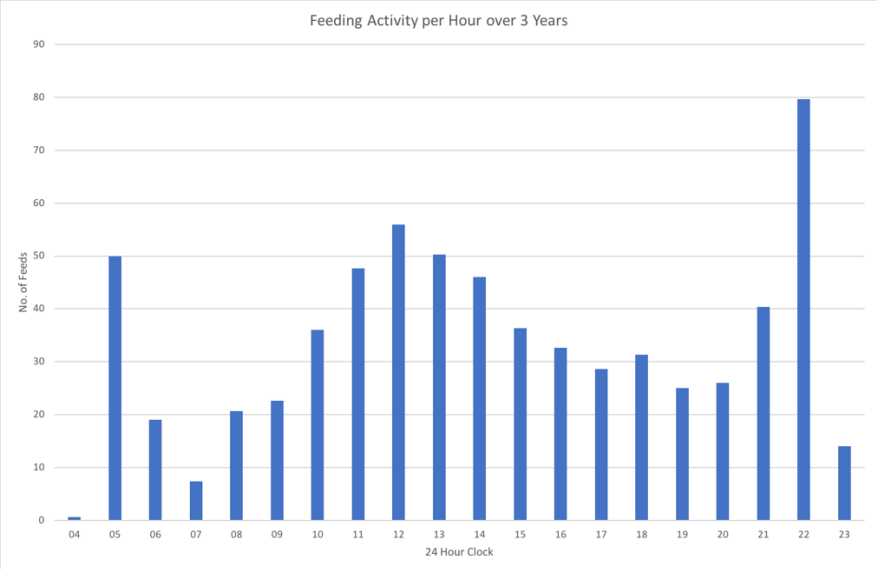
The size of a swift nest site entrance is around 65mm x 29mm. Swifts approach their nest site at around 60kph. Approaching and entering such a small nest site entrance at such speed requires good visibility and great accuracy. Therefore, high-intensity lighting located close to or above the nest site entrance and, therefore, obstructing visibility could lead to failed attempts to enter the nest site. This would be of particular significance when the parents are feeding their young.

Feeding behaviour and the effects of high-intensity lighting

Swifts normally feed from dawn to dusk with a peak in feeding behaviour at dusk when insect activity peaks. The breeding adults often enter the nest site for the night when it is almost complete darkness and they will spend the night in the nest site with their chicks.

The graph below shows the pattern of feeding activity recorded from the swift nest box research project at the Galway-Mayo Institute of Technology (GMIT) in Castlebar, Co. Mayo, Rep. of Ireland. You will note that the peak time when parents are feeding their chicks is around 10pm which means the adults will be entering and leaving the nest box much more regularly than any other time of day. Therefore, any high-intensity lighting shining from or onto a nest site may negatively affect the entry and exit of the nest site and may have a corresponding negative impact on the health of the chicks.

FEEDING ACTIVITY PER HOUR OVER 3 YEARS, GMIT SWIFT NEST BOX RESEARCH PROJECT



In Jerusalem, research has been carried out on the effects of high-intensity ALAN on a swift colony at the Western Wall *Artificial Lighting at Night Promotes Activity Throughout the Night in Nesting Common Swifts (2019, E. Amichai & N Kronfeld-Schor).* At this site the high-intensity light does not shine directly onto nor from the wall but rather the whole site is lit up from lights on buildings to the left and right of the Western Wall. This creates a scenario of almost permanent daylight. There are close to 100 swift nest sites located in the Western Wall. The researchers found that the swifts at the Western Wall colony carried on feeding throughout the night. Their conclusion was that this 'may have important implications for the birds' physiology, breeding cycle, and fitness' because the adult and chicks were active throughout the day and night and not getting adequate rest periods. They compared this with other sites in Israel that had no high-intensity lighting and thus no feeding swifts during the night.

NIGHT-TIME LIGHTING AT AREA WHERE WESTERN WALL IS LOCATED

In summary

We must try to ensure that high intensity lighting will not be shining **onto or from the nest site entrance** to ensure that :

- the parent swifts can enter and leave the nest safely when feeding the chicks.
- we must ensure that a fledging swift chick can exit the nest safely on the one and only time when it will fly from the nest.

SWIFT CHICK PEERING OUT OF NEST SITE AT NEWPORT CHURCH