



The Kingfisher Nest Box Project in Duhallow

An assessment of current nest box sites and future recommendations

M.O'Clery & J. Lusby

May 2015

Introduction

The European Kingfisher (*Alcedo atthis*) is an Amber-listed species of conservation concern in Ireland, associated with riparian environments. In Ireland it is widely distributed at low densities on slow-flowing rivers and is mainly resident, with some dispersal away from breeding territories in winter, particularly by juvenile birds. Bird Atlas results have shown a general decline in Ireland since the 1968-72 *Atlas* and densities along watercourses in Ireland are low, with e.g., a 2010 survey of the Munster Blackwater showing only 0.05 territories per kilometre of river (Crowe *et al*, 2010)

As an exclusively fish-eating species, Kingfishers can be vulnerable to water pollution and other changes in water quality, eutrophication, and changes to habitat along watercourses. They require steep or vertical earthen riverbanks in which they can excavate nests, so is also vulnerable to erosion and flooding.

Actions C8 and C9 for the I.R.D. Duhallow LIFE project in 2009 aimed to provide suitable artificial Kingfisher nesting sites in the Duhallow area, particularly the Allow River where, in recent years, the morphology and hydrology of the river has changed significantly, due primarily to intensification of both agriculture and forestry. The object was to re-establish breeding Kingfishers along watercourses in the area.

Initial assessment and criteria for site selection

Initial survey work as part of the Duhallow LIFE project undertaken along (mainly) the Allow River in April and May 2011 found many apparently suitable riverine earth banks though, many were ephemeral in nature and prone to erosion. After identifying suitable, or potentially suitable banks, work was undertaken by members of the I.R.D. Duhallow LIFE Project (from early April 2011) to protect some of these by coppicing and planting slips of willow (*Salix* spp.) along the banks. Potential Kingfisher territories were mapped (see Murphy, 2011), and final nest box site selection was spaced such that they would be at least 4km apart, based on the typical length of river for a Kingfisher territory in Ireland, which is estimated to be 1.5 to 4km.

The criteria for the specific site selection for Kingfisher nest boxes were:

- The stream or river must be relatively slow-moving and free from riffles.
- There must be steep or vertical earthen riverbanks comprising soft, sandy material suitable for excavating nest tunnels.
- The earthen riverbanks must be relatively free of rocks or other obstructions which might deter nest excavation.
- Areas of dense overhanging vegetation were to be avoided.

Sites were therefore chosen where the bank and river met these criteria, or where modifications could be made to the riverbanks to satisfy those criteria. Stretches of river with the highest concentration of potentially suitable banks for nest box installation were deemed the 'centres' of each potential Kingfisher territory. From this 'centre', a stretch of between 1.5 km and 2 km up- and downstream was to be designated as an individual territory. Thus, the following suitable sites were identified:

- 1) Leader's Bridge to where the Brogeen River enters the Allow River – 3 km (approx.) with 6 potentially suitable sites.
- 2) North of Kanturk to Coolageela – 3.5 km (approx.) with 15 potential sites
- 3) Coolageela East – 2.8 km (approx.) with 9 potential sites.
- 4) John's Bridge to north of 'Metal Bridge' – 3.3 km (approx.) with 6 potential sites.
- 5) Kilberrihert to Knockaneglass West – 3.7 km (approx.) with 9 potential sites.
- 6) Raheen to Ballynaguilla – 4.8 km (approx.) with 13 potential sites

Types of nest boxes used

The 'Schwegler' Kingfisher nest box chosen is a popular and widely used design. It is made of lightweight concrete, and comprises a tunnel approximately 700mm in length, approximately 150mm high and 150mm wide and a nest chamber with removable cover. The wire mesh base of the tunnel and chamber allows suitable drainage, and the concrete material used was 'breathable' to prevent build-up of condensation.

Installation of nest boxes

Six suitable sites were identified and five selected. Installation of 10 Kingfisher nest boxes was carried out in late January and early February 2013, before the nesting season got underway. Two nest boxes were installed at each site to accommodate the possibility of separate boxes being used for two broods of chicks. Trenches were dug to accommodate the nest boxes so that the roof of the tunnel and nest chamber was at least 300mm below the top of the bank, and all were placed at a slight upward angle to allow drainage. Bank material (sand, clay, etc.) was lightly packed into the nest box, allowing the Kingfisher some material to excavate, and the nest box entrance was set flush with the bank face. Overhangs, large cracks in the bank face and large, exposed root systems were avoided and any other impediments or obstacles within 1m of the nest entrances were removed.



Two nest boxes installed at Site 5

Results of the five nest sites in 2013/14

Site 1 Dalua – Allensbridge Installed 4th February 2013

This site is in a quiet location, with some vehicular sounds from the nearby road, and is on a bank of a marginal field used for occasional grazing. The river is partially canopied by tall, mature trees. It is located in a pool, downstream of the confluence of the Rampart Stream. The river here is c.15m wide and the boxes are 1.7m above the river. The bank is fenced off and is covered with dense vegetation of Ivy, grasses and briars.

Surveyed on the 14th November 2014, the vegetation had hidden the nest box entrances from view. This overgrowth was cleared so that the nest boxes were viable once again. There was a possible natural Kingfisher hole next to one of the nest boxes.

Site 2 Brogeen – Paal West Installed 7th February 2013

A quiet site, the adjacent land used for silage, and the field opposite unused. There are Alder trees slightly canopying the river, but none on the area of the bank. The river is 9m wide and the boxes are 1.5m above this riffle stage of the river. The bank is poorly fenced and is covered with overgrown grasses.

Surveyed on 14th November 2014, the overgrowth of vegetation had hidden the boxes from view. On clearing this, the entrances could be seen again.

Site 3 Araglin – Kiskeam Installed 25th February 2013.

This site is located on the riverbank of a field used for grazing. The land on the opposite side of the river is also used for grazing and it is adjacent to a small, quiet public village park. The boxes are 2.1m over a glide in the river, on a bank that is fenced off and covered with overgrown grasses and briars. The river is c.8m wide at this stretch. There are no trees nearby.



Nest boxes exposed by Erosion at Site 3

Surveyed on 14th November.2014, one of the boxes was about to fall out of the riverbank. The tunnel and chamber of this box was dug out and re-installed.

Site 4 Allow – John’s Bridge Installed 28th January.2013

The site is located on the bank of a grassland field adjacent to a busy road. The land opposite is used for grazing. The bank is fenced off and is covered with overgrown grasses. The river is pooling on this eroding bend, and is c.14m wide at the location of the nest boxes, which are 3m above the river. There are a few trees here, but none canopying the river.

Surveyed on 14th November 2014, both boxes had been lost due to erosion of the bank. It was considered that this bank would have to be protected before any more boxes would be re-installed.

Site 5 Allow – Freemount Installed 5th February 2013

An open, busy site on a stream, at the confluence with the Allow, and adjacent to a commercial Co-op. The riverbank is situated within a disused field that is unfenced and covered with overgrown grass while the general area is mostly clear of trees. A 1.5m wide stream converges with the Allow River, 8m wide. The boxes are 4m above the river.

Surveyed on 14th November 2014, no sign of Kingfisher activity was found.

Summary: To date there has been no sign of any Kingfisher activity at any of the five nest box sites. When re-surveyed, four out of the five nest sites had become unsuitable for nesting Kingfishers, two due to overhanging vegetation and two due to erosion of the banks.

Recommendations

Installation of the boxes was carried out correctly, and to a high standard. Site selection was well considered, and all seem to offer optimal conditions for potential uptake by nesting Kingfishers. However, there are a number of elements which, if incorporated into the project, could increase the chances of uptake of nest boxes into the future.

More frequent monitoring

Although installed in late January and February 2013, there were no additional surveys of the nest box sites until November 2014. Kingfishers are prone to disturbance at their nest site during the breeding season, so visits should be carried out appropriately and to best practice methods to assess the uptake of nest sites. A full survey conducted before and after the breeding season would be necessary to assess any changes in the number of sites occupied and also any physical changes to the nest boxes or river banks. The two instances of vegetation overhanging nest sites, thus rendering them unusable (Site 1 and Site 2), could have been remedied by a visit in late summer to cut back vegetation and clear the nest entrance from obstructions.

Additional examination of nest sites should take place in winter, especially after possible river flood events, when erosion of banks is most likely. This might have detected the two boxes at Site 4 being exposed and ultimately lost. At the very least, visits should be made each January or February to ensure each box is still in place, that there are no obstructions or overhanging vegetation, and that the entrance is still either flush with, or set back a little (c.100mm) from the bank face. These visits may necessitate digging out the box and moving or adjusting its aspect to offer the best chance of uptake.

Possible stabilisation of banks, or provision of manufactured banks

On banks prone to erosion, in reality all of the sites included here, it might be possible to introduce additional measures to prevent erosion from around the nest box entrance (as happened at Site 3 and Site 4). Instances of such can be found on the internet, and could be adjusted to suit individual site situations. Although coppicing the banks with Willow may prevent erosion in the vicinity of the nest entrance(s) at least 1m of clear bank must be left around the entrance so that no predator can access the nest site.

Installation at additional sites

The project could be expanded and additional nest box sites added. There would be scope for many additional sites, not only along the Allow River, but also on, eg, Rivers Dalua and Brogheen. Although site selection for the five sites above were spaced at least 2km apart, nest sites could be added between these sites to offer Kingfisher pairs as many nesting options as possible.

Use of website and sightings to pinpoint active sites

Increased use could be made of Kingfisher sightings by members of the public, eg, using the internet and social media to appeal for records. Birdwatching, angling and other groups and organisations, which might utilise stretches of river, could be canvassed for records and interested parties contacted. Accumulating a database of Kingfisher records on the river systems in Duhallow could help pinpoint the most productive stretches of river frequented by the species, and thus the most likely to be suitable for a nest box scheme. There is already an excellent website – <http://maps.duhallowlife.com> – set up for recording sightings, but to date, no Kingfisher records have been submitted.

An increase in Kingfisher sightings on the Allow River has been reported by the project team, volunteers and members of the public and, most importantly, “nests and attempted nesting tunnels” were reported in 2013 by the project team. Strategic surveys should be carried out to compliment the sightings collated and to effectively assess the benefits of the provision of artificial sites and to inform future management. .

References & Bibliography

Balmer DE, Gillings S, Caffrey BJ, Swann RL, Downie IS & Fuller RJ. 2013. *Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland*. BTO Books, Thetford.

BirdWatch Ireland. 2011. *Action Plan for Riparian Birds in Ireland 2011-2020*. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow.

Crowe, O. 2010a. An Assessment of the Effects of Arterial Drainage Maintenance on Kingfisher *Alcedo atthis* and other riparian birds II. *Report commissioned by the Office of public Works and prepared by BirdWatch Ireland*.

Crowe O, Cummins S, Gilligan N, Smiddy P & Tierney TD. 2010. An assessment of the current distribution and status of the Kingfisher *Alcedo atthis* in Ireland. *Irish Birds* Volume 9, number 1.

Du Feu C. 2005. *Nestboxes. Extracts from British Trust for Ornithology Field Guide Number 23, with some additions and amendments*. The British Trust for Ornithology.

Murphy, K. 2011. Provision of Nesting Sites and Nest Boxes for the European Kingfisher (*Alcedo atthis*) and the Irish White-Throated Dipper (*Cinclus cinclus hibernicus*) along the River Allow. *Report for IRD Duhallow and LIFE+ Programme*.