Shining a light on the secret life of the Irish badger

Genetic: the Irish badger could be unique in its inheritance. Illustration: Michael Viney

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ANOTHER LIFE: IT'S A COUPLE OF YEARS since, nipping out to measure the rain after breakfast, I met a badger in the garden, late on its way home. Halting in midstep a couple of metres away, I had the honour of brief and thoughtful regard before it trundled off to the latest hole in the fence.

Such visits, regular in February, are otherwise evident from divots dug out of the lawn as the badger hunts for leatherjackets, the juicy grubs of crane flies. These dominate the diet of Irish badgers in spring.

Then it's frogs and the grub-filled nests of wasps and bumblebees, followed, as summer fades into autumn, by a leaner feast of moth caterpillars of the smooth, unhairy kind.

This menu of dominant seasonal foods of Ireland's Meles meles was gleaned from the stomachs of 656 badgers, assembled, presumably, from among those culled to control cross-infection of cattle with TB. Removing, in some years, more than 7,000 badgers from targeted areas across the island, the programme has prompted, together with protest, a lot of research. Much of it shows up the differences between the lifestyles of badgers in Ireland and those in Britain. Indeed, it now seems Ireland's badgers could be a very special breed.

In diet, the near absence of earthworms as bulk food is notable: they're eaten often but scantily compared with the big reliance on worms by badgers on English farmland. Other ecological differences are summed up in a new review led by Dr Andrew Byrne of Teagasc.

Smaller Irish badger groups excavate smaller main setts, often in hedgerows, while British badgers dig vast, labyrinthine setts among the root spread of trees.

Badgers move around more in Ireland, their social groups are more fluid and the female reproductive cycle seems to have differences in timing.

How many badgers we have has been steeply revised – and not by the losses through culling. An extrapolated estimate in 1995 put the Republic's population at 200,500. In 2009, with better information on badger movements, Dr Paddy Sleeman of University College Cork judged the total at 84,000 and the average size of badger group at only 3.9 compared with Britain's 5.9.

All this, however, has been outshone in significance by DNA research on the origins of Ireland's badgers.

When, in her study of badger diet, Dr Gráinne Cleary of Trinity College Dublin concluded that "this feeding behaviour is more similar to that of badgers in Italy and Spain than to badgers in England" she was touching on a deeper mystery.

Just published in the prestigious Biological Journal of the Linnean Society is a paper on the genetic structure of European badgers and their colonisation of Ireland, the work of a 12-strong team of Irish and American scientists led by Dr Denise O'Meara of UCC and Dr Ceiridwen Edwards of Trinity. It shows badgers in Britain could be subdivided into several populations, most of them genetically grouped with those of Central Europe. But Ireland has just one population that shares, with Scandinavia, genetic affinities with the badgers of Spain.

The study considers DNA clues to "an Atlantic fringe element" already found in Irish mammals, such as the pygmy shrew and pine marten. While the hair, grease and meat of badgers could have earned them a place in the boats of prospecting Neolithic Spaniards, the team could find no evidence for this. Securely dated evidence for badgers in Ireland is absent until medieval times, yet, perhaps remarkably, the team entertains the chance that badgers could have colonised Ireland naturally – this from land to the southwest, exposed in the Ice Age.

However it arrived, it seems the Irish badger could be unique in its inheritance. Indeed, the paper recommends "that future bovine TB culls in Ireland should carefully consider the genetic repercussions to Ireland's unique fauna". It points to the differences in diet, behaviour and tuberculosis levels between Irish and British badgers that may be influenced by their genes.

All this comes at a crucial point in Ireland's bovine TB control, as the policy of badger culling in "hot spot" areas, begun in 1989, gives way to the committed use of vaccinating baits. Effective baits carrying a modified BCG vaccine have taken more than a decade to develop and test.

Field trials of their impact on about 300 badgers living in setts across 755sq km of Co Kilkenny began in 2009 and are due to conclude this year.

The baits needed a flavour irresistible to badgers. Aniseed, apple, curry, fish, garlic, peanut and strawberry were all tested in the field. Carob and cocoa powder are the most eagerly gobbled up, as a chocolate-covered badger bar.