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The Use of Wire Fencing to Control Badger Movement - an Update

T. Hahesy, P. Sleeman and N. Twomey

Introduction
This paper is a continuation of a study reported on in 1992 (Hahesy et al. 1993). It describes further work carried out during 1993 and some new findings which have emerged.

A small number of farmers have attempted to prevent badgers gaining access to their farms by erecting special fencing around the farm boundary. Variable results have been reported. It was decided to investigate the use of wire fencing to control badger movement.

The initial study was carried out in November 1992, when three types of electrified fencing were examined at the Wildlife Park, Doneraile, Co. Cork, to establish their effectiveness in controlling badger movement. The fences were erected in a specially built experimental pen and tested by using two badgers which had been in captivity in the Wildlife Park. The results of the experiment were as follows -

1. The fence with five individual strands of electrified wire was breached on one out of four occasions when a badger went through between the two bottom strands (Figure 1).

2. The flexinet electric fencing was breached on one out of four occasions by a badger which pushed its way underneath between the bottom strand and the ground (Figure 2).

3. The electrified high tensile sheep wire (21" high) was not breached on any one of the four occasions that it was tested in the trial. However, in a further trial conducted in July 1993, this fence was penetrated by a badger which got through the wire mesh between the two bottom strands (Figure 3). This occurrence was a significant development which was at variance with the findings of Hahesy et al. (1992).

At this stage none of the three fences described above could be recommended to prevent badgers gaining access to a farm.

A further study was carried out in August/September, 1993 to examine other wire fences which were more likely to create a greater barrier to badger movement.

The 1993 Study

Location
This study was carried out in the Wildlife Park, Doneraile, Co. Cork.

Badgers
Two recently captured male badgers were used to test the fences.

Fences
Three further types of fencing were examined. These were -

1. A relatively close mesh wire fence which is sold as a badger proof fence by one manufacturer (Figure 4). It will be referred to as non-electrified badger fencing.

2. Electrified badger fencing. This is the same wire fencing as described in 1 above but was electrified for this treatment.

Department of Zoology, University College Cork
3. Electrified high tensile sheep wire (32" high). This is a higher fence than the 21" sheep wire examined in 1992 but was selected because it has a smaller box size ie. the wires are closer together (Figure 5). This wire is normally used to control sheep movement, but is not usually electrified.

**Electric Current**
A battery unit was used to provide 5000 volts in the two electrified fences, ie. 2 and 3 above.

**Lighting**
The testing of the fences was carried out at night, since badgers are normally most active at that time. The trial was conducted under low power artificial lighting in order to ensure that the observers clearly saw the approach of the badgers to the fences and the ways in which they might penetrate them.

**Habituation**
The badgers were habituated to the presence of:
(a) The observers and (b) low lighting for a period before the testing of the fences commenced.

**Observers**
There were two observers present each night.

**Testing the fences**
All the fences were tested twice by each of the two badgers, ie. each fence was subjected to four tests. Each fence was tested in its turn by erecting it across the width of the experimental pen (Figure 6).

During each test one badger was released on one side of the fence while its den and food supply were placed on the other side.

A review of the events in the earlier 1992 study indicated one common point regarding the occasions on which the fences had been breached. In each case the badger was frightened, rushed straight at the fence and got past by either going through or underneath. In order to create this type of situation in the new trial and provide a vigorous test for the fences, one observer remained in the pen for a period after the badger was released. This ensured that the badger remained at the end of the pen nearest to the fence being tested.

**Findings**

1. **The non-electrified badger fence**
This was the first fence to be tested by both badgers. The badgers attempted to get past it initially by pushing through it. When this failed they dug underneath and pushed under to the far side. In one case, a badger got past the fence in this way within five minutes of its release.

By the time this fence was being tested by the badgers for the second time, they had experience of the electrified fences and had received a number of shocks. As a result they were reluctant to approach the fence, although an observer was present at the back of the pen. It took the badgers some time to discover that this fence was not electrified. They then proceeded to dig underneath it.

References to non-electrified fencing in the literature indicate the need to extend the wire for twenty inches underneath the ground to counteract digging. The feasibility of doing this at commercial farm level is questionable. Experience from the control of rabbit movement suggests that this fence might possibly be more effective if the bottom section of it is turned along the ground towards the direction from which the badgers emerge, and secured.

2. **The electrified badger fence**
The badgers failed to get past this fence. It was vigorously tested by the badgers attempting to push through it and underneath it. The badgers received a number of shocks in the process. While the badgers were able to dig the soil on their side of the fence, they were unable to dig underneath the fence without contacting the wire and getting shocked.
It appears that if this fence is erected correctly around a farm boundary and adequately maintained, it could minimise the risk of badgers gaining access. However, it is an expensive fence and costs approximately IR£3.25 per metre length when erected by a contractor.

3. The electrified sheep wire fence

The badgers did not get past this fence either. It was vigorously tested by the badgers as they attempted to go through it and to burrow underneath it. However, they were repeatedly shocked and withdrew. Reference has already been made to the fact that the spacing between the wires in this particular fence is smaller than in the case of the 21 inch high sheep wire which was used in the 1992 trial. This is a significant point as it reduces the risk of a badger getting through by running straight at the fence.

This type of fence is already in use around the perimeter of at least one farm in order to prevent access to badgers. It is reported to be successful since it was erected approximately two years ago. This electrified sheep wire fence costs approximately IR£2.75 per metre length when erected by a contractor.

Both badgers got a number of shocks in the early stages of the trial and as a result they were less inclined to challenge any one of the three fences in the second replication.

Conclusions

1 The use of the non-electrified fencing as constructed in this trial cannot be recommended for the control of badger movement.

2 The electrified badger wire fence and the electrified sheep wire fence (32" high) appear capable of minimising the risk of badgers gaining access to a farm provided that they are correctly erected and maintained.

3 The use of electrified fencing to prevent badgers gaining access to a farm is likely to be confined to a minority of herd owners due to the high cost involved. In at least one case, a farmer has spent IR£10,000 to erect such a fence. To date this type of fencing has been mainly confined to farms with relatively large dairy herds.

References

Figure 1. Five strand electric fencing (1992 study)

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19"

6" 35"

4"

4"

2"

ground

Figure 2. Flexinet electric fencing (1992 study)

The type of flexinet used in the trial is manufactured and sold as a rabbit fence. It is sometimes referred to as a cord fence.

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single strand electrified.

17"

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← 3" →

......ground

The bottom strand which is dead, is secured to the ground by metal hooks. All other horizontals are live. The top single strand is to control cattle movement.
**Figure 3.** High tensile sheep wires (21") (1992 study)

All wires were live (horizontal and vertical). The top single strand of wire is to control cattle movement.

**Figure 4.** Badger fencing (1993 study) -
(a) non electrified
(b) electrified
Figure 5. High tensile sheep wire (32"). (1993 study) All strands electrified.

6"
5.5"
5"
4.5"
4"
3.25"
3"

←6" →
ground
Figure 6. Location of trial - experimental pen.

The fencing trial was carried out in a specially erected experimental pen adjacent to the two pens in which the badgers were normally accommodated.

One side of the pen consisted of a brick wall. The other 3 sides were constructed from weldmesh 6' high with 2" x 2" spacing to which sheets of galvanised iron were fixed at the base.

A = Non electrified badger fencing

B = Electrified badger fencing

C = Electrified sheep fencing

The different fences when under test were erected across the pen, as shown in Figure 6.