

## The restricted regional distribution of the Goat Moth, *Cossus cossus* (L.) in Ireland (Lepidoptera, Cossidae)

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### Summary

The distribution of *Cossus cossus* (L.) in Ireland is assessed. It is shown that the species may have undergone a 75% contraction of its Irish range over the past 30 years. Reasons for the present restricted regional distribution are discussed and it is concluded that *C. cossus* is endangered in Ireland as a direct result of man's scrub and woodland clearance activities.

### Résumé

Commentaires sur la répartition de *Cossus cossus* (L.) en Irlande ; démonstration que cette espèce pourrait avoir subi une diminution de 75% de son aire de répartition en Irlande au cours des 30 dernières années. Les raisons de cette diminution sont discutées. La conclusion est que *C. cossus* se trouve directement menacé en Irlande par les activités humaines de débroussaillage et de déboisement.

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### Introduction

The Goat Moth was formerly recorded throughout much of Ireland more or less south of a line from Kerry to Dublin, although it was regarded as local and generally scarce (KANE, 1901 ; DONOVAN, 1936 ; BAYNES, 1964 ; 1970). A reference by KANE (loc. cit.) to the occurrence of this species at Lough Inagh, Connemara, Co.Galway may be disregarded as KANE apparently based this on hearsay and does not quote a source (as he was generally accustomed to doing).

In an attempt to determine its current distribution in Ireland, I have examined all available records of this large and distinctive moth. Records have been plotted using 50 km grid references based on UTM (Universal Transverse Mercator) widely used internationally for invertebrate recording, using the program provided by RASMONT et al. (1986). From the map (Fig. 1), it may be seen clearly that in recent decades (record watershed : 1960), *C. cossus* has only been recorded

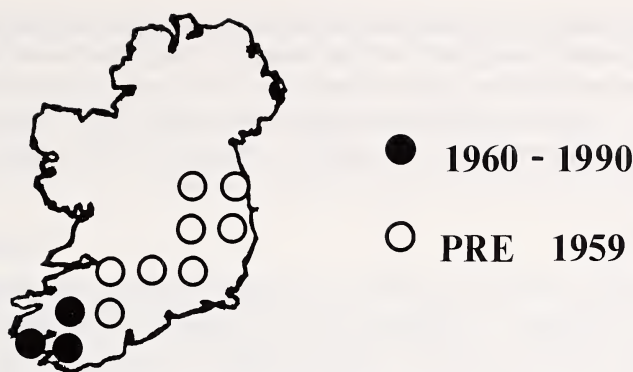


Fig. 1. The distribution of *Cossus cossus* (L.) in Ireland.

from the extreme south-west. A post 1960 record from the Glenageary area of Dublin city was included in the distribution map of *C. cossus* in HEATH & EMMET (1985), however, after a thorough search through all known records for the region this author considers the record to be erroneous and it is not accepted as a substantiated record. It appears to have declined in all other areas where it was previously known, to a point where it may have become extinct.

Records of *C. cossus* in Ireland for the period 1960-1991 are as follows : (Irish Grid references are enclosed in round brackets ; UTM references in square brackets ; KNP = Killarney National Park).

Co. Cork :

2 larvae, 8 July and Aug. 1989, Trafrask, Bantry (V84) [29UMT2] R. L. MARTIN

Co. Kerry :

Adult, July 1982, Killaha, Kenmare	(V86) [29UMT4] K. G. M. BOND
Adult, July 1982, Flesk, KNP	(V98) [29UMT3] R. F. HAYNES
Larvae, August 1982, Tower Lodge, KNP	(V98) [29UMT3] R. F. HAYNES
Larva, August 1984, Ross Island, KNP	(V99) [29UMT3] T. RYALL
Larva, 13 Sept. 1989, Parknasilla	(V76) [29UMT2] H. KELLIHER
Larva, Sept. 1990, near Kenmare	(V87) [29UMT3] J. W. LAVERY

Records are therefore confined to south Kerry and south-west Cork, an apparent 75% contraction of its pre-1960 range.

### Life History

The larva, the largest of the native Irish Lepidoptera, often measuring up to 10 cm when fully grown, is wood-boring, mainly in the lower trunk of various tree species. As far as I am aware, all Irish records of trees infested by *C. cossus*, refer to very old birch (*Betula* spp.) and willow (*Salix* spp.). The host tree is typically senescent and may

frequently have more than one larva feeding at different stages within it. The life-cycle takes three to four years to complete (SKINNER, 1984). It has been noted that the continual use over several years of a single tree by *C. cossus* eventually leads to the death of the long-suffering host. The adult insect is a strong flyer, but rarely visits light and does not feed.

## Discussion

The possible reasons for such a restricted regional distribution are difficult to discover. In Britain, where it is listed as “Nationally Notable — Category B” (i.e. recorded from between 31 and 100 10 km squares) it has been included in the National Review of rarer macro-moths. To attribute the scarcity of *C. cossus* to the loss of woodland and hedgerows with mature and over-mature trees, the principal larval habitat, does not in itself account for its demise in parts of Ireland where there are still sufficiently large amounts of old woodland although these are widely scattered and small.

Alternatively, it could be suggested that *C. cossus* does not in fact have a restricted regional distribution in Ireland, but only appears to have, due to a lack of post-1960 fieldwork in those areas (in the eastern half) of the island where it was previously recorded. Could it therefore be said that the present lacuna of records of *C. cossus* has arisen from the drop-off in the activity of lepidopterists in those areas affected? Unfortunately for *C. cossus*, this does not seem to be the case, as the eastern half of Ireland, from Antrim south to Waterford, is by far the best and most consistently worked by lepidopterists generally, whereas in areas of present (all post 1960) records, only Killarney is equally well worked.

The apparent lack of records between 1960 and 1980 followed by a sudden increase in the 1980's might suggest a corresponding increase in abundance of *C. cossus* in the Kerry/Cork regions. In fact, only the number of records have increased, whereas the number of localities from which the moth has been recorded over the years has remained the same, i.e. only the most recent records for each locality have been quoted and in the majority of cases the sites have had a long history of *C. cossus*.

It is also worth noting that over half of the above records from Cork and Kerry were received from people with very little entomological experience, larvae having been discovered more by accident than design. Surely, with such a distinctive adult, larva, infested tree, and with such a widespread network of field lepidopterists, incidental records of *C.*

*COSSUS* would have occurred in the east over the past 30 years. However, this also leads one to consider whether *C. COSSUS* is encountered so infrequently as to render it unsuitable for standard distributional study. The available post-1960 records suggest that the moth may be resident only in areas of little habitat change (i.e. relative to the rest of the country), which is a reflection of slower agricultural development.

## Conclusions

The recent dramatic contraction in the range of *C. COSSUS* in Ireland can only be assumed to be real and in the absence of other explanations, it must be concluded that this decline is a result of man's activities, most particularly the removal of over-mature woodland and also scrub clearance, with consequent loss of the main host trees, birch and willow. The destructive proclivities of landowners in the extreme south-west is marginally less than that of the rest of the country.

The status of *C. COSSUS* in Ireland is that of an endangered insect and this situation is directly caused by man's activities; its existence is at present tenuous and it could possibly become extinct if the current agricultural trends continue to invade its strongholds. This final point can only be resolved by a comprehensive national survey of the species.

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