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DEVELOPING HABITAT MANAGEMENT TECHNIQUES TO ENHANCE THE VALUE
OF BORD NA MÓNA CUTAWAY RAISED BOGS IN IRELAND FOR BREEDING
WADERS

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SUMMARY

This paper outlines management undertaken to enhance the value of Bord na Móna cutaway peatlands in the Irish midlands for breeding waders. Rehabilitation in a trial area of cutaway bog was carried out in 2010 and 2011. The main objective was to create a large open wetland area with limited scrub and trees. Active management involved scrub removal, re-profiling the edges of drains and increasing the wetland area by impeding drainage. Breeding waders have increased at the site following the first year of management. This trial will test the feasibility of carrying out successful rehabilitation work with a focus on delivering habitat enhancement of a medium-large scale on Bord na Móna cutaway bog.

KEYWORDS: Rehabilitation; cutaway; Lapwing, breeding wader

INTRODUCTION

A general decline has been reported for many wader species in Ireland and Europe. Population reductions and contractions have been attributed to loss and degradation of breeding habitat. This has been caused by land drainage, afforestation, intensification of farming, and increased impacts of predators (BirdLife International, 2004, Wilson *et al.* 2005, Suddaby, *et al.* 2010). Breeding populations of Lapwing *Vanellus vanellus* and Redshank *Tringa totanus* have been estimated to have declined by 88% since 1993 (Lauder and Donaghy, 2008). Both species are Red-listed on the Birds of Conservation Concern in Ireland (BoCCI), being of high conservation concern (Lynas *et al.* 2008). Other waders such as Snipe *Gallinago gallinago* and Ringed Plover *Charadrius hiaticula* are on the BoCCI Amber List. Measures to stabilise and enhance breeding success of these species in Ireland are therefore viewed as critical to halting their further decline.

Bord na Móna harvests peat over an extensive area of industrially developed raised bog across the midlands of Ireland. Peat is utilised for the production of electricity, domestic fuel and horticulture peat. When peat production ceases in a bog, it is categorised as cutaway. A significant proportion of cutaway bog has naturally re-colonised with a range of pioneer cutaway habitats. The value of these cutaway habitats to breeding waders in the Irish midlands is increasingly recognised (Cooney 1998, Hudson *et al.* 2002, Copland *et al.* 2008, Copland 2009). Breeding Lapwing, Redshank, Snipe, Ringed Plover, and Common Sandpiper *Actitis hypoleucos* have all been recorded using the cutaway. Pioneer cutaway bog habitat can contain many features of wet grassland, which is a preferred breeding habitat for

several wader species in Ireland (Suddaby *et al.* 2010), including a similar plant species assemblage dominated by rushes, sedges and other wetland plants, shallow pools and emergent vegetation and an open sward with bare substrate including peat and loose gravel.

Cutaway bog can also attract significant numbers of wintering waders and wildfowl. Lakes created on cutaway bog at Blackwater have attracted nationally important numbers of Teal *anas crecca* and Pintail *Anas acuta* as well as occasional nationally important numbers of Whooper Swans *Cygnus cygnus* (Crowe 2005). The Lough Boora Parklands (created lakes, wetlands and grassland) has also occasionally attracted nationally important numbers of Little Grebe *Tachybaptus ruficollis*, Mallard *Anas platyrhynchos*, Golden Plover *Pluvialis apricaria* and Lapwing as well as a range of other species.

Drinagh Wetlands – managing cutaway bog for breeding waders

Bord na Móna and BirdWatch Ireland established a trial area in 2010 on Drinagh Bog in County Offaly with a view to developing management techniques for breeding waders on cutaway bog in Ireland. These techniques have been used elsewhere in wet grassland and other wetland habitats (Benstead *et al.* 1997).

The main objectives of this trial project were to

- investigate rehabilitation techniques to enhance the value of cutaway bog in the midlands for breeding waders and wintering water-birds, and
- *where possible*, to increase breeding wader numbers.

The main rehabilitation techniques include re-profiling of drains and drain margins, scrub removal and wetland enhancement by drain blocking. Bord na Móna production bog is generally laid out in a series of long fields 15 m wide, separated by drains of < 1 m wide. When production ceases, drains with vertical edges that are sometimes quite deep (< 1.5m) are still present. It has been hypothesised that these drains may act as a physical barrier to unfledged chicks (Copland 2012). Re-profiling the edges of fields and infilling drains would allow chicks to move from dry areas down to wetland vegetation to forage without difficulty.

Copland (2009) describes how the openness of the initial cutaway landscape is one of the key habitat features for attracting breeding waders and wintering waterbirds. The breeding wader species present at Drinagh are known to avoid heavily wooded habitats or wooded margins that can attract perching avian predators (Amar *et al.* 2011). Maintenance of open areas and the management of scrub encroachment are therefore required to benefit these bird species. The introduction of wet features into wet grassland habitat provides valuable foraging areas for wader chicks (Eglington *et al.* 2008). Increasing the overall wetland area by blocking drains and raising water-levels is one way of increasing the area of foraging habitat. Raising water-levels will also hopefully have the additional impact of limiting scrub re-growth, controlling scrub encroachment and maintaining large open areas.

Site description

Drinagh Bog (approx 1,000ha) (Grid Ref: 211900, 216900) is located in west Offaly, approximately 3 km from Cloghan Village. It has been in peat production since the 1950s and large tracts have since become cutaway. Significant rehabilitation was carried out in

1999-2000 within East Drinagh with the creation of 186 ha of shallow lake and associated wetland habitat (Heery 1999). Other parts of East Drinagh were allowed to re-vegetate naturally, including the trial area. This section has remnant peat depths of < 1 m and peat production has ceased since the 1990s. Drier areas have generally developed mosaics of *Betula pubescens*-dominated scrub with pioneer dry grassland communities or pioneer poor fen communities dominated by *Juncus effusus*. Wetter areas tend to be permanently or temporarily water-logged and are also developing pioneer poor fen vegetation communities that tend to be also dominated by mono-dominant stands of *J. effusus*, *Eriophorum angustifolium*, *Carex rostrata* and *Equisetum palustre*. Patches of *Phragmites australis* and *Typha latifolia* also make an appearance but do not dominate. *Betula pubescens* and *Salix* sp. have also colonised the temporarily flooded areas. The selected trial area covers 31 ha in total and is located adjacent to a Bord na Móna railway embankment. A shallow topological basin has been created by the positioning of the railway embankment and this area contains some small patches that were permanently flooded and contained open water. A significant part of the wider area tended to flood during relatively high periods of rainfall in winter.

MATERIALS AND METHODS

Rehabilitation management was carried in two main phases in September 2010 and 2011. Both phases took approximately 2 weeks. Scrub was cleared using an excavator to pull out trees and a chain-saw to fell smaller saplings. Some felled scrub was placed in drains, while some was removed to the edge of the trial area. A bulldozer was used to re-profile and in-fill the edges of taller drains. Part of a trial area was flooded in 2010, by blocking the main drainage pipes. The remaining area was flooded in 2011 in Phase II.

Standard territory mapping methods were used for the breeding bird survey (Bibby *et al.* 2000). This involved several visits to the site during the bird breeding season, and recording all birds present, along with a note on their behaviour as it relates to breeding (territoriality, nesting, provisioning chicks, etc.). Monthly recording visits were made to the site from November to February to survey wintering birds following standard Irish Wetland Bird Survey (I-WeBS) methods (Crowe 2005).

RESULTS

Rehabilitation management has had a significant initial visual impact on the overall landscape of the trial area by creating a large open landscape comprising a mosaic of pioneer poor fen vegetation, drier exposed bare peat areas and some open water. Drain-blocking has also been successful and water-levels are generally higher, with larger areas being flooded for longer periods of time. This is in contrast to the previous landscape with scattered scrub and fields with high margins.

A total of 10 wader pairs were recorded in the trial area in 2011 compared to 2 pairs in 2010, prior to any rehabilitation management. Nearly all of the waders were recorded within the area cleared of scrub in 2010. The breeding wader population within Phase I in 2011 comprised of Lapwing (4 pairs) (following numbers indicate pairs), Snipe (3), Redshank (2) and Ringed Plover (1). This compares to 2010 when the same area had Lapwing (1 pair) and Snipe (1 pair). Some birds present were not counted as part of the present survey because they were failed or post breeders, either alone or in flocks.

Peak counts for wintering waterbirds using the trial area include Whooper Swan (42), Mute Swan *Cygnus olor* (2), Greylag Goose *Anser anser* (14), Wigeon *Anas penelope* (2), Teal (120), Mallard (94), Shoveler *Anas clypeata* (4), Lapwing (55) and Heron *Ardea cinerea* (1).

DISCUSSION

A total density of 32.2 wader pairs/km² was found during the present study within the trial area. Copland *et al.* (2008) recorded an average density of 5.5 pairs/km² for various cutaway sites. Previous surveys of the overall site at Drinagh have recorded varying numbers of 2 breeding wader pairs in 1998 (0.32 pairs/km²), 21 pairs in 2002 (3.4 pairs/km²), 23 pairs in 2006 (3.7 pairs/km²), (although the survey areas were not totally comparable) (Copland *et al.* 2008) and 14 pairs in 2009 (Copland 2009). Suddaby *et al.* (2010) recorded an overall average density of 18.2 wader pairs/km² on machair along the west coast of Ireland.

Previous surveys of breeding waders on cutaways in the Irish midlands have shown that numbers of pairs can fluctuate significantly from survey to survey and between sites (Copland *et al.* 2008). However, these initial results are promising and probably reflect the increased 'openness' of the landscape of the Phase I trial area and the clearance of scrub (Copland 2012). Flooding has not yet had a significant impact, as only a portion of Phase I was flooded prior to 2011 breeding wader survey. There are also likely to be significant changes in vegetation cover in the next few years, as plant species re-colonise bare peat areas exposed by the rehabilitation management and to the new flooding levels. Surveys during 2011 did indicate the some *Betula pubescens* and *Salix spp.* survived, particularly on higher areas where there was less flooding. It is too early to conclude if the rehabilitation management and flooding has been successful in limiting scrub re-growth. There may be some requirement for routine scrub clearance on some of the more elevated parts of the trial area, where flooding has limited potential to control scrub re-growth.

The numbers and species assemblage of wintering water-birds recorded within the trial area is largely comparable to previously recorded data at Drinagh (Copland 2009). It is too early to say whether rehabilitation has enhanced the value of this area to wintering water-birds.

CONCLUSIONS

Re-vegetating cutaway has been shown to support breeding waders in significant numbers and provides a valuable habitat for other bird species and wildlife (Bord na Móna 2010). Copland (2009) highlighted that the most favourable habitats within the cutaway are pioneer habitats, which tend to be 'open'. The cutaway is likely to continue to change and develop over time, with succession to more mature habitats as environmental conditions stabilise, so these pioneer habitats will eventually diminish. Feehan (2004) and Cross (2006) predicted that cutaway bog is likely to develop a mosaic of birch/pine woodland, heath, alder and ash-alder carr, fen and wetlands with open water and reedbeds in the future. The development of natural climax habitats of cutaway could take several decades and the process can be influenced by targeted management to enhance overall biodiversity.

Rehabilitation management is likely to be required to develop and maintain large open stable wetland areas with emergent vegetation to maintain the presence of breeding waders within

Bord na Móna cutaway sites. Future management options potentially include the use of more intensive drainage and flooding management by sluices, and grazing to maintain wet grassland communities. This trial will inform future development and management of cutaway bog in Ireland for breeding waders and for enhancing biodiversity in general.

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