

Ecological Survey Report

Note: This report outlines an ecological survey of the bog. This report should not be taken as a management plan for the site as other land-uses may still be considered. Information within this report may inform the development of other land-uses and identify areas with particular biodiversity value. The report outlines potential options for biodiversity management after industrial peat production has ceased, (if this is the proposed main land-use for the site).

Bog Name:	<u>Derryarogue</u>	Area (ha):	925 ha
Works Name:	Mount Dillon	County:	Longford
Recorder(s):	MMC & DF	Survey Date(s):	3 rd September 2012
Photos:	Photos taken – see L:\AI_Data\Boora\Ecology Team\Photos\Derryarogue		

Review status: checked by CF ☺ discussed with TE ☐ discussed with Works manager ☐

Remaining work:

Peat production programme and outlook

Large sections of the site contain less than 1.1m of peat remaining and even larger sections of the site are no longer in peat production. The site is expected to remain in peat production until 2027.

Key biodiversity features of interest

- The site contains some establishing pioneer cutaway habitats at various developmental stages. Some of these areas are flooded to various extents and contain developing wetlands.
- The establishing cutaway habitats are attracting other typical wildlife, including signs of Otter around the silt pond complex to the west of the site.
- The production bog is surrounded by some typical marginal habitats of high local value including intact raised bog (PB1) and bog woodland (WN7).
- The River Shannon flows close to the western edge of the bog. The Shannon is an important wildlife corridor along which species can move from one area to another.

Ecological rating

The majority of the site can be rated as having a **low-high local ecological value (E-D)**. Bare peat and other intensively managed areas are assessed as having a low local ecological value (E) (although some bare peat areas attract breeding waders). Pioneer cutaway habitats have a moderate local value (D) and act as a refuge for wildlife.

Habitats present (in order of dominance)

The most common habitats present at this site include:

- Bare peat (Codes refer BnM classification of pioneer habitats of production bog. See Appendix I).
- Pioneer Soft Rush-dominated poor fen (pJeff) with less frequent Bog Cotton (pEang) or Bottle Sedge (pRos) -dominated poor fen.
- Willow-dominated scrub (eWill) (in mosaic with pJeff) (in those areas that are flooded regularly)
- Open water (OW) (permanent) and Temporary open water (TOW)

- Birch-dominated scrub (eBir, oBir) (on drier higher ground that is not flooded))
- Pioneer dry heath (dHeath) (mainly in mosaic with Birch scrub)
- Dry pioneer Purple Moorgrass-dominated grassland (gMol)
- Access routes (Acc)
- Riparian zones (Rip) (with drains and associated habitats such as scrub and bog woodland)
- Silt ponds (Silt) with Gorse/Birch scrub and Purple Moorgrass-dominated grassland (gMol)

The most common habitats found around the margins of the site include:

- Raised bog (PB1) (Codes refer to Heritage Council habitat classification, Fossitt 2000), See Appendix I.)
- Cutover Bog (PB4)
- Scrub (WS1)
- Wet (callows-type) grassland (GS4)
- Bog woodland (WN7)
- Dense Bracken (HD1)
- Improved grassland (GA1) around the boundary where the GIS boundary extends into adjacent fields

Description of site

Derryarogue Bog is located approximately three kilometres to the east of Lanesborough in County Longford. This bog is located within two main section, a western (smaller) section and an eastern section in which the majority of the site is located. A mineral island is located on the site and this area was previously surveyed and is described in the Derryarogue Springs ecological survey (G:\Ecology Team\management plans\Mount Dillon\Derryarogue). A long section of rail line to the west of the site connects the Roscommon Bogs with the Power Station in Lanesborough. A rail bridge across the River Shannon is also part of the site.

Mount Dillon works area is located in the south of the site, while the N63 Longford to Roscommon Road travels along much of the southern boundary of the site.

The peat that is harvested from Derryarogue is used as fuel peat in the adjacent Lough Ree Power Station. Large areas of Derryarogue are still in active peat production; however large areas of the site are cutaway and have developed a range of cutaway habitats. Numerous power lines cross the site and are in place to power to the pumps that are scattered across the site. Derryarogue Bog has been in peat production since 1964.

The northern section of the site is separated from the rest of the site by a rail line that crosses the site in an east west direction. Production is still active in the area, however a range of pioneer habitats have developed in areas that have not been in peat production for a number of years. Habitats that have developed on the older cutaway habitats include closed Birch scrub that was primarily made up of Birch and Willow with Oak and Pine becoming established also. These habitats are at least twenty years old and were located on higher ground. Younger pioneer habitats include gCal, pTrig, eBir and pPhrag. Large areas of exposed gravel are also common across this section of the site. A grey clay type sub-soil is located under this section of the site and it is clearly visible in the field drains. The western side of this section appears to be lower lying than the rest of the section and many of the field drains contained pioneer reed-beds (pPhrag). A flood defence berm was constructed in 2011 along the south western edge of this section in order to prevent flood water from the River Shannon entering the site.

The main section of the site is very varied in terms of habitats that are located there. This area also contains the mineral Island that is dealt with in a separate report. Large areas within this section appear to be cutaway despite the land-use map showing only small areas being out of production. Gravel protrudes from the ground in various locations even in some of the areas that are still in peat production. Pioneer habitats include Birch scrub (eBir, oBir and cBir). The centre of this section of the site appears to be considerably lower than the surrounding areas, surprisingly areas of open water are rare; however this is likely to be a result of the constant pumping of the site.

Two areas of wetland are developing within this section of the site and are mainly comprised of small areas of open water, and a mix of species such as Reed-mace, Soft Rush, Club Rush, Bulbous Rush, Marsh Arrow Grass and Mint. Charaphytes were also present to the open water. These areas appeared to have been

developing for a number of years and although they are small they were becoming diverse and provided habitat for Mallard and Snipe. These wetland areas had a quaking feel to them and it would be expected that they would expand across the site once the pumps were turned off.

Other habitats on the site include dry heath (on elevated areas), scrub and areas of pioneer poor fen. A large area of bare peat was located at the western edge of this section and peat production was on going in this area. Peat production in the majority of the section however was confined to individual fields that were scattered throughout.

The eastern section of the site was largely in peat production; however areas of cutaway of varying ages were also present. The areas of cutaway were becoming colonised with pioneer poor fen and scrub. The areas of scrub along the eastern edge were quite well developed and were approaching mature bog woodland.

During the spring of 2012 a honey project was started on the site. Ten bee hives were located on the mineral island. These hives are managed by *Hyland Honey*.

Forestry and potential forestry on site

There are some small patches of conifer plantation located along the southern boundary of the site adjacent to the main Mount Dillon works area. These plantations are generally small and were planted originally as shelter belts approximately 40 years ago. The main species are Sitka Spruce and Lodge-pole Pine. These areas have never received any management work and could be clear felled at this stage.

Some sections of the site may be suitable for forestry in the future depending on the site conditions when peat production ceases.

Designated areas on site (cSAC, NHA, pNHA, SPA other)

None

Lough Bannow pNHA (site code – 000449) is located less than 0.5km from the south of the site.

Adjacent habitats and land-use

Adjacent habitats include wet grassland (GS4), improved agricultural grassland (GA1), raised bog (PB1), scrub (WS1), bog woodland (WD7), conifer plantation along with active and inactive cutover bog (PB4).

Watercourses (major water features on/off site)

- The Templeton Glebe River flows along the north eastern boundary of the site before joining with the River Shannon.
- Another tributary of the River Shannon flows alongside the north western boundary of the site.
- The River Shannon is located less than 0.5km from the site.

Peat type and sub-soils

Gravel underlies the majority of the site. A grey coloured sub soil underlies the peat at the northern end of the site.

Fauna biodiversity

Birds

Several bird species were noted on the site during the survey.

- Grasshopper Warbler
- Whitethroat
- Buzzard
- Other more common species include Grew Crow, Black Bird, Robin, Wood Pigeon, Swallow, Pied Wagtail, Pheasant,

Mammals

Signs of several mammal species were noted on the site during the survey.

- Pine Marten
- Fox
- Badger
- Hare

Other species

Butterflies include – Brimstone, Speckled Wood, Peacock, Painted Lady, Small Tortshell

Stickleback in drains.

Honey Bees.

Fungal biodiversity

none

Activities on the site

Activities on the site include:

- A Longford Town resident uses the site to exercise his 14 dogs. These dogs are not controlled on the site and are chasing Hares and other wildlife. They may also pose a risk to people on the bog.
- Shooting
- Domestic turf cutting along the edges of the site.
- A flood defence berm has been constructed in the north western corner of the site.
- A honey project started in 2012 has installed ten bee hives on the mineral island at the centre of the site.

Future issues for biodiversity management and/or rehabilitation

Potential issues for biodiversity management and or rehabilitation once production has ceased include:

- Uncontrolled dogs on the site.
- Old plastic has been dumped at various locations around the site.
- Large sections of the site will be liable to flood once production ceases on the site. These areas will

develop a mosaic of wetland habitats such as open water and reedbed. The remaining deeper peat areas are likely to develop wet heath (HH3).

- Sections of remnant raised bog located along the boundaries of Derryarogue are in varying conditions. Some areas are relatively large and have not been ditched; however these sections are still drying out. There may be issues with ownership in some of the larger sections.
- Boundary issues. The current GIS boundary of the property includes small areas that are obviously managed by other land-owners around the margins of the bog, such as small portions of fields that are managed as farmland.
-

Potential management options for Biodiversity and/or rehabilitation

There are several potential management options for this site after industrial peat-cutting has ceased, some of which can be applied to different sections that have different potentials to enhance their biodiversity value. These suggested options do not preclude other land-uses of the site in the future.

- Drain blocking and installing berms could be used to trap more water in the lower lying sections of the site.
- Berms could be used to create areas of open water alongside areas where the water levels are controlled in order to allow the development of wet grassland. This management practice could be used to create suitable breeding wader habitat similar to Drinagh cutaway bog in Co Offaly (McCorry *et al.* 2012).
- Natural regeneration of habitats is probably the most suitable option for re-colonisation of cutaway bog when peat production ceases.
- The small areas of raised bog within the BnM boundary are too small to have potential for restoration of raised bog functions. Some abandoned sections could, however, be retained for biodiversity with no active management required. They offer some potential as a reserve for raised bog species including mosses that may be able to colonise some parts of the cutaway in the future.
- The mineral island along with some other raised sections that also contain mineral soil will be suitable for the development of Oak Ash Hazel woodland. Tree planting will speed up this process.
- The water courses along the boundaries of the site could be re-profiled in order to create more natural habitats.
- Butterfly diversity appears to be high on the site (further surveys needed). In some of the drier sections of the site wildflower meadows could be developed to encourage butterfly diversity.
- This site has a high amenity value as it contains a bridge across the Shannon. This bridge is solely used for transporting peat at present but could be used to allow recreational users to cross the Shannon.

Potential future natural habitats on the site

This section attempts to predict the development of natural habitats on the site, assuming there is no intervention or changes in land-use. This prediction is based on research and methods used to predict the natural vegetation of Ireland (Cross 2006). Cross (2006) predicted that cutaway bog is likely to develop a mosaic of Birch forest, alder and ash-alder carr, fen and heath in the future. There is no time-line given for the development of these habitats, although it could be expected that the development of natural climax habitats could take hundreds of years. The complexity is the result of small scale variations in the substrate and other environmental factors such as drainage and ground-water influence.

- The remnant sections of raised bog along the edges of the site are likely to remain as degraded raised bog (PB1).
- The overall majority of the site is likely to develop a wetland mosaic (mixture of open water, fen and wet woodland).
- The mineral island and some other raised areas are located on mineral soil. These areas will be likely to

develop Oak Ash Hazel woodland.

- Some remnant areas of high bog (PB1) unused by private sod-peat cutters could be expected to remain open as dry Heather-dominated habitats, with some sections developing bog woodland (WN7) and dry heath mosaics.
- Cutover bog (PB4) is likely to develop bog woodland (WN7) in the long-term, depending on land-use.

References

European Commission (1996). Interpretation manual of European Union habitats. Brussels. European Commission, DGXI.

Fossitt, J. (2000). A guide to habitats in Ireland. Kilkenny. The Heritage Council.

HABITAT DESCRIPTIONS

(See Habitats Description Document for detailed description of each vegetation community not described in this section.)

HABITAT DESCRIPTIONS

Appendix I. Codes used for habitat classification.

Bord na Moña habitat classification scheme

	General	Vegetation community ¹	BnM habitat code	Equivalent Heritage Council codes ²
Pioneer habitats of industrial cutaway	Peatland	Bare peat (0-50% cover)	BP	ED2
		Embryonic bog community (containing <i>Sphagnum</i> and Bog Cotton)	PBa	PB
		Embryonic bog community (Calluno-Sphagnion)	PBb	PB
	Flush and Fen	Pioneer <i>Campylopus</i> -dominated community	pCamp	PF2
		Pioneer <i>Juncus effusus</i> -dominated community (Soft Rush)	pJeff	PF2
		Pioneer <i>Eriophorum angustifolium</i> -dominated community (Bog Cotton)	pEang	PF2
		Pioneer <i>Juncus bulbosus</i> -dominated community (Bulbous Rush)	pJbulb	PF2
		Pioneer <i>Triglochin palustris</i> -dominated community (Marsh Arrowgrass)	pTrig	PF2
		Pioneer <i>Caricion davallianae</i> -Community with <i>Cladium</i> (rich fen)	pCladium	PF1
		pioneer <i>Schoenus nigricans</i> community (rich fen)	pSchon	PF1
		pioneer <i>Carex viridula</i> /brown moss community (rich fen)	pVir	PF1
	Emergent communities	Pioneer <i>Carex rostrata</i> -dominated community (Bottle Sedge)	pRos	PF2/FS1
		Pioneer <i>Phragmites australis</i> -dominated community (Common Reed)	pPhrag	FS1
		Pioneer <i>Typha latifolia</i> -dominated community (Reedmace)	pTyp	FS1
		Pioneer <i>Schoenoplectus lacustris</i> -dominated community (Bulrush)	pSch	FS1
	Open water	Charaphyte-dominated community	pChar	FL2
		Permanent pools and lakes	OW	FL2
		Temporary open water	tOW	
	Woodland and scrub	Emergent <i>Betula/Salix</i> -dominated community (A) (Birch/Willow)	eBir	WS1
		Open <i>Betula/Salix</i> -dominated community (B) (Birch/Willow)	oBir	WS1
		Closed <i>Betula/Salix</i> -scrub community (C) (Birch/Willow)	cBir	WS1
		<i>Ulex europaeus</i> -dominated community (Gorse)	eGor	WS1
		<i>Betula/Salix</i> -dominated woodland (Birch/Willow)	BirWD	WN7
	Heathland	Pioneer dry <i>Calluna vulgaris</i> -dominated community (Heather)	dHeath	HH1
		Dense <i>Pteridium aquilinum</i> (Bracken)	dPter	HD1
	Grassland	Pioneer dry calcareous and neutral grassland (Centaureo-Cynosuretum)	gCal	GS1
		<i>Dactylis-Anthoxanthum</i> -dominated community (Cocksfoot-Sweet Vernalgrass)	gCo-An	GS2
		<i>Anthoxanthum-Holcus-Equisetum</i> community (Sweet Vernalgrass-Yorkshire Fog-Horsetail)	gAn-H-Eq	GS
		<i>Molinia caerulea</i> -dominated community (dry) (Purple Moorgrass)	gMol	GS4
		Marsh (Meadowsweet and other tall herbs) (<i>Filipendulion ulmariae</i>)	Mar	GM1
	Disturbed	<i>Tussilago farfara</i> -dominated community (vegetation > 50%) (Colt's Foot)	DisCF	ED3
		<i>Epilobium</i> -dominated community (vegetation > 50%) (Willowherb spp.)	DisWil	ED3
	General	Riparian areas (streams or drain with associated edge habitats (e.g. FW2/4 + WS1, GS2 etc)	Rip	FW2 +
		Silt Ponds (artificial ponds with associated bank habitats (e.g. FL8 + WS1, GS2, ED2, ED3)	Silt	FL8 +
		Access (tracks or railways with associated edge habitats (e.g. BL3 + gCal, gMol, eGor etc)	Acc	BL3 +
		Works areas (predominately built land but can include landscaped and brownfield habitats (e.g. GA2, WS3, WD4, ED2, ED3)	Works	BL3 +

¹ These are generally pioneer habitats of bare peat and the communities can contain a significant proportion of bare peat. Some habitats are more developed than others. They frequently occur in mosaic with each other.

² Not all these communities are equivalent to habitat classes used by The Heritage Council habitat classification scheme (Fossitt 2000) as some are quite rudimentary and undeveloped.

Heritage Council habitat classification scheme (Fossitt 2000)

	General	Habitat	Heritage Council code
Semi-natural and modified habitats	Peatlands	Raised Bog	PB1
		Lowland Blanket bog	PB3
		Cutover Bog	PB4
		Rich fen and flush	PF1
		Poor fen and flush	PF2
		Transition mire and quaking bog	PF3
	Woodland and scrub	Oak-Birch-Holly woodland	WN1
		Oak-Ash-Hazel woodland	WN2
		Wet Pendunculate Oak-Ash woodland	WN4
		Riparian Woodland	WN5
		Wet Willow-Alder-Ash woodland	WN6
		Bog woodland	WN7
		Mixed broad-leaved woodland	WD1
		Mixed broad-leaved/conifer woodland	WD2
		Conifer plantation	WD4
		Scrub (Gorse)	WS1
		Emergent Betula-dominated community	WS1
		Closed Betula scrub community	WS1
		Recently-planted woodland	WS2
		Ornamental scrub	WS3
		Short-rotation coppice	WS4
		Recently-felled woodland	WS5
	Linear woodland	Hedgerow	WL1
		Treeline	WL2
	Grasslands and Marsh	Improved grassland	GA1
		Amenity grassland	GA2
		Dry calcareous and neutral grassland	GS1
		Dry meadows and grassy verges	GS2
		Dry-humid acid grassland	GS3
		Wet grassland	GS4
		Freshwater Marsh	GM1
	Heath and Bracken	Dry Heath	HH1
		Dry calcareous Heath	HH2
		Wet Heath	HH3
		Dense Bracken	HD1
	Disturbed ground	Exposed sand, gravel or till	ED1
		Spoil and bare ground	ED2
		Recolonising bare ground	ED3
		Active quarry	ED4
	Freshwater	Acid Oligotrophic lakes	FL2
		Mesotrophic lakes	FW4
		Artificial ponds (slit ponds)	FL8
		Depositing rivers	FW2
		Canals	FW3
		Drains	FW4
	Cultivated and Built land	Stonewalls and other stonework	BL1
		Earth Banks	BL2
		Buildings and artificial surfaces	BL3
		Arable crops	BC1
		Horticulture	BC2
		Tilled land	BC3