AN ECOLOGICAL AND INDUSTRIAL HERITAGE SURVEY OF THE MOUNTMELLICK CANAL



John Feehan and Fred Hamond

An action of the Laois Heritage Plan 2002-2006



for Laois County Council October 2006



CONTENTS

PREFACE

~		A D\/
SU	MM	ARY

1.	METHODOLOGY	1
	1.1 Paper survey	1
	1.2 Field survey	2
	1.3 Computer databases	2
	1.4 References	2
2.	HISTORICAL OVERVIEW	3
3.	CANAL REACHES	4
	3.1 Canal survival	4
	3.2 Canal ownership	5
	3.3 Vulnerability to degradation	6
	3.4 Sections of special interest	6
4.	FLORA AND FAUNA	8
	4.1 Detailed description of sections	8
	4.2 Fauna	22
	4.3 An overview of the canal's ecological development since 1960	22
	4.4 Elements of special ecological value	23
5.	CANAL-RELATED BUILT HERITAGE FEATURES	25
	5.1 Canal features	25
	5.2 Survival and condition	29
	5.3 Features of special interest	30
6.	OTHER BUILT HERITAGE FEATURES	32
	6.1 Features associated with Grand Canal	32
	6.2 Miscellaneous built heritage features	34
	6.3 Features of special interest	39
7.	ISSUES AND RECOMMENDATIONS	42
	7.1 Conservation of canal	42
	7.2 Ecology	42
	7.3 Built heritage	43
	7.4 Access	44
	7.5 Awareness	44
	APPENDICES:	
1.	Map of Mountmellick Canal, 1837-39	45
2.	Reach descriptions	50
3.	Names of recorded plant species	66
4.	Vascular plants in Coolnafearagh Bog, Co Kildare	72
5.	Canal-related built heritage features	74
6.	Other built heritage features	154

PREFACE

This report focuses on the built heritage and ecology of the Mountmellick Canal which runs between Monasterevin, Co Kildare, and Mountmellick, Co Laois. It was commissioned by Laois County Council as an action of the Laois Heritage Plan 2002-2006 and was jointly funded by the Heritage Council and Laois CC; the support of Kildare CC is also acknowledged.

The objective of the study is to provide a comprehensive baseline database which will inform future strategies regarding the understanding, appreciation and conservation of the canal's built and natural heritage.

The project brief was to carry out a survey of all canal-related features along the line of the canal and also record all significant buildings and structures within a 500m zone either side of it. A land use and habitat survey along the line of the canal was also required. Fred Hamond dealt with the built heritage element of the project and John Feehan was responsible for its ecological aspects.

We should like to thank the following individuals for their assistance: Colin Becker (Inland Waterways Association of Ireland), Michael Bracken (GIS Officer, Laois CC), Catherine Casey (Heritage Officer, Laois CC), Ruth Delany, Niall Galway (IWAI), Beatrice Kelly (Inland Waterways, Marine and Walkways Officer with the Heritage Council), Bridget Loughlin (Heritage Officer, Kildare CC), Fergal O'Donavan (GIS Officer, Kildare CC), Nick Spalding (IWAI), and finally, but by no means least, Rosemary Whelan (Mountmellick Town Council).

John Feehan School of Biology and Environmental Science University College Dublin Belfield Dublin 4

Fred Hamond Industrial Archaeologist 75 Locksley Park Belfast BT10 0AS

October 2006

1. Introduction

- 1.1 This report presents the results of a survey of features along the Mountmellick Canal and within a zone of 500m either side of it.
- 1.2 A variety of published sources, notably past editions of Ordnance Survey maps, were used to identify its line and features along it.

2. History

- 2.1 The canal runs from the Athy Branch of the Grand Canal at Monasterevin (Co Kildare) to Mountmellick (Co Laois), a distance of 18.6km.
- 2.2 It was constructed by the Grand Canal Company between 1827 and 1831 primarily to convey bulky low-value items such as grain, meal, beer, coal and timber. Malt from Mountmellick and flour from Portarlington were its two mainstays.
- 2.3 Coras lompair Éireann took over the canal's operation in 1950. Traffic dwindled to such an extent that the canal was officially abandoned in 1960. Most of its line is now in private ownership and Waterways Ireland, CIE's eventual successor, retains just over 3km.

3. Canal survival

- 3.1 Almost 11km of the canal has been infilled or removed. Just over 5km is still open, but dewatered. Almost 2.5km is still opened and watered.
- 3.2 There are three locks along the canal. The first reach, from the canal's junction with the Grand Canal to the first lock at Coughlan's Bridge, survives in an open and watered state. From the first to second lock at Portarlington is open and infilled in equal measure. The next reach, from Portarlington to Tinnakill lock, has been infilled to create a by-pass around Portarlington. Most of the final section to the Mountmellick terminus has also been infilled.

3.3 The most significant stretches of surviving canal are:

- The entire 1.8km stretch lying within Co Kildare. This is open water as far as the first lock, then open but dewatered through Coolnafearagh Bog.
- A 1.8km stretch along the north side of the main road between Lea Castle and the former lock at Portarlington Lock. This includes a 1km section at Lea Castle which is the longest continuously open/dewatered stretch on the entire canal.
- A 1.2km long open/ watered section north-west of Woodbrook Bridge. This is the longest continuous such stretch now surviving.
- A 1.7km long open but dewatered stretch north-west of Dangans Bridge.

4. Flora and fauna

- 4.1 In spite of the changes that have taken place since it was decommissioned, the line of the Mountmellick Canal remains an important and unique strand in the ecological network of County Laois.
- 4.2 The open and wooded stretches of the canal are of particular ecological interest, together with the embankment at Clonterry.
- 4.3 Ivy brookrape is the most interesting plant species that has developed a particular association with the wooded stretches along the canal.
- 4.4 The area east of Dangans Bridge is accorded SAC status on account of the occurrence here of the rare snail *Vertigo moulinsiana*.

4.5 Two habitats of high nature value were identified within 500m of the canal, albeit both independent of it. These are Coolnafearagh Bog in the Kildare stretch of the canal west of the first lock, and an area of fen and wet grassland north-west of Dangans Bridge.

5. Canal-related built heritage features

- 5.1 Fifty-three canal-related features were identified along the canal and its two feeders. These include basins, houses and stores, bridges, locks, overflows and quays.
- 5.2 Of the above total, 27 were bridges. Most carried roads over the canal, but there were also a significant number of culverts which conveyed steams and drains under it. The road bridges are all virtually identical in terms of their design, materials and span. The Mountmellick Aqueduct over the Triogue River is the most significant aqueduct.
- 5.3 The first lock survives, but the other two have been infilled. All three lock-keepers' houses survive in varying states of repair.
- 5.4 Only 27 of the 53 recorded features survive intact; nine are incomplete and the remaining 17 have disappeared.
- 5.5 Twenty of the surviving features were evaluated as being of regional heritage significance. However, only four features are currently in the Record of Protected Structures. The remaining sites are therefore proposed for inclusion in the Co Laois and Co Kildare Records of Protected Structures. Seven of these recommendations are bridges, and a further eight relate to lock complexes (locks, keepers' houses, quays and stores). The canal junction at the Grand Canal end and former agent's house at the Mountmellick end also merit protection.

6. Other built heritage features

- 6.1 Sixty features not related to the canal, but lying within 500m of it, were also identified and surveyed. These include 11 features relating to the Athy Branch of the Grand Canal at Monasterevin (notably the Barrow Aqueduct) and 11 features at Portarlington Railway Station. Prehistoric earthworks and medieval castles and churches were also noted.
- 6.2 Twenty-five of these features are currently protected five in the Record of Monuments and Places, and 20 in the Record of Protected Structures.
- 6.3 Ten sites adjudged to be of regional heritage significance are proposed for statutory protection.

7. Issues

7.1 Conservation of canal

Most of the canal is now in private hands and the bulk of the privately-owned stretches have been infilled or otherwise destroyed. The challenge is therefore to encourage private landholders not to infill any surviving open stretches in their ownership.

Many of these sections of the canal are likely to belong to farms participating in the Rural Environment Protection Scheme (REPS). The preservation of these stretches might therefore be effected through the implementation of REPS 4.

7.2 Ecology

Any ecological management strategy should endeavour to maintain the canal corridor in its present state.

REPS and the Code of Good Farm Practice are important mechanisms for the conservation of the both the natural and cultural heritage features of the canal on farmland.

7.3 Built heritage

Statutory protection is a mechanism for ensuring that any features of heritage significance are given due cognisance in the planning process. However, such protection does not guarantee their long-term preservation, particularly those in private ownership which are no longer in service.

All stakeholders in the canal's built heritage should therefore be involved in the formulation of a long-term strategy for the conservation of its significant features.

7.4 Access

Unimpeded public access to the canal is presently only possible between Mountmellick Junction and the first lock. Elsewhere, it is generally restricted by the towpath being in private ownership and/or impenetrable due to dense vegetation overgrowth.

7.5 Awareness

There is little published specifically on the Mountmellick Canal. Most people are therefore unaware of its past significance to the region and of what still survives.

8. Recommendations

8.1 Line of canal

It is recommended that all open stretches of canal be considered for statutory protection by including them in the Records of Protected Structures for counties Laois and Kildare and/or the Record of Monuments & Places.

8.2 Flora and fauna

The possibility of the statutory designation of Coolnafearagh Bog as a Natural Heritage Area and/or Special Area of Conservation and the development of access along its associated stretch of the canal should be investigated.

8.3 Built heritage features

Five canal-related features are recommended for inclusion in the Co Kildare Record of Protected Structures, and 12 for the Co Laois RPS.

One non-canal related feature is recommended for inclusion in the Record of Monuments & Places, and nine for the Record of Protected Structures (six in Kildare and three in Laois).

8.4 Access

Consideration should be given to the provision of public access to key stretches of the canal where circumstances allow, e.g. the stretch between Dangans Bridge and Skeagh Bridge).

8.5 Awareness

Consideration should be given to the publication of a booklet outlining for a popular audience the significance and importance of the canal.

1. METHODOLOGY

1.1 Paper survey

The principal source of information on the built heritage sites within the study area was the Laois Industrial Archaeology Record (Hamond, 2003). This contains data culled from Ordnance Survey six-inch maps, the 1:10,560 scale of which is sufficiently detailed for small features such as culverts under the canal to be identified in addition to the major ones such as locks and bridges. The following maps were used to identify sites along and in the vicinity of the canal:

County	Sheet	Survey dates
Kildare	21	1837, 1871, 1939
o	26	1838, 1871, 1939
Laois	04	1839, 1888, 1907
•	05	1838, 1888, 1907
	08	1839, 1888, 1907

The first edition maps were particularly useful in the identification of features along the canal (fig 1.1); these are reproduced in Appendix 1.



Fig 1.1 Lock 3 at Tinnakill, as depicted on 1839 OS six-inch map (rescaled to 1:2500). Note also the uncaptioned lock house and bridge at its north-east end.

Ruth Delany's *Ireland's Inland Waterways: A Celebration of 250 years of Ireland's Inland Waterways* (1986) and *The Grand Canal of Ireland* (1995) provided background historical information on the canal, whilst local history publications gave additional details on some of its features.

The Record of Protected Structures (RPS) for Monasterevin and counties Kildare and Laois enabled identification of those features which have statutory protection within their respective Development Plans. These records are based on fieldwork carried out by the National Inventory of Architectural Heritage and also provide outline descriptions of each protected site. The Record of Monuments & Places (RMP) was also used to identify protected archaeological sites within 500m of the canal.

The canal database maintained by the Inland Waterways Association of Ireland was also consulted. It contains the results of a survey of the Mountmellick Canal carried out by Nick Spalding in 2003.

There is no significant published information on the habitats along the canal apart from the brief note accompanying the designation of the stretch between Skeagh Bridge and Dangans Bridge as a Special Area of Conservation under the European Habitats Directive. For the ecological aspects, therefore, we have had to rely on the original field work carried out for this project.

1.2 Field survey

The built and natural aspects of the canal were surveyed by both authors during the summer of 2006.

The built heritage survey entailed locating and recording all the features noted in the paper survey as well as the identification of sites not previously recorded. The methodology of the National Inventory of Architectural Heritage (2004) was followed for the description of buildings and structures (roofs, walls, doors/windows, interiors where accessible). Representative photographs were also taken; colour film was used for permanency of record, but the images were also digitised during processing.

Plant species lists were compiled along the full length of the canal. In the few instances where adjacent land cover was of significant conservation interest, this is also described in some detail, and cross-referenced with the Heritage Council's habitats' classification (Fossitt, 2000; Heritage Council, 2002) where this was considered useful.

1.3 Computer databases

To facilitate analysis, the data collected on each built heritage site was recorded in a Microsoft *Access* database. Print-outs of each site record are given in Appendix 5 of this report. *MapInfo Professional* (version 7.5) was also used to record the data's spatial attributes. Copies of the maps generated by this program are reproduced throughout this report.

The digitised data are contained in the CD version of this report. Note, however, that it will be necessary to have both *Access* and *MapInfo* in order to utilize the data in these formats.

1.4 References

Brady Shipman Martin (1992) *National Canals and Waterways Strategy* (Dublin: Office of Public Works: Waterways Service).

Champ, L. 'Memories of Portarlington's Canal'. In Orford, D. *Those Were the Days: Memories of Portarlington, 1900 to 1999*, p.38 (Portarlington: Portarlington Historical Society).

Delany, R. and Addis, J. (1977) *Guide to the Barrow: Lowtown to St Mullins* (Dublin: Inland Waterways Association of Ireland).

Delany, R. (1986) A Celebration of 250 Years of Ireland's Inland Waterways (Belfast: Appletree Press).

Delany, R. (1995) The Grand Canal of Ireland (Newton Abbot: David and Charles).

Dunne, A. A Concise History of Mountmellick (Mountmellick).

Fossitt, J. A. (2000) A Guide to Habitats in Ireland (Kilkenny: The Heritage Council).

Heritage Council (2002) Draft Habitat Survey Guidelines: A Standard Methodology for Habitat Survey and Mapping in Ireland (Kilkenny: The Heritage Council).

Hamond, F. (2003) Laois Industrial Archaeology Record (unpublished report for Laois CC).

Higgins, F. 'Our canal - a priceless asset lost'. In Orford, D. *Those Were the Days: Memories of Portarlington, 1900 to 1999*, pp 225-226 (Portarlington: Portarlington Historical Society).

Inland Waterways Association of Ireland. Canal database (unpublished).

National Inventory of Architectural Heritage (2004) *Architectural Heritage Protection: Guidelines for Planning Authorities* (Dublin: Department of the Environment, Heritage and Local Government).

Spalding, N. (2003) 'The Mountmellick Branch'. In Inland Waterways News, vol.30(4).

Scott, M. (1998) *Mountmellick Pictorial Memories: Book 2* (Mountmellick).

Tubridy Associates (2005) The 2005 Laois Habitats Survey (unpublished report for Laois CC).

References to specific sites will be found in the gazetteers in appendices 5 and 6.

2. HISTORICAL OVERVIEW

The Mountmellick Canal runs from Monasterevin to Mountmellick, a distance of 18.6km. It starts at Mountmellick Junction, on the Grand Canal just west of the Barrow Aqueduct, runs westwards around Portarlington, and terminates on the east side of Mountmellick (fig 2.1). Ten percent (1.8km) of the canal's length lies within Co Kildare and the rest in Co Laois.



The Mountmellick Canal owes its existence to the Grand Canal. The latter initially ran from Dublin to Lowtown, Co Kildare (opened 1783), and from there to Athy (opened 1791) where it met up with the River Barrow. By 1804, it had been extended from Lowtown to the Shannon. In 1800, the Queen's County Canal Company was formed with the intention of linking the Athy line with the Castlecomer coalfields on the border of counties Kilkenny and Laois. However, this plan came to nothing and no further progress was made for another two decades.

In the mid 1820s, the Grand Canal Company secured a loan from the government to construct a canal between Monasterevin, on the Athy Branch, to Mountmellick. Messrs Henry, Mullins and McMahon, who had been responsible for cutting most of the Grand Canal, were engaged as contractors under the supervision of Hamilton Killaly, the company's engineer (his father John had also served in this role).

Work started in March 1827 and the canal was ready to receive water all the way to Mountmellick by July 1829. This equates to an average construction rate of 25 metres per day. However, because of its permeable gravely-loam bed, watering proved to be extremely problematic and it was not until March 1831 that it was finally handed over, at a cost of £33,416.

For its first 16 years of its operational life, the canal enjoyed a near monopoly on passenger and goods traffic. In 1847 the Great Southern & Western Railway Company's line from Dublin arrived in Portarlington. It was not until 1885, however, that the GSWR opened a branch line from Portlaoise to Mountmellick. The railways captured all the previous passenger traffic from the canal and it was to be the carriage of bulky low value items such as meal, grain, beer, coal and timber which was to sustain it, albeit never very profitably.

Traffic to Mountmellick ceased in 1939 with the last load of malt from Codd's Maltings but grain barges to Odlum's Mill from Dublin kept the section to Portarlington open. In 1950, the Grand Canal Company merged with Coras Iompair Éireann, the new transport authority set up by the government. Thereafter, goods traffic was sent by road and the canal trade dwindled to nothing.

The canal officially closed in 1960 and was subsequently offered for sale to the various landowners through whose land it ran (fig 2.2). A large section at Portarlington was infilled in 1970 to create a bypass around the town. Responsibility for those sections of canal which were remained unsold was eventually transferred to the Office of Public Works and now rests with Waterways Ireland.

Fig 2.2 Abandoned Mountmellick Terminus, 1960s.



3. CANAL REACHES

For the purposes of description, the canal has been divided into four reaches, each demarcated by a lock at one or both ends and numbered from east to west in the same direction as the canal was constructed (fig 3.1).



Fig 3.1 Course of Mountmellick Canal and numbering of reaches.

The fact that there are so few locks along the canal reflects the fact that it generally follows the floodplain of the River Barrow and therefore does not need to negotiate undulating ground which might otherwise have required additional locks.

For the purposes of describing the canal and its ecology, each reach has been subdivided into sections, each defined according to its state of surival – open and watered, open but dewatered, and infilled, e.g. S102 is the second section along reach 1 (as measured from the Monasterevin end), and S313 is section 13 in reach 3. Descriptions and photographs of each reach and its constituent sections are given in Appendix 2.

3.1 Canal survival

When originally built, the canal comprised the watered bed, a bank on both sides and a drainage ditch along the outer base of each bank. Since closure, 58% of the canal bed (10.7km) has been infilled, although one or other of the banks and associated ditches may occasionally survive. Twenty-nine percent of its length (5.4km) remains open but dewatered. The remaining 13% (2.4km) is open and watered. The survival of the canal within each reach is as follows:

Reach	Infilled (m)	Open, dewatered (m)	Open, watered (m)	Total length (m)
0	15	0	785	800
1	3,318	3,099	491	6,908
2	4,381	0	1168	5,549
3	3,015	2,342	0	5,357
Total length (m)	10,729	5,441	2,,444	18,614

Reach 0 is the shortest reach but contains the highest proportion of open water; all but 15m of its 800m length being maintained in this state by Waterways Ireland. It lies wholly in Co Kildare. Reach 1 is the longest, at 6.9km. It is all within Co Laois except for the first 0.8km above Lock 1. It is mostly infilled or open/dewatered in equal measure; less than 10% is open water. One stretch, north-west of Bergin's Bridge, has been entirely removed as a result of quarrying. Most of Reach 2 is infilled, notably the section from the 2nd lock to Blackhall Bridge, which is now the Portarlington ring road (created 1969-71). At just over 3km, this is the longest continuously infilled section on the entire canal. The remainder of this reach comprises a 1.2km stretch of

open water, the longest such stretch on the canal. There is no open water along Reach 3, most of which is infilled. However, a good open/dewatered stretch survives north-east of Dangans Bridge (fig 3.2).



Fig 3.2a Reach 0 – open/watered section south of Coughlan's Bridge.



Fig 3.2c Reach 2 – Portarlington ring road, west of Odlum's Mill.



Fig 3.2b Reach 1 - open/dewatered section east of Poartarlington Lock.



Fig 3.2d Reach 3: open/dewatered section east of Dangans Bridge.

3.2 Canal ownership

The ownership of the canal since its abandonment has been a determining factor in its survival. Following closure, it was offered for sale to the various owners of the lands through which it ran. Sixty-one percent is now in private hands and the remainder in public ownership; Waterways Ireland retain only 18% of its original length.

As the following table shows, most of the infilled canal sections are in private ownership (this table is based on the analysis of an ownership map in the possession of the Heritage Council). Many farmers have bulldozed the banks into the bed to level the ground and reclaim it for agriculture (generally grazing). In some instances, houses and agricultural buildings have also been erected across the infilled line.

	Infilled (m)	Open, dewatered (m)	Open, watered (m)	Total length (m)
Private	7,111	2,867	1,321	11,299
Public (Dept Agriculture & Food)	0	0	338	338
Public (Laois CC)	3,380	151	0	3,531
Public (Waterways Ireland)	238	2,423	785	3,446
Total length (m)	10,729	5,441	2,444	18,614

Laois County Council also owns a sizeable chunk of infilled canal. Its activity has generally been of a piecemeal nature, short lengths being infilled to allow new sections of road to bypass the original hump-backed road bridges. As already noted, the Council also owns the 3.1km stretch

between the 2nd lock and Blackhall Bridge which it infilled to create a bypass around Portarlington (S201).

Slightly over half of the open/dewatered sections are also in private ownership. The 1.0km stretch over Coolnafearagh Bog (S102) is the longest continuous stretch of this type. Waterways Ireland owns good stretches of open/dewatered canal to the west of Lea Castle (S114) and between Tinnakill Lock and Dangans Bridge (S302, S304).

Waterways Ireland maintain the reach between Mountmellick Junction and the 1st lock in a watered state. Its continuity is interrupted only by two small earthen dams inserted to maintain water levels. The Department of Agriculture & Food also own a stretch of open water north-east of Woodbrook Bridge.

Surprisingly, given the tendency to infill, most of the open/watered stretches are in private rather than public ownership. The longest such stretch is 830m and is a continuation of the Department of Agriculture & Food's stretch at Woodbrook Bridge. There is also a 300m watered stretch to the west of Wheelahan's Bridge (S104). The 190m stretch just west of the quarry in Loughmansland Townland (S110) is possibly a temporary aberration, the canal being used to discharge water from pumping operations.

3.3 Vulnerability to degradation

Although some canal features are in the Record of Protected Structures, the actual bed and banks are not protected, nor are they included in the Record of Monuments & Places.

The privately owned sections of open canal, particularly those not permanently watered, are especially vulnerable to infilling. Fly tipping is particularly detrimental as it both degrades the canal's amenity value and encourages more dumping (fig 3.3).

Trampling of the banks by livestock, where they have access, also has a pernicious effect, accelerating erosion and infilling.



Fig 3.3 Fly tipping near Dangans Bridge.

3.4 Sections of special interest

The most significant surviving open stretches, in terms of their structural intactness, are as follows:

Sections 001-102

The entire 1.8km stretch lying within Co Kildare, i.e. from Mountmellick Junction to the county boundary (fig 3.4). The first 800m to the 1st lock is open water and the remainder is an open/dewatered stretch through Coolnafearagh Bog. Only 30m of the entire length is infilled (in three places).

Sections 114-118

A 1.8km stretch along the north side of the main road between Lea Castle and the former Portarlington Lock. There are two infilled sections along it (32m and 194m long), but it is otherwise open and dewatered. The first section (S114) at Lea Castle is 1.0km long and is now the longest continuously open/dewatered stretch on the entire canal.

Section 202

A 1.2km long open/ watered section north-west of Woodbrook Bridge. This is the longest continuous stretch of its type now surviving on the canal.

Sections 302-304

A 1.7km long stretch north-west of Dangans Bridge, all of which is open but dewatered except for a 41m infilled stretch at Skeagh Bridge.

It is recommended that all open stretches of canal, and the above sections in particular, be considered for statutory protection by including them in the Records of Protected Structures for counties Laois and Kildare and/or the Record of Monuments & Places. This will ensure that the surviving sections of canal are embodied in the statutory planning process. Such a designation should, in theory, provide a mechanism for managing any development proposals along its line (including infilling).



Fig 3.4 Aerial view of sections 001-102. Monasterevin is at bottom right. The canal is highlighted in blue.

4. FLORA AND FAUNA

An overview of the ecological character of each section is presented in here, with the emphasis on the dominant vegetation species along each stretch. A full species list, with both scientific and English names, is presented in Appendix 3. The numbering of the sections described below is as the preceding chapter.

4.1 Detailed description of sections

Sections 001 to 005 (Mountmellick Junction to 1st lock)

The flora along the towpath includes burnet saxifrage (Pimpinella saxifraga) and rough hawkbit (Leontodon hispidus).

Sections 101 to 103 (1st lock - Wheelahan's Bridge)

The canal is blocked for a short distance at the 1st lock, but this is followed by a long open stretch as far as the county boundary. At first the channel is entirely choked and overgrown, grey willow dominant, with great hairy willowherb and yellow flag; the field in the angle of the bend is wet rushy pasture with meadowsweet.

Horses have access to the canal all along this stretch. This has caused poaching and severe erosion to the banks so that it has almost lost its profile in places, but on the other hand it has kept it open and made it possible to walk the entire length of this stretch (fig 4.1). For much of it,

the banks are covered with dense bracken, but in places (especially towards the east) it has the character of limestone grassland, with many species of interest (it would be much clearer in winter). These include lady's bedstraw, marjoram, red bartsia, wild carrot, eyebright, fairy flax, black knapweed, yellow centaury, quaking grass, selfheal, red clover, ribwort plantain, bird's-foot trefoil, greater hawkbit, cat's-ear, common agrimony, cinquefoil. A striking feature is the great profusion of yellow rattle in places, a plant of less intensively managed grassland which has declined greatly over Fig 4.1 Looking north-west along dewatered the last 50 years or so.



canal (S102) from just north of 1st lock.

In the wetter sections meadowsweet, yellow flag, great hairy willowherb and often hard rush remain dominant, with silverweed, marsh woundwort, angelica, redshank, marsh thistle, devil'sbit scabious, water mint, hemp agrimony, marsh bedstraw. Gipsywort, fleabane and lesser fox sedge occur in a number of places.

Grey willow and tall hawthorn dominate the edges of the banks, with hazel, ash and the occasional black poplar. Guelder rose is scattered here and there. There are some fine individual birch trees on the north side near the county boundary. A curtain of furze separates the canal from the bog on the south and often invades the bank.

Coolnafearagh Bog

The area of cutover bog between S102 of the canal and the road is of exceptional interest (fig 4.2). A list of vascular plant species recorded during two visits is presented in Appendix 4.

There is a belt of fen, with irregular pools, running parallel to the road (dominated by black bogrush, purple moor-grass and devil's-bit scabious), and separated from the road by a screen of grey willow, birch etc. There are substantial stands of great fen sedge Cladium mariscus. (It should be noted that *Cladium* fen is a priority habitat under the Habitats Directive). Crack willow (with very numerous Pontania sawfly galls) is of frequent occurrence in the margins.



Fig 4.2 Approximate extents of Coolnafearagh and Clonanny bogs.

Many of the drains and recolonised pools have an abundance of bog cinquefoil, marsh bedstraw, greater stitchwort; milfoil is abundant in many holes, together with horsetail, cotton grass, stonewort, bogbean, several species of sedges, and bladderwort. The non-flowering plants include royal fern, several species of *Cladonia* and several of *Sphagnum*.

The fauna on the site includes frog and newt, and there is a very diverse invertebrate fauna, both terrestrial and aquatic. This includes the marsh fritillary (an Annex 2 species under the Habitats Directive and the habitat of which is therefore protected under European law) and also the fen spider *Dolomedes fimbriatus*. There is a conspicuous and abundant fauna of large hymenoptera, hoverflies, beetles, dragonflies and several butterfly species.

At the bottom of the slope at the roadside the scrub is dominated by grey willow, with ash, hawthorn, hazel, white willow, with some field rose and bramble and the uncommon wild hop. The grassy verge is dominated by false oat, along with cock's-foot, *Festuca* sp., annual meadow-grass. The common herbs present include yellow rattle, meadow vetchling, ragwort, creeping buttercup, silverweed, nettle, great bindweed, field horsetail, lamb's-tongue plantain, black knapweed, dandelion, creeping thistle, common dock. There are deep bogholes at the northern edge; there are excavations scattered over the surface with little in the way of an obvious pattern. There are a numerous regenerating pools; these have much bog asphodel, with some *Sphagnum*, including *cuspidatum* and *fuscum*.

Clonanny Bog

This is located on the opposite side of the road from Coolnafearagh Bog (fig 4.2). It is mainly cutover raised bog, with a small area of dry high bog remaining: this is being actively cut from the south side. The remaining areas of high bog are dry, often dominated by cross-leaved heath rather then *Calluna*; mountain everlasting and deer sedge occur in this area, with some black bog rush. Lousewort, few-flowered spikewort, common butterwort, pale butterwort, marsh helleborine and twayblade are common. Spotted orchid is locally abundant. There is a fairly diverse moss flora, and an abundance of several species of *Cladonia*, especially *C. floerkeana*.

The canal disappears at the county boundary, the line running into open farmland, though generally marked by hedges and a laneway leading to the yellow house at the county boundary beyond which it again appears. There is an attractive belt of birchwood fringing the north bank where the canal disappears.

The channel has been filled in and landscaped at Wheelahan's Bridge, with amenity planting of *Sorbus* and other species. The grassland around the bridge is dominated by false oat, with much silverweed, red fescue, timothy, cock's-foot, Yorkshire fog, and includes among the more interesting species yellow pea, meadowsweet, creeping fescue, common valerian, hard rush, cinquefoil, black knapweed, tufted vetch, red clover, perforated St. John's wort, quaking grass, hogweed, fairy flax, bramble, grey willow, nettle, great bindweed, reed grass, dock, tussock grass, lady's bedstraw, bush vetch, ribwort plantain, wild carrot, ragwort, spear thistle.

Sections 104 to 109 (Wheelahan's Bridge - Bergin's Bridge)

East of Wheelahan's Bridge tarred roads have been laid down on both sides of the channel; the road on the south side is overarched with tall hazel hedges. The canal here contains open water: but it is stagnant, completely overgrown with woody vegetation (principally grey willow and ash), inaccessible and of little ecological interest. Away from the canal, hedge banks contain much false brome, and tutsan was noted. Further on in this direction the canal has been entirely fenced in at first, then levelled, only a hedged bank plus ditch (with a step drop down to the ditch on the south side, but the hedge, as usual, much overgrown and unmanaged.

Opposite the new house at the end of the new road on the north side there has been so much dumping in the channel that it is completely blocked; crack willow, tall white willow and black poplar occur at this point. South-west of this point the channel is completely filled with aquatic vegetation, reed sweetgrass and great hairy willowherb being especially prominent (fig 4.3). From this point south-west to the infilled section towards the bend is one of the most impenetrable sections of the entire canal.

Land quality in the vicinity is generally improved, but there is a patch of neglected grassland north of this infilled section of some interest, with much red



Fig 4.3 Looking north-east from south-west end of dewatered section 106.

fescue, bartsia, silverweed, meadow fescue, cock's-foot, tussock grass, hairy sedge, cinquefoil, black knapweed, lady's bedstraw, hard rush, bird's-foot trefoil, lots of bindweed, some rosebay willowherb. Along the line of the infilled canal in one place some interesting species have colonised the grassland in the open field on the north bank: eyebright, self heal, autumnal hawkbit, yellowort, milkwort, quaking grass, red fescue are all well represented.

The canal is open for a short way behind the houses along the road that runs north-west towards Lea Cross Roads (S108), but it is dry and almost totally overgrown and almost inaccessible (and often used as a dump). There has been an attempt to clear all the vegetation in the canal behind one of the new houses, and this is the only bit of this stretch that is accessible. There is an interesting patch of willow scrub in the corner of the field beside the canal where the latter re-appears: with much tussock grass, black knapweed, tall white willow, crack willow, goat willow, bit of white poplar nearby, hawthorn etc. The hedge running back into the field from here has a short stretch that is just lilac; there is an active badger sett in the bank here.

The only feature of ecological interest at Bergin's Bridge is the profusion of ivy broomrape on the slope leading from the road down to the canal on the south side.

Sections 109 to 113 (Bergin's Bridge - Lea Castle)

Although it is fringed with the usual tree and shrub species, the water in the canal at Section 112 – which is sometimes wet – is eutrophic, dominated by nettle, with hardly any of the characteristic aquatic plants seen everywhere else. The reason for this becomes apparent further east, where water from the limestone quarry north of Lea Cross Roads (in S110) is being fed into it (fig 4.4). Where the track from the Church crossed the canal the latter has



again been levelled for a short distance (S111), and this causes this drainage water to fill the channel. At the boundary of the quarry the canal itself is again lost, and is not seen again until some way south-east of Bergin's Bridge.

The small triangular field between the line of the Fig 4.4 Looking west along watered section canal (S112) and this track (surrounded on two sides 110 from just west of bend in canal. by invading damson and blackthorn) is species-

diverse pasture. The species present include the following: common bent, Yorkshire fog, red fescue, sweet-vernal grass, black knapweed, red clover, red bartsia, meadow buttercup, germander speedwell, meadow vetchling, marjoram, yarrow, spotted orchid, lady's bedstraw, ribwort plantain, meadow vetchling and hogweed

There is an extraordinary abundance of ivy broomrape in Lea Church graveyard, in the laneway on either side of it, and in places on the canal banks. Wild clematis is a prominent feature of the hedges in this area. In the fields around Lea Castle House mugwort is very abundant. There is a large open pasture bordering the north canal bank opposite and north-west of the quarry; on one side of this is an exceptionally fine damson hedge.

The infilled canal runs through a field of maize, and re-appears where the track from Lea Church once crossed (S112); there is a good deal of dumping in the channel. The canal banks and their cover of scrub are generally poached and degraded in this section, and much overgrown. The canal has been levelled for a short distance east of where the road to Lea Castle crosses (S113).

Sections 114 to 119 (Lea Castle - Portarlington Lock)

The canal is open for most of the way between Lea Castle and Portarlington. At the lane that leads to Lea Castle the channel is dry and there is some grass, but for most of the time it is encroached upon by the usual canal bushes: grey willow, blackthorn, hawthorn, hazel, holly and always much bramble. In addition the bounding hedges contain much privet, ash, dog rose,



honeysuckle: and spindle and guelder rose occasionally.

Westwards from Lea lane, the channel gets wet and muddy, and at times carries pools of standing water. The channel community is dominated as usual by reed sweet-grass, horsetail, wild iris, hard rush, water mint, creeping bent, with mare's-tail, flowering rush, brooklime, lesser and greater hairy willowherb, angelica, brooklime, lesser spearwort, water forgetme-not, marsh bedstraw and bur-reed (fig 4.5). Several water hens were seen in the canal here.

Along the towpath in the stretch south-west of Lea Castle House there is old hazel coppice for much of the way. In adjacent hedges (always overgrown) there are some nice beech and ash. For much of the time (though not always: it is

Fig 4.5 The dewatered canal at Lea (S114) showing reed sweetgrass and yellow flag, lightly grazed. locally impassable) the path is open and easy to walk, with little ground vegetation. This is because cattle have free access to most of the canal from the north side and this has resulted in much erosion of bank and slopes. Many common woodland plants occur, including primrose, bluebell, herb bennett, wood sanicle, wild arum, common dog violet, cow parsley, hogweed, wood anemone, even cowslip. In less grazed sections on the south bank false brome appears more widespread, as is wood sedge and wood sorrel. An interesting bolete provisionally identified as *Boletus radicans* occurs here and there in the wood (as does *Amanita virosa*).

Locally there are patches of grazed grassland on the banks, and these have many of the species characteristic of limestone grassland: lady's bedstraw, bird's-foot trefoil, eyebright, fairy flax, yellow rattle, meadow vetchling, perforated St. John's wort, tufted vetch. Meadow ant occurs here.

West of the field of unimproved grassland described below the field is separated from the canal by barbed wire, and the bank is more overgrown and less easy to walk. Between these two fields there is a small hazel coppice (really just an extension of the coppiced bank). This is the side from which animals enter, so the wood and banks etc. are more degraded on this side; primrose and cow parsley seem to survive well though locally. The stretch of coppiced hazel on the north bank immediately west of Lea Castle lane though is almost bare ground. There is a prominent black poplar just here. The curved hedge south-west of Lea Castle House is a superb example of what happens when a hedge 'escapes' through lack of maintenance: it is now in ecological terms a line of hawthorn and no longer a hedgerow.

There is a nice aspen grove where the track to the sewage works crosses the canal, which is infilled at this point (S115). There is extensive growth of water cress in the drain leading to the canal across the barley field from the direction of the Sewage Plant. There is a partial infilling of the channel where this drain reaches the canal, and dumping has reduced the channel to a ditch in places. Locally there is much crack willow, and some white willow and white poplar.

The open canal comes to an end just north-east of Lock Bridge. It is greatly overgrown in Sections 116 to 118, but is wet and has the usual complement of species - reed sweet-grass,

yellow flag etc (fig 4.6). The margins and banks are extensively overgrown (principally by grey willow, hazel, ash and hawthorn) and in very poor condition, and there is none of the hazel coppice or woodland ground flora seen further east towards Lea Castle. Sometimes the bank is just a strip of grassland of little interest (as it is between the canal and the barley field south of the Sewage Plant). This strip is a continuation of the lane that runs beside the canal on the north side from Lock Bridge; for the length of the lane the boundary between it and the canal is a maintained hawthorn hedge.



Fig 4.6 West along section 118.

Between the west end of the barley field and the river

there is a small patch of fen set in calcareous wet grassland that would merit a closer look. The grassland between the barley and the river (and running all the way back to Lea Castle House) is sometimes species diverse, and has some of the features of unimproved wet grassland (GS4 in the Heritage Council's classification), but it is often rushy pasture and locally more improved and drained.

There is a minimum of management: some attempt to maintain the drains, but no external nutrient inputs. The co-dominance of autumnal hawkbit in the drier parts of the pasture is striking at this time of year.

Section 201 (Portarlington Lock - Lansdowne Park)

The only feature of ecological interest in this long stretch is a wonderful corner of wet callowtype flooded grassland (GS4) that survives in the triangular area of land immediately west of Ballymorris crossroads where the bridge once stood (fig 4.7). This is dominated by meadowsweet, tussock grass, purple moor-grass and purple loosestrife, with timothy, cock's-foot, tall fescue, meadow vetchling, creeping bent, hard rush, yellow flag, other rush, sweet vernal grass, Yorkshire fog, meadow buttercup, common valerian, tormentil, red fescue, water mint, reed sweet-grass, marsh woundwort, tufted vetch, black knapweed, water horsetail, and in the adjacent ditches rough-stalked meadow grass, and *Glyceria notata*. Grey willow is encroaching, and on the margins are abundant guelder rose, some ash, white willow, goat willow, and some more weedy species such as great bindweed. In the corner there is a fine black poplar. This corner of wet grassland has probably developed as a result of the demolition of Ballymorris Bridge, and is a glimpse of a habitat that might have become more widespread with greater ecological foresight fifty years ago.

North-east of Blackhall Bridge nothing survives of the canal. Its course is marked by a bank and wet ditches that often flood in winter. Broomrape is seen along here in places. There are houses all along the line, and on the town side of the railway bridge much of it built over by industrial development etc. The railway viaduct over the dry canal is almost the only physical trace.

There is no trace of the canal in the fields south-west of Blackhall Bridge. This section ends at the entrance to Lansdowne Park. At the bridge itself there has been a certain amount of development for amenity purposes, but nothing of interest survives except the bridge itself.



Section 202 to 203 (Lansdowne Park - Woodbrook Bridge)

The canal is open, well-preserved and often wet along all of this stretch, which ends at Woodbrook Bridge. The bridge itself was demolished after the decommissioning of the canal for reasons of safety. The channel is often very shaded, with scant vegetation; it is frequently filled with fallen trees and branches (fig 4.8a). The main species are yellow flag, horsetail, reed sweet-grass, lesser water-parsnip.

At the eastern end of this section, a belt of woodland belt on the south bank that runs most of the way to Woodbrook Bridge ends. There is just a dense overgrown bank with a cattle path through the scrub (fig 4.8b). Towards the end of the open section of canal (south of the Lodge) the towpath has been levelled and is now covered with rank weedy vegetation. At this point there has been extensive dumping of rubbish in the channel.

There is hazel coppice on the north bank, and there has been an unsuccessful attempt to interplant with Sitka spruce. Much of the floor is dominated by false brome and ivy, with wood avens, wood sanicle, bluebell, common dog violet, wood sedge, burdock, primrose. A notable feature is the great abundance of ivy broomrape all the way along the north bank in particular. Cattle have had access to the bank here, which has been a main factor. A white *Amanita* species (*Amanita virosa* var. *alba*: but cf. *strobiliformis*) was recorded here (and at several other locations in the canal-bank woods). Dryad's saddle also occurs in a few places.



Fig 4.8a Watered section 202 east of Woodbrook Bridge



Fig 4.8b Cattle track through scrub along south bank east of Woodbrook Bridge.

The bank along the northern side of the canal is obstructed and much more difficult to negotiate along the edge of the area of barley, and there is no animal access from here – which is largely why it is so overgrown. There are badger latrines and paths here and there may well be a sett.

There are some fine trees along the boundary with the adjacent farmland on this side (mainly beech and ash) though many others have been cut.

The towpath side is still more open (east of the bridge anyway), again because cattle grazing the adjacent fields have access. Most of the species seen on the opposite bank occur here also, but not – interestingly – ivy broomrape. By contrast, the bit of the towpath that lies within the Coillte property, just east of the bridge, is much poorer in species. Here also there has been a failed attempt to plant Sitka spruce among the hazel.

Section 203 (Woodbrook Bridge – Tinnakill Lock)

The line of the infilled canal runs north-east through open fields on either side of Tinnakill Lock. Looking south-west from Woodbrook Bridge almost nothing remains to show the original canal (fig 4.9). The wood on the south-east side of the road that runs parallel to the vanished canal is considerably rich in species, especially the boundary, which is a high bank with ditch on either side, similar to that seen at Clonterry (S306) and elsewhere. This is the edge of the old demesne woodland of Woodbrook.



Fig 4.9 *Far left:* Looking south-west from Woodbrook Bridge in the direction of Tinnakill Lock. The canal ran down the field away from the camera but is now entirely infilled.

Left: Looking south-west along infilled canal towards Tinnakill Lock.

The following species were noted along this section:

Oak	Guelder rose	Meadowsweet	Eyebright
Ash	Privet	Bird's-foot trefoil	Autumnal hawkbit
Elm	Furze	White clover	Yarrow
Scots pine	Honeysuckle	Heather	Cowslip
White poplar	Tussock grass	Tormentil	Herb Robert
Grey willow	Cock's-foot	Red clover	Purple loosestrife
Goat willow	False brome	Creeping thistle	Perforated St. John's
Holly	Wood brome	Black knapweed	wort
Beech	Red fescue	Hogweed	Marsh bedstraw
Hazel	False oat	Figwort	Angelica
Birch	Quaking grass	Yellow pimpernel	Water mint
Yew	Creeping bent	Great bindweed	Common valerian
Rowan	Yorkshire fog	Rosebay willowherb	Meadow vetchling
Bramble	Carnation sedge	Great hairy willowherb	Marsh woundwort
Blackthorn	Glaucous sedge	Hoary willowherb	Hemp agrimony
Alder	Soft rush	Nettle	Creeping buttercup
Hawthorn	Hard rush	Meadowsweet	Meadow buttercup
Field rose	Field horsetail	Bush vetch	Marsh thistle
Spindle	Water horsetail	Tufted vetch	Ribwort plantain
Dog rose	lvy	Cinquefoil	Bracken
Snowberry	Red bartsia	Bittersweet	
-			

Section 301 (Tinnakill Lock)

What remains of Tinnakill Lock and the lock house is now an island enclosed on all sides by barley. A stand of marsh woundwort in the corner of the field carries an echo of the canal vegetation. West of the barley field the canal survives as a raised bank with an overgrown ash and beech hedge on the outside: then it disappears.

On what remains of the stonework of the lock an isolated patch of limestone grassland remains, though it is being encroached on by bramble, field horsetail, creeping thistle, ragwort etc. This is dominated by red fescue and black knapweed; other species surviving here are yarrow, pignut, cowslip, fairy flax, lady's bedstraw, glaucous sedge, false oat, cat's ear, bird's-foot trefoil, red clover, mouse-ear chickweed, mullein.

The house is derelict though not beyond repair; swallows are nesting inside. Some of the old ornamental plants survive: old roses, French marigold, bridewort and most notably Duke of Argyll's teaplant. White stonecrop grows on the stonework.

Section 302 (Tinnakill - Skeagh Bridge)

The channel is open but choked with herbaceous and locally more scrubby vegetation east of Skeagh Bridge (fig 4.10). A tarred road runs along the north bank almost all the way along this section. Young beech trees have been planted between this and the open channel; the grass is mown along this road and encroachment by scrub prevented. The channel east of the bridge has the usual wetland community, though weedy species are more in evidence because of the character of bank management on this side. Great hairy willowherb, reed sweet-grass, reed

grass, meadowsweet are dominant, along with square-stemmed St. John's wort, woody nightshade and some tufted hair grass and hoary willowherb and common reed very locally; more weedy encroaching species include scutch grass, creeping buttercup, large bindweed, cleavers, hogweed, creeping bent, herb Robert, hedge parsley, bush vetch etc. There is a line of alder along either edge of the channel in places. Woody species are hawthorn, ash, blackthorn, grey willow, elder, much briar and bramble. Towards and around the bend the channel becomes quite dry. The quality of the channel vegetation becomes more impoverished to the northeast, in the direction of Tinnakill Lock.



Fig 4.10 Looking east along S302 from Skeagh Bridge.

Conditions are very different on the opposite side. Here the channel is bounded by a high wooded bank that is completely cut off from the adjacent farmland in the usual manner by a tall hedge that has not been cut since it was planted (it is over 10m high in places). There is little vegetation along the bank under these tall trees; often there is little except ivy. The usual mixture of tree and shrub species occurs, along with an occasional whitebeam.

Section 303 (Skeagh Bridge)

The canal channel has been filled in at the crossroads, on the far side of Skeagh Bridge itself and briefly beyond. The bridge stands isolated on the edge of a small patch of amenity grassland which is acquiring its own interesting mixture of species with the passage of time (autumnal hawkbit was attractively prominent at the time of visiting).

Section 304 (Skeagh Bridge - Dangans Bridge)

This is one of the most interesting remaining sections of the canal and has been designated as a Special Area of Conservation under the EU Habitats Directive (fig 4.11). The channel is open almost all the way between Skeagh Bridge and Dangans Bridge apart from the short section 303. The curved section at the end, immediately east of Dangans Bridge, is one of the few places where there is a real sense of the canal as it once was: it is wet, open and there is little woody vegetation (fig 4.12).

The channel itself is choked with reed sweet-grass, yellow flag and horsetail, great hairy willowherb and purple loosestrife; fleabane and hoary willowherb occur locally and there is abundant marsh bedstraw. It is from this stretch that the protected snail *Vertigo moulinsiana* has been recorded (see below). The tow path on the south side at this end of the section has



Fig 4.11 Extent of SAC.

most of the species found on the dry bank slightly further on in Clonterry (S306; meadow vetchling, self-heal and tufted vetch appear especially prominent), as well as golden oat grass and yellow oat grass. The tow path is separated from the farmland adjacent on the south side by a wet ditch and a neglected 'escaped' hedge of hawthorn, blackthorn, ash, alder, white poplar, holly and much privet. There is a solitary yew tree and one whitebeam. Towards the townland boundary bramble and furze begin to encroach on the bank.

On the far side there is a derelict hedge between the canal and the fields (largely hazel), but there is access from the field on the east of the road to the channel (which is very unusual where the latter is open). There has been a small amount of dumping in the canal at the bend,



Fig 4.12 Looking south-west along S304, east of Dangans Bridge.

where there is a fragment of the hazel coppice so characteristic of the bank elsewhere. There is some aspen on the west bank beyond the bend. The field north of the townland boundary is (unusually) separated from the canal by a well-maintained hedge. North of this the hedge has simply been left to itself since the canal was cut off - as has happened generally wherever the channel remained open.

The open section of bank comes to an end at the first cross-ditch north of the townland boundary. From here all the way back to Skeagh Bridge it is wooded. False brome becomes dominant on the shaded bank, with tall carnation sedge and primrose prominent in some places, and local wood sedge. Where there is least light ivy often takes over the ground cover. Sweet-grass continues to be locally dominant in the channel but as the woody vegetation closes in this disappears and the channel becomes dry and choked with growing and fallen trees. The tall young trees are as usual ash, hawthorn and beech, with grey willow, hazel and holly, occasional elm, and in the shrub layer privet and (locally) guelder rose. There is considerable badger activity (paths, latrines, possible sett nearby).

Very different though it is in character, and a good example of a stretch of the canal that was hedged off and essentially simply forgotten about – so that it has gone its own way in terms of vegetation development – this is a very attractive stretch of the line, with a sense of wilderness about it, and of great interest in the basic ecological lessons it teaches.

Section 305 (west of Dangans Bridge)

The canal is infilled across the triangular field immediately to the west of the bridge. There is a line of fine beech in the hedge that runs north-westwards from the canal just west of the townland boundary.

North-west of this infilled section there is an exceptionally interesting mosaic of variably wet grassland and fen (fig 4.13). There have been unsuccessful attempts in the past (repeated recently) to drain this area. The vegetation here includes black bog rush, bog thistle, purple moor-grass, meadowsweet, heather, common bent, devil's-bit scabious, fleabane, common



Fig 4.13 Fen to north-west of Dangans Bridge.

valerian, purple loosestrife, marsh thistle, *Juncus acutiflorus*, and *Juncus subnodulosus*. The new drains contain much water plantain and stonewort, New Zealand willowherb and bog pimpernel. This area should be preserved and would well repay fuller survey.

Section 306 (Clonterry embankment)

The section that runs along the line of the canal through Clonterry townland is one of the most interesting along its entire length. Although the canal bed has been infilled and is in the same state as sections 305 and 307, it has been highlighted on account of its ecology.

Compared with other sections of bank, this one is relatively high and has a prominent ditch on either side. Whether it is the original size or has been heightened using spoil from the canal is difficult to determine now. The ditches themselves are species-diverse in places, but the main interest is in the bank itself, which has remained open for the most part, although there is some invasion by the occasional hawthorn and holly mainly. Although not grazed, the vegetation here would be classified as GS1 (dry calcareous and neutral grasslands). The community includes the following species – and a more detailed survey would certainly increase this:

Bird's-foot trefoil	Cowslip	Mouse-ear chickweed	Ribwort plantain
Black knapweed	Creeping bent	Mouse-ear hawkweed	False brome
Bladder campion	Dandelion	Oxeye daisy	Slender St. John's wort
Bush vetch	Devil-s bit scabious	Pignut	Smooth hawk's-beard
Cat's-ear	False oat	Primrose	Sweet vernal grass
Cinquefoil	Glaucous sedge	Pyramidal orchid	Tufted vetch
Cock's-foot	Greater hawkbit	Quaking grass	Tussock grass
Common bent	Hogweed	Red bartsia	Yarrow
Common spotted	Lady's bedstraw	Red clover	Yellow rattle
orchid	Meadow vetchling	Red fescue	Yorkshire fog

There are several old nests of the yellow meadow ant (*Lasius flavus*) along the bank. In places the bank is wooded but still open. It becomes more wooded towards the north-east end. The wooded section is mainly hazel coppice, with ash, beech and hawthorn, grey willow and (more rarely) white willow, with false brome dominating the ground flora where the ground is not covered with ivy. There are several wild apple just before the bank becomes choked up at the north-east end.

The north-eastern end of the embankment terminates a short way to the west of Dangans Bridge, just at the townland boundary. Towards the end it becomes wooded over but remains

easy enough to walk. Ivy broomrape occurs again in this section, and there is a great profusion of the species along the main road north of Dangans Bridge.

Section 307 (north-east of Kilnacash Bridge)

Towards Kilnacash Bridge the canal has been replaced by a high wooded bank fringed with trees and with a variably wet ditch on either side: mainly beech, ash, goat willow and hawthorn, with damson, elm, blackthorn, alder, holly, elder, hazel and the ubiquitous bramble (one copper beech). There is occasional sycamore and snowberry. Some of the ash trees are tall and well grown.

At the south-western end of this section the bank is very shaded and often easy to walk along, with scant ground cover: often dominated by false brome; primrose, wild arum, hogweed, pignut, wood avens and common dog violet are all common. On the south-east side of the canal (behind the new house) there is a line of old beech in poor conditions, at least one of which has dryad's saddle (*Polyporus squamosus*) growing on it. Where the boundary ditches are wetter and well lit there is meadowsweet, reed sweet-grass etc.

Immediately north-east of Kilnacash Bridge the canal line is bounded by a strip of rank wet grassland and scrub dominated by false oat with much great hairy willowherb, bramble, creeping thistle etc., occasional St. John's wort and common figwort. There is a small clump of Japanese knotweed which shows little sign (so far anyway) of spreading.

Along the edge of the canal opposite the farmhouse by the roadside is a grove of aspen, and close by an active badger sett (there is badger activity along most of the wooded sections of the canal). There is more aspen a short way to the north-east.

The bank has been leveled for a short distance just north-east of the benchmarked culvert. This temporarily open section has a considerable variety of herbaceous species of interest – black knapweed, perforated St. John's wort, water mint, angelica, giant fescue, wild carrot, great hairy willowherb, field agrimony, meadow vetchling, cowslip, white clover, carnation sedge, red bartsia, mouse-ear chickweed, false brome, timothy, creeping bent, meadow buttercup, broad-leaved dock – but there is also much weedy vegetation and invading scrub on the edges (the invaders including grey willow, blackthorn, bramble, nettle, Yorkshire fog, creeping buttercup – and aspen). The overgrown ditch on the north-west edge here is dominated by reed sweet-grass, reed grass, great hairy willowherb.

For a short distance north-east of this levelled section the wooded bank is impenetrable before opening up again.

The ditch on the south-east side is particularly interesting here, with purple loosestrife, angelica, water mint, bittersweet, meadowsweet, locally dominant lesser water-parsnip and water-cress, with much marsh bedstraw, and common valerian.

Section 308 (south-west of Kilnacash Bridge)

The open canal is bounded within degraded hawthorn hedges, with much privet, occasional crab apple, sycamore and holly. There is a small amount of dumping at the bridge itself. The channel is edged with tall young trees, mainly beech, ash, hawthorn, elm, holly occasional damson and rowan (fig 4.14). In places the ground is more or less completely covered with creeping ivy. The trees have been cut in the past, but not recently.

The canal banks are very shaded, the vegetation on the banks under the trees dominated by roughstalked meadow grass, cock's-foot, creeping thistle,



Fig 4.14 Looking south-west from Kilnacash Bridge.

perennial ryegrass, bramble, broad-leaved dock; herb Robert, cleavers, hogweed, nipplewort, herb Bennett, small chickweed, primrose, wild arum, nettle, male fern, ragwort, spear thistle.

There is very little vegetation in the dry channel itself along this stretch. There is slurry spreading in the field on the north side of the canal south-west of the bridge. Further away from the bridge (in the direction of Mountmellick), where there is more light, the channel is densely filled with bramble, briar, nettle, blackthorn, making it more or less inaccessible.

Section 309

This is a very short infilled section, with nothing of significant interest: weedy GA1 (improved agricultural grassland), largely overgrown with creeping thistle, ragwort, broad-leaved dock.

Section 310

The open, dewatered canal is bounded within degraded hedges, with houses backing onto it on the south side towards the eastern end. There are tall beech trees along the bank, and much tall overgrown hawthorn (fig 4.15). The bank is dominated to a great extent by coppiced hazel, and there is much ivy carpeting the ground under these, with some false brome. This section is open, and easy to walk through along a path on the bank under the hazel. The most interesting feature is the presence here of abundant ivy broomrape. Guelder rose occurs here and there.



Fig 4.15 Looking west along S310.

There is a great deal of cleavers and nettle about, especially in the channel, and a lot of creeping thistle, creeping buttercup, rough-stalked meadow-grass, some broad-leaved willowherb and meadowsweet and broad-leaved dock. There is a great deal of grey willow in the channel, which is largely inaccessible in places, with frequent bramble thickets. A wet ditch runs along the southern edge which also has much broad-leaved willowherb. Marsh woundwort occurs occasionally.

Where conditions are more open, small patches of limestone grassland occur on the bank, with species such as black knapweed, bird's-foot trefoil, cinquefoil, Yorkshire fog, yarrow, sweet vernal grass, meadow fescue, red clover, ribwort, field agrimony, timothy, mouse-ear chickweed, tufted vetch, germander speedwell, common dog violet and hedge parsley. Where there is plenty of knapweed, there is much butterfly activity.

Wet grassland GM4 beside canal on north side

On the north side of the canal at this point is an area of wet grassland (GM4) that grades away from the canal into drier but very rough grassland. This is dominated by creeping bent, marsh thistle, meadow buttercup, meadowsweet (forming almost pure stands in places) and great hairy willowherb, with silverweed, redshank, common reed, hard rush, horsetail, with some patches of saw sedge. Meadow rue is present here, but rare.

Mountmellick Aqueduct over Triogue stream

The stream here is eutrophic, with dense growth of *Cladophora*, but with a diverse fauna nonetheless. Waterhen and kingfisher were observed during a brief visit. The marginal vegetation is dominated by flote grass (*Glyceria fluitans*), and great hairy willowherb, together with bur-reed (both species), reed grass water crowfoot, creeping bent, water starwort, water forget-me-not, Canadian pondweed, water dock. Small bindweed is common, and back from the water red bartsia.

On the bridge itself are one or two very small patches of limestone grassland, with lady's bedstraw and red fescue, meadow vetchling, wild carrot, field scabious, cinquefoil, lesser hawkbit, fairy flax, selfheal and mouse-ear chickweed (fig 4.16). The bridge is extensively overgrown with ivy, blackthorn and bramble, with tall ash, hawthorn and grey willow on the bank.

Section 311

No trace of the canal remains along this short Fig 4.16 Looking east across the aqueduct. section, which is marked by a barbed wire fence,

then picks up as a line of overgrown hawthorn, ash and hazel behind the new house opposite the football field. There are several oak and white willow in hedges northwards away from the canal. There is much cow parsley in evidence here (and in the canal woods more locally).

West of the house the line of the former canal is reflected in a line of tall young white willow and a hedge of alder adjacent. Between these two there is a short belt of grassland dominated by Yorkshire fog, with abundant wild carrot, sweet vernal grass. The west end of this has been used for the dumping of grass and other vegetable debris. In the field between this and the road there is an abundance of poppy.

Section 312

This section of the canal is dewatered but still wet. It would normally contain some water, but was dry underfoot when surveyed because of a recent exceptionally long spell of dry weather. To either side tall young trees screen the channel on either side: hazel, grey willow, alder, ash, privet. The normally wetter sections of the channel itself is dominated by reed sweet-grass, with some angelica, vellow flag, redshank, meadowsweet, and a line of saw sedge locally along the edge. Marsh bedstraw is prominent and gipsywort occurs locally. Where it is not so wet creeping buttercut and creeping bent Fig 4.17 Looking east from half-way along tend to dominate.

open/dewatered section 312.

The bank on either side is much overgrown, giving the vegetation something of a woodland character, with abundant false-brome, primrose, cow parsley and wood avens, along with hart'stongue. Goutweed, surprisingly, and snowberry have invaded at the western end of this section. A single large fruiting body of the destroying angel toadstool (Amanita virosa var. alba) was noted. Down at the edge of the channel where it is wetter there is much alder and grey willow, and occasional white willow. There is an active badger sett here.

In the patch of wood at the western end of this section of the canal there is an unusual diversity of species: hawthorn, ash, beech, grey willow, blackthorn, hazel, elder, bramble, wild rose and ivy: but also crab apple, white willow, lilac, elm, honeysuckle, damson, oak and snowberry (some of these invading from adjacent hedges).

Section 313 (Debicot Bridge – canal terminus)

The open section ends just before Debicot bridge. The bridge itself is fenced off from surrounding land, and the vegetation retains something of its original limestone grassland character, although there has been extensive encroachment by scrub (some of this recently cleared but advancing again). Among the species occurring here are guaking grass, sweet





vernal grass, red fescue, Yorkshire fog, false oat, cock's-foot, lady's bedstraw, black knapweed, bird's-foot trefoil, cowslip, pyramidal orchid, red clover, mouse-ear hawkweed, smooth hawk's-beard, cat's-ear, bladder campion, tufted vetch, yarrow, cinquefoil, glaucous sedge, hogweed, with creeping bent prominent in the more weedy vegetation away from the bridge, along with plenty of bramble and creeping thistle. There is a small patch of rosebay willowherb along the fence. A small sycamore bush is densely covered with tar spot fungus *Rhytisma acerina* (an indicator of clean air).

4.2 Fauna

The main emphasis in the ecological aspect of this study is on vegetation and general habitat quality. Faunal observations were limited to chance encounter during the relatively rapid 18km transit required for the survey and further restricted by seasonal limitations.

Mammals

The line of the canal is clearly of importance to badgers, which are active along several sections and use the canal as a corridor in otherwise generally open farmland. Foxes were observed on two occasions.

Birds

Many farmland birds use the refuge provided by the line of the canal for feeding, shelter and nesting, but no significant observations were made during the time of survey (except for the swallows nesting in Tinnakill Lock House).

Invertebrates

The marsh fritillary was observed in the bog south of the stretch of the canal west of the first lock in County Kildare on a previous visit. This butterfly is not on the wing in August, and for it to be discovered the caterpillars would have to be deliberately searched for on their food plant (devil's-bit scabious). This serves to underline the fact that particular species of invertebrates often need to be looked for specifically.

In 1971 the rare, tiny Des Moulin's whorl snail *Vertigo moulinsiana* was found between Dangans Bridge and Skeagh Bridge, in the marsh vegetation characteristic of wetter stretches of the canal; it was recorded again in 1997. The species is likely to occur in other places along the canal where comparable habitat conditions prevail, and not only along the canal but more widely. *Vertigo moulinsiana* is listed in Annex II of the Habitats Directive; this imposes upon Government the obligation to protect the habitat of the species wherever it is found, and is the ground for the designation of this stretch of the canal as a Special Area of Conservation.

Maintenance of the marsh vegetation is essential to the continued welfare of this species, which means that attention needs to be paid to the natural scrub encroachment that will inevitably accompany the long-term evolution of the marsh vegetation unless this is prevented. Reflooding would also lead to its disappearance from any particular stretch.

Des Moulin's whorl snail has clearly migrated into the canal since its decommissioning. It is interesting to consider the question of where it lived prior to the abandonment of the canal, indeed prior to its construction. Suitable habitat exists in fen areas at either end of the canal (both highlighted earlier); a specific search of these areas for the species would be valuable.

4.3 An overview of the canal's ecological development since 1960

Since the official closure of the canal in 1960 different stretches of the canal have developed in different ways, following one of four ecological scenarios. Adjacent landowners were given the

option of buying the strip of canal that ran through their properties; this was taken up in most cases, but only in a few instances was the canal actually filled in and the banks levelled. The two most significant stretches where this happened were the stretch through Tinnakill as far as Woodbrook Bridge, and on either side of Blackhall Bridge. In these cases the canal has been lost in its entirety, with the exception of the lock house at Tinnakill.

The second option was to replace the potentially dangerous open canal by a bank and double ditch. This happened along the stretch of canal between Kilnacash Bridge through Clonterry almost as far as Dangans Bridge (section 306). Here, a high bank, flanked by a ditch on either side was created, either by the expedient of simply leaving the bank [towpath?] on one side or heightening it with spoil from the infilled canal. Under this arrangement, the deep ditch and steep bank are normally a sufficient barrier to cattle and most other farm animals, though sometimes where vegetation has filled in the ditch and the bank been eroded, a barbed wire fence is needed along the edge of the field to prevent access by animals. In the course of time the ditches have been colonised by many of the plants that survived the dewatering of the canal but they have little of outstanding ecological value.

The bank subsequently developed in two ways. In some areas it has become a strip of broadleaved woodland – most notably east of Kilnacash bridge: while further east it has remained essentially free of trees and become a strip of limestone grassland of considerable interest. This bank is an important element in the ecological network and would make an interesting linear walk, but such a walk would be of ecological interest only: the canal has gone. And of course there is no right of way along the high bank.

In the third scenario – the commonest one – the canal was simply fenced off by a hedge and reinforcing fence, and left to itself. The boundary hedges were not maintained and have in time come to exclude much of the light from the canal. Meanwhile the trees and bushes on the banks and in due course in the channel have grown unchecked so that the line of the canal is now a strip of wild woodland: quite inaccessible at times but often easy enough to make a way through, especially where a path has been kept open or where little light reaches the ground so that it is more of less free of obstructing vegetation. There may be limited access by animals, which keeps the canal more open and accessible.

These are interesting areas because the canal itself still survives here, and because they are interesting places ecologically. Among the best examples are the stretch between Dangans Bridge and Skeagh Bridge, the stretch west of Woodbrook Bridge, and shorter stretches west of Kilnacash Bridge and through Tinnakill on the towpath side only.

The fourth scenario is where the dewatered canal still remains but there is no hedge barrier to access by animals. In this case there will have been more severe degradation of the bank and of the canal profile generally, especially on the side that is open, but the mosaic of woodland and open bank is interesting and accessible. The most significant stretches where this has happened are at Lea Castle and the first part of the canal beyond the first lock at Monasterevin. In the former case a right of way presumably still exists along the line of the canal, but adjacent landowners can also presumably claim continued right of use because they have enjoyed the use of the canal without challenge for perhaps several decades.

4.4 Elements of special ecological value

The Mountmellick Canal is a feature of great cultural significance in the history of Laois. Ecologically it is an almost unbroken thread of natural habitats that are scarce and of value: broadleaved woodland, calcareous grassland and marsh. No part of it could however be described as outstanding in terms of habitat value.

Adjacent land use affects the canal habitats only in the sense discussed earlier: the main factor being whether or not the canal has been fenced off and is or is not used by animals.

In two areas there are habitats of high nature value within 500m of the canal, but both are essentially independent of the canal. These are the bog in the Kildare stretch of the canal west of the first lock (fig 4.2) and the area of fen and wet grassland north-west of Dangans bridge (fig

4.13). Both of these merit further study and attention. In each case the ownership situation should be clarified with a view to ensuring their conservation. The Kildare bog is of particular interest, especially because it abuts the canal and there is the possibility of enhancing this stretch of the canal in a way that would at the same time highlight the importance of the bog and make it more accessible for further study.

Not many 'good' plants in Praeger's sense occur along the canal: but this is the specialist botanist's perspective. In a broader ecological and aesthetic sense bird's-foot trefoil (for example) is as 'good' a plant as any rarity, and it should be remembered that all species that occur naturally have value in terms of their biodiversity support and many have broader aesthetic appeal. A number of species listed as 'rare or occasional' in the 2005 Laois Habitats Survey occur along the line of the canal: mugwort, golden oat grass, yellow oat grass, marsh helleborine, marjoram, butterfly orchid, fleabane, white beak sedge, and several of the 'additional' species recorded by the Botanical Society of the British Isles. There is some overlap between this and the 'rare or occasional' list (this list does not take account of species recorded only in Co Kildare).

The single most interesting species however is ivy broomrape, for which the canal appears to be the principal habitat – certainly in this part of the county (fig 4.18). Along many stretches of the canal it is abundant, but rarely seen elsewhere, although it does sometimes occur in habitats adjacent to the canal, from which it probably originally colonised the ivy-clad woodland banks that developed subsequently. Webb's *An Irish Flora* describes it as 'frequent in the South half [of Ireland], rare in the North.'



Fig 4.18 Ivy broomrape

5. CANAL-RELATED BUILT HERITAGE FEATURES

For the purposes of description and analysis, all canal-related features are numbered according to the reach within which they lie (but independently of the sections described in chapters 3 and 4). Thus feature F002 is feature 2 within Reach 0 and feature F311 is feature 11 on Reach 3. In some instances, as at locks, related features have been grouped and sub-numbered, e.g. F301a, F301b and F301c for the lock, bridge and house at Tinnakill. Photographs also follow the same numbering system and are suffixed sequentially, e.g. F101a_01 is image 1 of feature F101a, F101a_02 is image 2 etc. Detailed descriptions and photographs of all features are presented in Appendix 5.

5.1 Canal features

A total of 53 canal-related features were recorded, 44 of which were on the line of the canal and the remainder on its feeders; seven are in Co Kildare and the remainder in Co Laois (fig 5.1).

Canal features						
Basin			1			
Building	Agent's house	1				
	Lock house	3				
	Store	2	6			
Bridge Canal/river		10				
Foot/canal		1				
	Rail/canal	2				
	Road/canal	14	27			
Feeder			2			
Junction			1			
Lock			3			
Overflow			2			
Quay			2			
		Sub-total	44			

Feeder features					
Bridge	Feeder/river	1			
	Rail/feeder	1			
	Road/feeder	6	8		
Weir			1		
		Sub-total	9		



Basins

There was a basin at the Mountmellick terminus, now infilled.

Buildings

There are three lock keeper's houses, each associated with a lock. These are very similar in design, being three bay buildings cut into the canal bank, with their principal facades facing the lock and with full or partial semi-basements. The house at the 1st lock is still inhabited (fig 5.2a), as was the one at Portarlington until recently. The one at the 3rd lock is unoccupied and falling into dereliction.

There is a well-maintained and occupied former canal agent's house at the Mountmellick terminus (fig 5.2b). An intact two-storey store survives at the quay adjoining Portarlington Lock (fig 5.2c). Only vestiges of the once-substantial stores at the terminus survive.



Fig 5.2a 1st lock and house. Fig 5.2b Canal agent's house, Mountmellick Fig 5.2c Store at 2nd lock.

Bridges

Bridges were the commonest type of structure on the canal, accounting for almost two-thirds of all the features along the canal.

Fourteen of the 27 recorded bridges carried roads over the canal and all are named. Over half of them are named after their respective locations, generally their townland (e.g. Kilnacash Bridge), but sometimes their locality (e.g. Lock Bridge in the case of the bridge at the 2nd lock). Most of the others are personal names (e.g. Coughlan's Bridge), a topic which would merit further investigation. One – the Swing Bridge at Portarlington - is named after its method of operation and is the only bridge of this type on the branch (it swung horizontally to one side to let the barges through).

Name class	Bridge	Name
Location	F106	Lea Bridge
	F201b	Lock Bridge
	F204	Ballymorris Bridge
	F206	Blackhall Bridge; {Moore's Bridge}
	F207	Woodbrook Bridge
	F303	Skeagh Bridge
	F305	Dangans Bridge
	F307	Kilnacash Bridge
	F310	Debicot Bridge
Personal	F002	Johnny Dunne's Bridge
	F101b	Coughlan's Bridge
	F103	Wheelahan's Bridge
	F105	Bergin's Bridge
Туре	F202	Swing Bridge

Five of these road bridges have been demolished, generally to make way for new sections of road across the infilled canal. With one exception, the nine surviving examples are virtually identical, being built with randomly laid squared limestone blocks, and having semicircular arches, humped carriageways and a towpath through the span (fig 5.3a). Interestingly, the towpath under Dunne's Bridge, on Reach 0, is on the right-hand side of the canal (as viewed going towards Mountmellick), whereas it is on the left side of in all other cases. The horses crossed over at Coughlan's Bridge at the south end of lock 1 whilst the barges were in the lock.

The exception this typical design is Coughlan's Bridge, which carries a public road across the south end of the 1st lock (fig 5.3b). Its abutments are a continuation of the sides of the lock chamber and are of regularly laid limestone blocks. The arch has a segmental profile instead of the usual half-circle and there is no towpath through the span.





Fig 5.3a Blackhall Bridge, Portarlington.

Fig 5.3b Coughlan's Bridge at Lock 1.

One of the demolished bridges – on the Station Road, Portarlington, is named on the OS maps as a 'swing' bridge. This suggests that it was a metal or wooden girder bridge, pivoted at one end so that it could be manually turned through 90 degrees about its vertical axis to allow barges to pass through.

The masonry bridges were remarkably consistent in terms of their size. As the following table shows, the spans of all but the bridge without the towpath (at the 1st lock) are within 5cm of 6.71m (22ft) and their channel widths are within 10cm of 4.88m (16ft).

Unsurprisingly, the bridges on public roads are almost twice as wide as those carrying accommodation tracks to fields and dwellings. All but one of the former is 6.2-6.5m between the parapets (c.20-21ft). The exception is Dunne's Bridge (F002) which is only 4.28m wide (14ft) and which would originally have been on a very minor road. The two accommodation bridges are, by contrast, only some 3.35m wide (11ft).

Bridge	Type of road carried	Total span (m)	Channel width (m)	Towpath width (m)	Parapet spacing (m)
F002	Public	6.70	4.97	1.73	4.28
F101b	Public	4.48	4.48	n/a	6.50
F103	Public	6.69	4.95	1.74	6.37
F105	Public	6.68	4.98	1.70	6.42
F206	Public	6.69	4.98	1.71	6.16
F303	Accommodation				3.32
F305	Public	6.70	4.96	1.74	6.50
F307	Accommodation	6.75	4.74	2.01	
F310	Accommodation	6.74			3.46

There were 10 aqueducts which carried the canal over natural watercourses or artificial drains. Seven of these survive and continue to serve their original function even though the canal is long defunct.

All but one are culverts spanning 0.9-1.2m (3-4ft) and are of similar build, i.e. with dressed stone faces, segmental arches at both ends, and flat stones heads within the actual culverts.

The most significant aqueduct, in architectural terms, is the Mountmellick Aqueduct, a substantial triple-arch structure which carries the canal over the Triogue River just north of Triogue Bridge (fig 5.4).

One footbridge is recorded, at Tinnakill Lock, but it is long demolished and no further details are known.

Fig 5.4 Mountmellick Aqueduct.



The canal is crossed in two places by railway bridges. The Monasterevin-Portlaoise line, opened in 1847, crosses Reach 0 as a skew triple girder span (fig 5.5a). The stone abutments and piers are original, but the actual spans are reinforced-concrete replacements of the originals.

South-west of Portarlington, the Portarlington-Tullamore line of 1854 crossed Reach 2 as a triple girder span (fig 5.5b). The stone abutments and piers date to 1854, when the line was opened, but the metal spans are later replacements. Because the canal has been infilled hereabouts, the only physical indication that this bridge originally spanned the canal are the towrope marks on one of the piers of the middle span.



Fig 5.5a Railway bridge west of Monasterevin.



Fig 5.5 Railway bridge over canal at Portarlington.

Feeders

Because water was lost from a reach every time the lock gate at its lower end was opened, it was necessary to keep the upper reaches topped up so that there was sufficient depth for the barges to operate. On some canals, this was achieved by diverting streams and rivers but on the Mountmellick Canal two artificial channels or feeders were dug. The first is a 3.1km long feeder originating in boggy ground at Kilbride Wood and supplying Reach 2 at Woodbrook Bridge. The second is a 3.8km feeder supplied by the Triogue River and entering Reach 3 at Kilbracash. The various features along these feeders will be described below.

Junctions

The confluence of the Mountmellick Canal with the Barrow Branch of the Grand Canal is known as Mountmellick Junction.

Locks

There are three locks on the canal, all single chambered and constructed with finely dressed limestone blocks. They were built to a minimum size of 21.44m long by 4.29m wide by 1.60m cill depth (70ft 4in x 14ft 1in x 5ft 3in).

The 1st lock is still largely open and watered, with vestiges of its gates (fig 5.3a). Only one of the side walls of the 2nd lock survives, the other having been removed to make way for the Portarlington ring road. The 3rd lock, at Tinnakill, probably survives largely intact but has been infilled.

Overflows

In order to prevent the canal banks overflowing at times of high rainfall, excess water was discharged by means of small overflows built into the banks. Two such overflows were noted on the OS maps. Both are on Reach 1 - just above the 1st lock and south of Bergin's Bridge. Neither survives.

Quays

Two quays were noted on the OS maps – one at Portarlington Lock, the wall of which still survives, and the other at the Mountmellick Terminus, now buried.

Feeder features

Eight out of the nine features identified along the two feeders are bridges. Six carried roads, one a railway, and another a feeder over a stream. Most of these features are now demolished or buried. However, a culvert dating from the construction of the Portarlington-Portlaoise railway in 1847 survives intact, as does a twin culvert under the public road at Kilbride Cross Roads (fig 5.6).

Apart from bridges, the only other type of feeder feature is the weir which diverted water off the Triogue River just north of Eyne Bridge. No traces of it survive.



Fig 5.6 Culvert at Kilbride.

5.2 Survival and condition

Of the 53 features identified, just over half (27) survive in a complete state, six have substantial remains and three have some remains. Seventeen features have disappeared.

Although most of the lost sites are bridges, this type is also the biggest category still in use - 23 are used as culverts, road and railway bridges. Two canal-related houses are in use as well.

Unsurprisingly, those features still in use for their original purpose – road bridges and houses – are in the best condition. Although many culverts are still in use, they are not so well maintained and are generally overgrown and silted up. Unsurprisingly, most of the disused features are not maintained and consequently are in poor condition. Although Blackhall Bridge is disused, it is

maintained as an ornamental feature on the south-west approach to Portarlington.

Those road bridges which are still in use are particularly vulnerable to replacement because of their relatively narrow widths and humped decks. Coughlan's Bridge (F101b), Wheelahan's Bridge (F103) and Bergin's Bridge (F105), all on the main Monasterevin-Portarlington road, are especially susceptible to replacement as they all have dogleg approaches and carry high volumes of fast-moving traffic. Although Dunne's Bridge (F002) is on a less busy road, it is likewise vulnerable because of its narrowness (fig 5.7).



Fig 5.7 Dunne's Bridge.

5.3 Features of special interest

Some of the surviving features are of special industrial heritage significance on account of what they tell us about the past

Evaluation criteria

The National Inventory of Architectural Heritage use a number of criteria to evaluate the heritage significance of buildings and structures. Those of particular relevance here are architecture, history, setting and group value. On the basis of these criteria, the features are then rated according to whether they are of no interest ('record only'), or of local, regional or national significance.

Of the 53 recorded features along the canal, 18 are of no heritage merit (largely because there are no surviving upstanding remains, or they are modern sites), 15 are of local significance, and 20 are of regional significance; none is of national importance.

Protected sites

No features associated with the Mountmellick Canal are on the Co Kildare Record of Protected Structures and only four are in the Co Laois RPS (fig 5.8):

Feature	Name	Туре	Completeness	Condition	Current use	Ownership	Statutory protection	Significance
F103	Wheelahan's Bridge	Bridge (road/canal)	Complete	Good	Road bridge	Laois CC	LA RPS 547	Regional
F206	Blackhall Bridge	Bridge (road/canal)	Substantial remains	Good	Ornamental feature	Laois CC	LA RPS 542	Regional
F309	Mountmellick Aqueduct	Bridge (canal/river)	Complete	Fair	Culvert	Private	LA RPS 531	Regional
F312c		Canal store	Some remains	Good	Scrap yard	Private	LA RPS 687	Local

Three of the above sites have been rated during this current survey as being of regional merit. The store at the Mountmellick terminus is regarded here as being of local rather than regional significance as most of it has been demolished.



Fig 5.8 Protected canal-related sites (orange circles) and those proposed for protection (red squares).

Recommendations for statutory protection

It is evident from the above table that relatively few of the surviving canal features have statutory protection and that those which are protected have been selected in a piecemeal fashion rather than on the basis of a comprehensive database.

The following 17 sites are recommended for inclusion in the Record of Protected Structures on account of their regional heritage significance – five for Co Kildare and 12 for Co Laois (fig 5.8; full details of each site, along with grid references, will be found in Appendix 5).

Feature	Name	Туре	County	Completeness	Condition	Current use	Ownership
F001	Mountmellick Junction	Canal junction	Kildare	Complete	Excellent	Canal junction	Waterways Ireland
F002	Johnny Dunne's Bridge	Bridge (road/canal)	Kildare	Complete	Good	Road bridge	Kildare CC
F101a	Coughlan's Lock; 1st lock	Lock	Kildare	Substantial remains	Fair	Disused	Private
F101b	Coughlan's Bridge	Bridge (road/canal)	Kildare	Complete	Good	Road bridge	Kildare CC
F101c	Coughlan's Lock House	Lock keeper's house	Kildare	Complete	Good	Dwelling	Private
F105	Bergin's Bridge	Bridge (road/canal)	Laois	Complete	Good	Road bridge	Laois CC
F201a	Portarlington Lock; 2nd lock	Lock	Laois	Some remains	Fair	Disused	Private
F201c	Portarlington Lock House	Lock keeper's house	Laois	Complete	Fair	Disused	Private
F201d		Quay	Laois	Complete	Fair	Disused	Private
F201e		Canal store	Laois	Complete	Fair	Disused	Private
F301a	Tinnakill Lock; 3rd lock	Lock	Laois	Substantial remains	Poor	Disused	Private
F301c	Tinnakill Lock House	Lock keeper's house	Laois	Complete	Poor	Disused	Private
F303	Skeagh Bridge	Bridge (road/canal)	Laois	Complete	Fair	Disused	Private
F305	Dangans Bridge	Bridge (road/canal)	Laois	Complete	Good	Road bridge	Laois CC
F307	Kilnacash Bridge	Bridge (road/canal)	Laois	Complete	Fair	Disused	Private
F310	Debicot Bridge	Bridge (road/canal)	Laois	Complete	Fair	Disused	Private
F312d	Canal House	Canal related house	Laois	Complete	Excellent	Dwelling	Private

Most of the features are in reasonable condition and some are in public ownership. Seven of the recommendations are bridges, and a further eight relate to lock complexes (locks, keepers' houses, quays and stores). The canal junction at the Grand Canal end and former agent's house at the Mountmellick end also merit protection.

6. OTHER BUILT HERITAGE FEATURES

All significant buildings and structures which were not related to the canal but which lay within a 500m zone either side of the canal were also investigated, as were industrial heritage features at the Monasterevin end (fig 6.1). To distinguish them from the canal-related features discussed in the previous chapter, their numbering runs from F901 at the east end. As before, some sites are sub-divided into their component elements, e.g. F916a, F916b etc. Photographs follow the same numbering system as before, e.g. F915_01 is image 1 of feature F915. Details of each site are given in Appendix 6.



6.1 Features associated with Grand Canal (Athy Branch)

A total of 60 features were identified, of which 11 were in Co Kildare. Nine of these were associated with the Athy Branch of the Grand Canal at Monasterevin (fig 6.2).



Buildings

The former Grand Canal Company's office at Monasterevin has been refurbished and integrated into a new housing development along the east side of the canal quay (fig 6.3). The lock house at the 25th lock survives but has been refurbished out of all recognition.

Fig 6.3 Canal house at Monasterevin Quay.



Bridges

The magnificent triple-arch Barrow Aqueduct carries the Grand Canal over the River Barrow (fig 6.4). This structure was opened in 1826 and replaced an earlier system by which vessels descended through locks down one side of the river, crossed it and then ascended a further set

of locks on the far side. This is undoubtedly the most significant canalrelated feature in the entire region.

Although both sets of locks are long gone, the original line of the canal is still evident in the form of Moore's Bridge which carried the road over it on the east bank of the river. The road was carried over the new line of canal by means of a draw bridge, on of the few such bridges on the system.

There is also a footbridge of conventional design over the canal at the 25th lock.



Fig 6.4 Barrow Aqueduct.

Canals

As already noted, the Athy Branch of the Grand Canal was constructed by the Grand Canal Company between 1783 and 1791 in order to link up the main Dublin-Shannon line with the River Barrow. The section from Lowtown, on the main line, to Monasterevin was opened in 1785 and is still in everyday use by recreational craft.

Locks

The 25th lock is 200m south of Mountmellick Junction and is a single chamber of similar construction to the locks on the Mountmellick Branch. There is a foot bridge at its south end and a replacement lock house to its east (fig 6.5).

Fig 6.5 Looking north along 25th lock, south of Mountmellick Junction.



Quays

The extensive quay along the west side of the canal just above the draw bridge at Monasterevin originally had a warehouse at either end (fig 6.6). These were demolished when the area was redeveloped for housing.



Fig 6.6 Warehouses at Monasterevin Quay (now demolished). After Kevin Dwyer (2000), *Ireland the Inner Island: A Journey through Ireland's Waterways*, p.48 (Cork: Collins Press).

6.2 Miscellaneous built heritage features

Fifty-three features of built heritage interest within 500m of the canal were identified and surveyed; two are in Co Kildare and the rest in Co Laois.

Castle/ tower house			2
Church/ graveyard			1
Earthwork			2
Electricity generator			1
Gas works			1
Grain mill			2
House			6
Post box			1
Quarry-related	Quarry	4	
	Lime kiln	2	6
Railway-related	Bridges (foot/rail, rail/river, rail/road, road/rail)	5	
	Station buildings and structures	9	
	Lines, junctions and sidings	4	18
Road-related	Bridges (road/river)	3	
	Mile markers	4	7
Salt pan			2
Saw mill			1
Water pump			2
		Total	52

Castles and tower houses

Lea Castle (F910) is the oldest surviving building in the study area. Constructed in the early 1200s, it comprises substantial bastioned outer and inner keeps, all now ruinous and overgrown.

Tinnakill Castle (F929) was constructed as a fourstorey tower house around 1700 (fig 6.7). Although now ruinous and overgrown it retains many of its original features such as its dressed stone doorway and intramural stairs.

Churches and graveyards

Lea Church (F908) was already ruinous by 1838 and it is uncertain whether the surviving fragmentary stone walls belong to the church or to another building. The surrounding graveyard contains numerous 18th and 19th century memorial slabs. Its tree-lined approach from the south-east was cut off by the canal.



Fig 6.7 Tinnakill Castle.

Earthworks

Two earthworks are cited on the 1838 OS map at Clonanny (F905) and Cooltedery (F913). They are probably of Early Christian date (i.e. 500-1000AD), but both have been levelled as a result of agricultural cultivation since the map was compiled.

Gas works

Portarlington was served by a gasworks situated beside the Portarlington-Tullamore railway, west of the station (F921). It was erected in the mid 1800s and was obviously located to facilitate the importation of coal which was the raw material for gas at that time. No traces of it survive.

Grain mills

A corn mill is marked on the left bank of the River Barrow in Lea townland on the 1838 map (F907). It would have ground oats into oatmeal. It went out of use sometime during the mid 1800s, probably as a result of a drainage scheme along the river.

Odlum's Mill (F914) was established on the north side of the canal at Station Road, Portarlington in 1876 (fig 6.8). In contrast to Lea corn mill, this was a very much larger enterprise which focused on the grinding of wheat into flour.



Fig 6.8 Odlum's Mill, Portarlington.

The proximity of the canal and railway were undoubtedly important determinants in its location. In contrast to most mills in the county, it was powered by a steam engine and therefore did not depend on water power and a riverbank location.

The mill was burnt in 1900 and rebuilt in 1903. Its millstones were subsequently superseded by rollers, a more efficient method of grinding wheat than stones. A new roller mill was erected in 1978; by now the canal was long disused, but lorries had become the chief mains of bringing in grain and distributing the flour. Now owned by Greencore and IAWS, this is the only grain mill still at work in Co Laois.

Houses

Of the six houses identified in the study area. three are of similar design (two to five bays, two-storeys and hipped roofs) and date from the late 1700s/ early 1800s: Kilmullen House (F906), Lea Castle House (F909) and Ballymorris House (F923). All typical gentlemen farmers' houses and are set in their own grounds and are associated with agricultural outbuildings. With the exception of the house at Lea Castle, all are still occupied.





Fig 6.9 Council houses at Mountmellick.

Mountmellick (F936), is said to date from 1686. Beside it is a semi-detached pair of three-bay, two-storey houses of earlier 19th century date (F937). On the opposite side of the road is a curved terrace of 22 houses built by Laois County Council in the early 1950s (F935; fig 6.9).

Post boxes

On the platform side of Portarlington Station is a Victorian pillar box, complete with its maker's name (F916h; fig 6.10). However, it may not be in its original position.

Quarries and related features

Four quarries were identified in the study area, but with the exception of Rock Quarry at Kilnacash (F930), all were small and probably served very localised areas. Rock Quarry is known to have had a lime kiln, where the quarried limestone was transformed into powdered lime which was used in mortar, whitewash and fertilizer. There are also remnants of a wind-powered electricity generator at this quarry which charged batteries for the adjoining house.

Fig 6.10 Pillar box at Portarlington Station.

Railway-related features

The main double-track Dublin-Cork line runs through the study area (F918) at Portarlington. The section to Portlaoise was opened by the Great Southern & Western Railway Company (GSWR) in 1847. The line reached Cork two years later.

Just west of Portarlington Station, a single-track line diverges towards Tullamore (F919). This section, also by the GSWR, opened in 1854 and reached Athlone in 1859. In 1973 it became part of the Dublin-Galway route.

There was once a siding towards Odlum's Mill on the east side of Portarlington Station, but little trace of this now remains.

Portarlington Station (F916) contains an impressive array of buildings and structures, most of which date to circa 1850, several years after the actual line opened (fig 6.11). Designed by Sancton Wood, the complex comprises two large station buildings, one on either side of the line), goods shed, store, and lattice girder footbridge. The engine shed and turntable have, however, been demolished.





Five railway-related bridges are noted (including the above footbridge, but excluding the two bridges over the Mountmellick Canal which were noted in section 5.1). The most impressive of these is the Barrow Bridge which carries the Dublin-Cork line over the river at Monasterevin (F902; fig 6.12). Each of its nine girder spans, which are mid 20th century replacements, is supported on the original rock-faced ashlar stonework.

Just west of Portarlington Station, the public road is carried over the same line (F917). Again, the deck is a mid 20th century replacement of the original span.

Just west of Portarlington, two bridges carry the Galway line in quick succession over a public road (F924) and field accommodation track (F925). Again, both decks are replacements.

Interestingly, the width of both bridges' abutments indicates that they were designed for two tracks, but only one was ever laid.



Fig 6.12 Barrow Bridge.

Road-related features

Three road bridges were identified. Pass Bridge is a five-arch masonry bridge which carries a minor road over the Barrow north of Monasterevin (F903; fig 6.13a). It is probably of 18th century date. Its arches increase in height towards the middle, giving rise to a strongly humped deck which is also relatively narrow to such an extent that traffic lights are now required to regulate the flow of traffic.

Kilnahown Bridge also carries a public road over the Barrow west of Portarlington (F928; fig 6.13b). It is also of 18th century date, but is wider and less markedly humped than Pass Bridge.

Triogue Bridge is a small twin-arch span which carries the Mountmellick-Emo road over the river of the same name (F932).



Fig 6.13a Pass Bridge, Monasterevin.



Fig 6.13b Kilnahown Bridge.

Four milestones are recorded on the OS maps – two on the Monasterevin-Portarlington road (F904 and F912), one on the Mountmellick-Emo road at Triogue Bridge (F931), and one on the south-western approach to Portarlington road (F927). Only the latter now survives, complete with inscriptions on its three faces: Portarlington – 1 mile, Mountmellick – 5 miles, and Dublin 36 miles (fig 6.14).

Salt works

Salt manufacturing was carried on at The Rock (F930c) and on Salthouse Lane, near the Mountmellick terminus (F933). Rock salt was dissolved into a brine concentrate and then reduced to crystalline salt in a pan over a lime kiln. Both enterprises originated in the 1850s and the one at the Rock was still going in the 1920s. No traces survive at either site.

Saw mill

A saw mill operated on the opposite side of the canal to Odlum's Mill at Portarlington in the early 1900s. Apart from the manager's house, nothing of this enterprise survives.



Fig 6.14 Milestone at Portarlington.

Water pumps

A complete, but disused multi-vaned windmill survives behind Kilnacash House (F930e; fig 6.15a). It pumped water from the nearby canal feeder into a cistern in the house.

On the south side of Harbour Street, Mountmellick, near the canal's terminus, is a cast-iron water pump, complete with cow-tail handle (F934; fig 6.15b). Still in working order, it was probably installed by the Town Council in the mid 1900s.



Fig 6.15a *(left)* Windpump at Kilnacash House.

Fig 6.15b *(right)* Water pump at Mount-mellick.

6.3 Features of special interest

Protected sites

A total of 25 sites in proximity to the canal are currently protected (fig 6.16). Five are in the Record of Monuments & Places, as follows:

Feature	Name	Туре	Completeness	Condition	Current use	Ownership	Statutory protection	Significance
F905	Balladoogara Fort	Earthwork	No visible remains	N/A	N/A	Private	RMP LA005- 008	Regional
F908	Lea Church	Church; Graveyard	Substantial remains	Poor	Disused	Unknown	RMP LA005- 007	Regional
F910	Lea Castle	Castle	Substantial remains	Poor	Disused	Private	RMP LA005- 006;	Regional
F913		Earthwork	No visible remains	N/A	N/A	Private	RMP LA005- 005	Regional
F929	Tinnakill Castle	Tower house	Substantial remains	Poor	Disused	Private	RMP LA008- 00101-, -00102-	Regional



Fig 6.16 Protected non-canal sites (orange circles) and those proposed for protection (red squares).

Twenty sites are in the Record of Protected Structures – four in Monasterevin and 16 in the Co Laois Record:

Feature	Name	Туре	Completeness	Condition	Current use	Ownership	Statutory protection	Significance
F901a	Draw Bridge	Bridge (road/canal)	Substantial remains	Good	Road bridge	Kildare CC	RPS M'evin 22	Local
F901b	Barrow Aqueduct	Bridge (canal/river)	Complete	Good	Canal aqueduct	Waterways Ireland	RPS M'evin 48	National
F901g		House (canal related)	Complete	Excellent	Apartments	Private	RPS M'evin 23	Regional
F903	Pass Bridge	Bridge (road/river)	Complete	Good	Road bridge	Kildare CC	RPS M'evin 47	Regional
F906	Kilmullen House	House	Complete	Excellent	Dwelling	Private	RPS LA 550	Regional
F909	Lea Castle House	House	Complete	Poor	Disused	Private	RPS LA 549	Local
F910	Lea Castle	Castle	Substantial remains	Poor	Disused	Private	RPS LA 403	Regional
F916a	Portarlington Station	Station building	Complete	Good	Railway station	larnród Éireann	RPS LA 143	Regional
F916b	Portarlington Station	Bridge (foot/rail)	Complete	Good	Disused	larnród Éireann	RPS LA 143_A	Regional
F916c	Portarlington Station	Station building	Complete	Good/Fair	Station building	larnród Éireann	RPS LA 143	Regional
F916d	Portarlington Station	Platform	Complete	Good	Platform	larnród Éireann	RPS LA 143	Regional
F916e	Portarlington Station	Water tank	Complete	Good	Disused	larnród Éireann	RPS LA 143	Regional
F916f	Portarlington Station	Goods shed	Complete	Good	Disused	larnród Éireann	RPS LA 143	Regional
F916g	Portarlington Station	Canteen	Complete	Good	Store	larnród Éireann	RPS LA 143	Regional
F916h	Portarlington Station	Post box	Complete	Excellent	Post box	larnród Éireann	RPS LA 143_B	Regional
F923	Ballymorris House	House	Complete	Fair	Dwelling	Private	RPS LA 674	Local
F929	Tinnakill Castle	Tower house	Substantial remains	Poor	Disused	Private	RPS LA 398	Regional
F935		House	Complete	Excellent	Dwelling	Private	RPS LA 688	Local
F936	Grange Lodge	House	Complete	Excellent	Dwelling	Private	RPS LA 689	Local
F937		House	Complete	Excellent	Dwelling	Private	RPS LA 690	Local

Six of the above sites are rated here as being of local significance and 18 of regional merit. The Barrow Aqueduct (F901b) is the sole protected site which is rated as being of national significance.

Two of the above sites, both upstanding archaeological monuments - Lea Castle (F910) and Tinnakill Castle (F929) – are in the RMP *and* RPS.

Recommendations for statutory protection

Ten 10 unprotected sites are recommended for statutory protection (fig 6.16). Of these, one is recommended for inclusion in the Record of Monuments & Places:

Feature	Туре	County	Completeness	Condition	Current use	Ownership
F927	Mile marker	Laois	Complete	Excellent	Ornamental feature	Private

The remaining nine are proposed for inclusion in the Co Kildare and Co Laois Records of Protected Structures :

Feature	Name	Туре	County	Completeness	Condition	Current use	Ownership
F901	Grand Canal (Athy Branch)	Canal	Kildare	Complete	Excellent	Canal	Waterways Ireland
F901c		Lock	Kildare	Complete	Good	Lock	Waterways Ireland
F901d		Bridge (foot/canal)	Kildare	Complete	Good	Foot bridge	Waterways Ireland
F901f	Moore's Bridge	Bridge (road/canal)	Kildare	Complete	Good	Road bridge	Kildare CC
F901h	Monasterevin Quay	Quay	Kildare	Complete	Excellent	Quay	Private
F902	Barrow Bridge	Bridge (rail/river)	Kildare	Complete	Good	Rail bridge	larnród Éireann
F914	Odlum's Mill	Grain mill (steam)	Laois	Complete	Good	Grain mill	Private
F928	Kilnahown Bridge	Bridge (road/river)	Laois	Complete	Good	Road bridge	Laois CC; Offaly CC
F934		Water pump	Laois	Complete	Excellent	Water pump	Private

7. ISSUES AND RECOMMENDATIONS

There is in general a lack of awareness among the general public of the story of the canal, and of the important part it played in the economic and social life of the districts through which it ran and indeed of the county in general. Even to those who do know the story, it often comes as something of a surprise that so much of the canal survives.

The passage of time, however, will see the continued erosion and degradation of the fabric of the canal and its features unless steps are taken to heighten public awareness in the first instance, and then to harness whatever measures and resources can be brought to bear in support of the concern that this heightened awareness generates.

7.1 Conservation of canal

It was noted in section 1 that almost 11km of the 18.6km long canal has been destroyed through infilling or cutting away. Much of the reclaimed land has been used for agriculture or, in the case of the stretch around Portarlington, as a road. Buildings have also been built across its line here and there. Over half of the surviving open stretches are in private ownership and only 2.5km is still watered (of which most is also privately owned).

Given that so much of the canal has already been infilled, it would obviously be very expensive to reopen it all the way to Mountmellick, or indeed even as far as Portarlington. Should this ever be contemplated, there would also be physical and legal issues to be resolved, such as the excavation or bypassing of the infilled and destroyed sections, and the acquisition of land in private ownership.

At the moment, the reopening of the Mountmellick Canal is not a priority of Waterways Ireland, the Inland Waterways Association of Ireland, or of Laois CC. Preservation of what currently exists in an open state is therefore a more pertinent issue than the entire line's possible restoration at some future date.

As already recommended, all open stretches should be considered for statutory protection through inclusion in the Record of Protected Structures or Record of Monuments & Places. This will ensure that any proposals for infilling must go through the planning process and that steps can be taken to reverse any unauthorised infilling.

As noted in section 2, the best surviving stretches are 001-102, 114-118, 202 and 302-304. Sections 001-005 and 202 are of particular note in that they are still watered. Some of these stretches are still in public ownership: Waterways Ireland owns sections 001-005, some of 114 and all of 302-304, whilst the Department of Agriculture & Food owns some of 202. The rest is in private ownership.

As noted in section 3.2, many of the privately owned stretches have been infilled for agricultural reclamation. The tendency to infill is less marked with publicly owned stretches. The challenge is therefore to encourage private landholders not to infill any open stretches in their ownership.

Many of the sections of the canal in private ownership are likely to belong to farms participating in the Rural Environment Protection Scheme (REPS). The preservation of the canal – both its physical structure and any accompanying features and the ecological character – should be identified and authorised planners informed in advance of the implementation of REPS 4.

7.2 Ecology

The line of the canal is a relatively continuous strip of semi-natural land running through an area of Laois and Kildare that is relatively low in terms of its ecological value. Although it has few species of significant conservation interest or concern, it provides a habitat for a surprisingly high percentage of the vascular flora (some 206 species).

Management should endeavour to maintain the corridor as far as possible in its present state (except for sections 101-103: see below). Stretches of the canal that run through farmland

should be treated as natural habitats in REPS management plans or under the broader umbrella of the Code of Good Farm Practice. Stretches covered by dense scrub provide habitat and shelter for numerous species and are probably best left in this state, except where opportunity and resources allow consideration of a measure of rehabilitation.

Two areas of more significant ecological value have been identified - the peatlands adjacent to sections 101-103 and the fen near S305 (see above). These are independent of the canal, but their ownership should be established with a view to ensuring their conservation. Coolnafearagh Bog is of sufficient importance to merit importance to merit its designation as a Natural Heritage Area (NHA). If ownership considerations permit this, it could become a Local Nature Reserve to which access might be provided along the line of the canal, from which furze and bracken should ideally be cleared.

The occurrence of the rare snail *Vertigo moulinsiana* in the area between Dangans Bridge and Skeagh Bridge has been noted earlier, and is the basis for its designation as a Special Area of Conservation (see section 304 above). *Vertigo moulinsiana* may occur in other stretches of the canal also, although few offer so favourable a habitat as the open area east of Dangans Bridge. Care needs to be taken to maintain this in its present state. If the suggestion of developing a walk along this stretch is followed through, it will bring a focus to bear on the NHA that will ensure that the condition of the canal here is monitored.

To promote awareness of the ecological value of the canals, these aspects could be highlighted in the publication proposed in section 7.4 below.

7.3 Built heritage

A number of features of the canal have been recommended for inclusion in the Record of Protected Structures and Record of Monuments & Places. With the exception of those at the Monasterevin end, most of them are located on infilled sections of canal. Because they have lost their functional context, the heritage interest of such features is obviously diminished. However, it is all the more important that such features be protected as they are now the only tangible evidence of the canal at those localities.

Where a site has statutory protection, any development which will potentially affect its special character will require planning permission. The owners of such sites included in the Record of Protected Structures are also eligible to apply to their respective county council for conservation grants.

All the road bridges which are still in use are owned by their respective county councils and receive a modicum of routine maintenance. It is important, however, that any repairs are carried out sympathetically so as not to diminish their architectural character.

All the privately owned bridges are defunct. Their sustainability is more problematic than with publicly-owned bridges still in use. Rampant ivy overgrowth is particularly problematic as the roots dislodge stones and destabilise the structures. Unfortunately, the expense of maintenance and repair is likely to be perceived by owners as outweighing any conservation benefits.

The lock house at Tinnakill is particularly problematic to reuse owing to its relatively small size and difficulty of access. Nevertheless, it is worth preserving and the owner should be encouraged to remove the ivy and maintain the roof.

Statutory protection should be viewed not as an end in itself, but as a means to an end, namely the conservation of buildings and structures of special interest. Clearly there is a need to involve all stakeholders in the formulation of a long-term strategy for the conservation of the canal's significant built heritage.

7.4 Access

Thanks to the efforts of Waterways Ireland, the public has unimpeded access along the canal from Mountmellick Junction to the 1st lock. Elsewhere, public access is generally informal and dependent on the penetrability of the vegetation along the towpath and goodwill of the landowner.

If consideration is ever given to providing walking access to sections of the canal, the stretch between Skeagh Bridge and Dangans Bridge would be among the easiest to open up. Skeagh Bridge is partly buried, but Dangans Bridge remains unblocked. Access to the towpath along the south side of the canal could be provided here. There is a walkable path along the bank and through much of the wooded section. Although it does become impenetrable for a short distance west of Skeagh Bridge it would not be difficult to open and maintain a walking route through here. The fact that this entire stretch is still owned by Waterways Ireland would make such a proposal easier to implement than might otherwise be the case.

It will obviously take time to assess the feasibility of any proposals to provide physical access to sections of the canal, and then to implement such proposals.

7.5 Awareness

Many people doubtless have memories of the canal when it was working and photographs of people, barges etc probably exist as well. A future project would be to identify and collate these oral and documentary records to put flesh on the built heritage record presented here.

It is important to widen and deepen awareness of the important role played by the canal historically in the economy and culture of the county, among the community in general and in particular among young people.

To this end, we suggest that Laois and Kildare County Councils consider publication of a booklet outlining the history and heritage of the canal. It aim would be to promote the view that the line of the canal is worth preserving, and that physical features and habitats of significance along it should be preserved. It would also strengthen popular support for any further initiatives that might be considered.

With the closure of the canal almost 50 years ago, an important chapter in the industrial and cultural life of Laois came to an end. No thought was given at that time to the preservation of the canal, its function being seen as a purely economic one. Over this last half century, however, an awareness of other values served by the canal has grown. It is likely that if the canal's closure were being considered today, an overwhelming argument would be made for its preservation. Apart from the ecological and cultural heritage aspects, there would be its potential for tourism. However, after its decommissioning the canal was dewatered and much of it sold into private hands, closing the option of preservation forever.

In spite of many decades of neglect and deterioration, much remains that is of ecological value and of industrial archaeological interest. These remains have been detailed and evaluated in the earlier sections of the report, and the main issues that need to be addressed have been outlined in the preceding section. The incorporation of these considerations in future local authority plans should go a long way to ensuring that the Mountmellick Canal is given the attention it merits as a key element of the natural and cultural heritage of Laois.