The Forth & Clyde Canal
as Wildlife Corridor

September 2005

A report by:

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This report should be cited as:
CES 2005.
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Introduction

Terms of Reference and Scope of Study

The brief agreed in consultation with Dr Olivia Lassiere of British Waterways was to provide a Phase 1 survey of the canal corridor and adjoining areas of semi-natural habitat within Glasgow City Council boundaries. The emphasis of the study was to provide the results of this survey as a digital maps using ESRI's Arcview format so as to allow the connectivity between the canal and other habitats to be examined, with a view to establishing the importance of the canal as a wildlife corridor.

Aquatic macrophytes were not fully re-surveyed, although gross changes from the 1997 surveys and additional species were noted. The species records of the 1997 surveys have been included here as target notes.

Survey Methods

Habitats and Plants

The Phase 1 Habitat Survey – A technique for environmental audit (JNCC, 1990) provides a standard methodology of classifying and mapping the study site, and ensures that surveys are carried out to a consistent level of detail and accuracy. The methodology is for a trained surveyor to visit every parcel of land within the study site classifying the vegetation in terms of some ninety habitat categories. Mapping was undertaken at the unusually fine scale of 1:1000 because of the nature of this contract. A digitised habitat polygon map is created by redrawing field maps onto digital maps to produce ArcView shapefiles. The location of target notes is also recorded as ArcView shapefiles.

Description of Canal Corridor Habitats

Refer to the habitat map and accompanying target notes provided in the appendices.

The terrestrial habitats along the canal corridor are all common and widespread communities, and rather species-poor. The most widespread habitat is scrub of *Salix caprea* with *Crataegus monogyna*, *Salix cinerea*, *Salix viminalis*, *Betula pendula* saplings, *Fraxinus excelsior* saplings and *Acer pseudoplatanus* saplings over *Rubus fruticosus* agg., *Chamerion angustifolium* and *Urtica dioica*. This grades into immature broadleaved woodland in places. Small stands of broadleaved plantation also occur, most immature. Ruderal vegetation is also very abundant along the canal. This is dominated by *Chamerion angustifolium* with *Urtica dioica*, *Cirsium arvense*, *Aster* sp. *Rubus fruticosus* agg., *Rumex obtusifolius*, and clumps of the invasive *Reynoutria japonica*. Ruderal vegetation often grades into patches of rough grassland with abundant *Dactylis glomerata*, *Arrhenatherum elatius*, *Deschampsia cespitosa*, *Agrostis capillaris*, *Festuca rubra*, *Centaurea nigra*, *Aster* sp. plus most of the ruderal species above. Grassland that is shorter because it is developing over derelict ground or is regularly trampled tends to be dominated by the fine-leaved grasses *Agrostis capillaris* and *Festuca rubra* with *Trifolium pratense*, *Plantago lanceolata*, *Cynosurus cristatus*, *Achillea millifolium* and *Trifolium repens*. Many of the canal verges are of improved grassland with *Lolium perenne*, *Trifolium pratense*, *Plantago* spp. and *Trifolium repens*.

The marginal vegetation of the canal is dominated by *Glyceria maxima* with frequent *Lycopus europaeus*, *Epilobium hirsutum*, *Athyrium felix-femina*, *Dryopteris felix-mas*, *Solanum dulcamara*, *Berula erecta*, *Typha latifolia* and *Iris pseudacorus* plus occasional *Eupatorium cannabinum*, *Lythrum salicaria* and *Myosotis scorpioides*.

This vegetation runs along almost the entire length of the canal. It has even begun to develop along recently reinstated sections of canal.

The aquatic macrophytes were thoroughly surveyed in 1997 and it was felt that there was no need to repeat the survey here. However, localised areas did seem to be less diverse than maps indicate, with a preponderance of filamentous algae. This may be an incorrect perception due to differences in the season of observation, difficulties in accurate interpretation of existing maps, and the fact that only a superficial survey was carried out; or it may be due to increased eutrophication. But overall the canal has a diverse aquatic flora containing many regionally scarce species. Two macrophytes - *Alisma lanceolatum* and *Nuphar lute*a - seemed to be more widespread than the 1997 survey indicates.

The only invasive alien plant species to be recorded was Japanese Knotweed *Fallopia japonica*, and this is only of scattered occurrence.

The Canal as Wildlife Corridor

Open areas and semi-natural habitats within Glasgow City have been reduced to small isolated patches. The linear features of the Forth & Clyde Canal, the River Kelvin and railway lines have a conservation value in their own right as well as providing valuable corridors of wildlife exchange within northern Glasgow. They connect the wider countryside and nature reserves such as Possil Loch with the centre of the city, and also link many of the open spaces remaining within the city.

The canal is obviously highly beneficial for plants and invertebrates of aquatic habitats, and recent restoration of the canal for boat traffic has removed most of the barriers to free movement. Beyond specifically aquatic organisms, however, the value of this corridor (and most others) to wildlife is restricted to common and widespread or catholic species; the mobile generalists of the wider countryside. Most species of conservation concern have very specific habitat requirements and often have poor mobility: these species cannot realistically be catered for within the city. It is the common 'all garden' species that may successfully be encouraged. The terrestrial habitats associated with the canal (as well as the River Kelvin and railway lines), and the habitats available as patches within the city are of common and widespread types, mainly scrub/immature woodland, rough grassland and ruderal vegetation. Also, the contribution that private gardens make to the wildlife resource of the city cannot be over estimated. Gardens may also be considered as grassland/scrub habitat from the point of view of the wildlife which inhabits them.

To increase the value of the canal as a wildlife corridor it is necessary to widen the terrestrial habitats of the corridor wherever possible and improve connectivity with open areas and other wildlife corridors, thus reducing the number of barriers to wildlife movement. The canal corridor is very narrow through much of the city. A remarkable number of areas shown on 1997 maps as being open/waste ground are now developed or under development (such as the expansion of the Murano student village), generally with very narrow way-leaves, just 5m or so. Future developments should leave wider buffer zones along the canal and this zone should contain a wildlife matrix of scrub and rough grassland.

A major improvement to wildlife mobility may be achieved by increasing connectivity between the canal and other wildlife corridors, specifically the River Kelvin and railway lines, in order to establish a wildlife corridor network. The River Kelvin and the canal intersect at Maryhill aquaduct and all three wildlife corridors intersect at the adjacent Dawsholm Park. This is a major node where the corridors may be linked by extensive areas of wildlife matrix habitats, utilising existing woodland, broadleaved

plantation and grassland as a starting point. Further wetlands, such as ponds and ditches, may also be created to act as stepping stones between river and canal for aquatic species. Similarly a matrix of semi-natural habitats may be created around the node where the railway intersects the canal at Lambhill and Ruchill Park Golf Course.

Further wildlife matrix may be creation in open areas adjacent to the canal such as Knightswood Park and golf course along the Garscadden Burn, and at Sighthill Park adjacent to Port Dundas basin.

The ideal wildlife matrix of habitats for common species of the wider countryside is a fine mosaic of rough grassland and scrub, as already exists along much of the canal. A mix of these habitats provides a productive environment and complex architecture with many niches for plants and invertebrates and the birds and mammals that fed on them. Such a matrix requires minimal management to maintain, and public use merely adds to the diversity of habitats such as trampled and bare areas. It also provides a suitable setting for the creation of more specific habitat patches, such as ponds and ditches, small woodlands, scattered large trees and herb-rich grasslands; and thus specific elements of local Biodiversity Action Plans may be accommodated. The larger such areas, or wider such corridors, the more diverse they will become. Dense hedges planted along the boundaries of such areas beside roads or the built environment help to reduce so called edge effects, such as disturbance, pollution and noise.

Further Work Recommended

This report is a brief outline of the approach to improving the function of the canal as a wildlife complex in itself, and as a corridor for the movement of species throughout north Glasgow City. It is recommended that a management plan be prepared for the canal which integrates the management of existing habitats, local biodiversity priorities and initiatives, and specific site plans for habitat creation to improve connectivity at corridor nodes and with existing open spaces.

References

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Appendix I: Target Notes

Glasgow Branch

Target note numbers run from south to north.

TN1: Ruderal Vegetation
Port Dundas. An island within terminal canal basin, supporting unmanaged ruderal vegetation of *Chamerion angustifolium*, *Cirsium arvense*, *Dactylis glomerata* and *Aster* sp. plus scattered saplings of *Betula pendula*.

TN2: Scrub
Canal-side scrub of *Salix caprea*, *Corylus avellana*, *Crataegus monogyna* with scattered saplings and young trees of *Fraxinus excelsior*, *Alnus glutinosa* and *Salix alba* with a ruderal ground flora.

TN3: Marshy Grassland
Unmanaged damp grassland with a rough sward of abundant *Equisetum arvense*, *Festuca rubra*, frequent *Juncus effusus*, *Juncus bulbosus*, *Aster* sp., *Carex* sp., plus scattered saplings of *Alnus glutinosa*.

TN4: Amenity Grassland
Sighthill Park. Regularly mown grassland of *Lolium perenne*, *Cynosurus cristatus*, *Agrostis capillaris*, *Festuca rubra* and *Trifolium repens*. Rougher unmown edges of *Cynosurus cristatus*, *Agrostis capillaris*, *Ranunculus repens*, *Trifolium repens*, *Festuca rubra*, *Plantago lanceolata* and *Cirsium arvense*.

TN5: Semi-improved Neutral Grassland
Rank unmanaged grassland of *Dactylis glomerata*, *Agrostis capillaris*, *Ranunculus repens*, *Plantago lanceolata*, *Trifolium pratense, Galium verum* and *Lotus pedunculatus*.

TN6: Standing Water
Terminal Port Dundas basin. Appears quite eutrophic with much filimentous algae. *Potamogeton natans*, *Elodea canadensis*, *Glyceria fluitans* and *Lemna gibba* recorded in SWT survey1997.
Eupatorium cannabinum and *Osmunda regalis* occur rarely on the marginal walls.

TN7: Scrub
Species-poor scrub of *Salix caprea* with a sparse ground cover of *Agrostis capillaris*.

TN8: Amenity Grassland
Grassland growing through cobbles, rough sward of *Dactylis glomerata*, *Agrostis capillaris*, *Trifolium pratense*, *Ranunculus repens*, *Plantago lanceolata* and *Lolium perenne*.

TN9: Standing Water
SWT 1997 records *Potamogeton natans*, *Potamogeton friesii*, *Potamogeton crispus*, *Elodea canadensis*, *Lemna gibba*, *Lemna minor* and filimentous algae.

TN10: Scrub
Dense scrub dominated by *Salix caprea* with frequent *Salix viminalis* and small trees of *Betula* sp.

TN11: Marginal Vegetation

Marginal stands of *Glyceria maxima* along both sides of canal.

TN12: Standing Water
SWT 1997 records *Elodea canadensis* only.

TN13: Ruderal Vegetation
Stand of *Fallopia japonica*.

TN14: Standing Water
Kilometre section survey (1997) records (section 4) from this point south: *Glyceria maxima*, *Myriophyllum spicatum*, *Potamogeton x bennettii*.

TN15: Broadleaved Plantation
Scrubby and immature plantation of *Betula pendula*, *Acer pseudoplatanus*, *Salix caprea*, *Sorbus aria*, *Alnus glutinosa* and *Prunus avium*. Dense shade, no ground layer.

TN16: Broadleaved Woodland
Very early succession woodland of *Betula* sp., *Acer pseudoplatanus*, *Salix caprea* and *Crataegus monogyna* with ruderal vegetation of *Rubus fruticosus* agg., *Urtica dioica* and *Chamerion angustifolium* in gaps.

TN17: Ruderal Vegetation
Rank stands of *Chamerion angustifolium*, *Fallopia japonica* and *Urtica dioica* interspersed with patches of scrub of *Crataegus monogyna*, *Salix caprea* and saplings of *Betula* sp.

TN18: Marginal Vegetation
Stands of *Glyceria maxima* with frequent *Epilobium hirsutum*, *Apium nodiflorum*, *Filipendula ulmaria*, *Aster* sp., and *Lycopus europaeus* and small patches of *Phalaris arundinacea* along both banks.

TN19: Standing Water
SWT 1997 records *Potamogeton obtusifolius*, *Potamogeton berchtoldii*.

TN20: Semi-improved Neutral Grassland
Unmanaged bank with rank grass sward of *Festuca rubra*, *Agrostis capillaris*, *Centaurea nigra*, *Lathyrus pratensis*, *Plantago lanceolata*, *Cirsium arvense* and *Trifolium pratense*.

TN21: Standing Water
SWT 1997 records *Myriophyllum spicatum* and *Potamogeton berchtoldii*.

TN22: Marginal Vegetation
Stand of swamp with *Typha latifolia* and *Glyceria maxima*.

TN23: Scrub
Scrubby immature woodland of small *Betula* sp., *Salix caprea*, *Crataegus monogyna* and *Sorbus aucuparia* interspersed with patches of ruderal vegetation and rank grassland.

TN24: Ruderal Vegetation
Rank stands of *Chamerion angustifolium*, *Urtica dioica* and *Cirsium arvense* interspersed with patches of rank grassland of *Dactylis glomerata* and *Arrhenatherum elatius*.

TN25: Broadleaved Plantation
Immature stand of *Fraxinus excelsior*, *Acer pseudoplatanus*, *Betula pendula* and *Sorbus aucuparia*.

TN26: Semi-improved Neutral Grassland
Rough grassland with *Agrostis capillaris*, *Holcus lanatus*, *Trifolium repens*, *Plantago lanceolata*, *Lolium perenne*, *Trifolium pratense*, *Rumex obtusifolius* and *Ranunculus repens*.

TN27: Ruderal Vegetation
Dominated by *Chamerion angustifolium* with frequent *Urtica dioica* and *Rubus fruticosus* agg. plus scattered *Crataegus monogyna* and *Salix caprea*.

TN28: Standing Water
SWT 1997 records *Elodea canadensis* and *Ceratophyllum demersum*. Margins of *Glyceria maxima* and *Typha latifolia*.

TN29: Ruderal Vegetation
Dominated by *Chamerion angustifolium* with frequent *Urtica dioica* and *Rubus fruticosus* agg.

TN30: Scrub
Scrub dominated by *Crataegus monogyna* interspersed with patches of ruderal vegetation and rank grassland.

TN31: Broadleaved Woodland
Dominated by *Salix caprea* with frequent *Salix viminalis* and scattered small trees of *Fraxinus excelsior* and *Acer pseudoplatanus* to 15m.

TN32: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 3) from this point south: *Glyceria maxima*, *Myriophyllum spicatum*, *Potamogeton x bennettii*, *Typha latifolia*, *Carex hirta* and *Salix fragilis*.

TN33: Semi-improved Neutral Grassland
Open unmanaged grassland of *Agrostis capillaris* and *Cynosurus cristatus* with *Trifolium repens* and *Plantago lanceolata*.

TN34: Marginal Vegetation
Dominated by *Glyceria maxima* with patches of *Typha latifolia* with occasional *Eupatorium cannabinum*, *Lythrum salicaria*, *Myosotis scorpioides*, *Apium nodiflorum* and *Lycopus europaeus*.

TN35: Scrub
Dominated by *Salix caprea* with frequent *Crataegus monogyna* and scattered small *Fraxinus excelsior* over *Rubus fruticosus* agg. and ground cover of *Chamerion angustifolium*, *Dactylis glomerata* and *Dactylis glomerata*.

TN36: Broadleaved Woodland
Scrubby and immature woodland of *Salix caprea*, *Fraxinus excelsior*, *Acer pseudoplatanus*, *Salix viminalis*, *Crataegus monogyna* over *Rubus fruticosus* agg. and *Chamerion angustifolium*.

TN37: Standing Water

SWT 1997 records *Elodea canadensis*, *Potamogeton x bennettii*, *Potamogeton crispus*,and *Ceratophyllum demersum*.

TN38: Broadleaved Woodland
Immature woods with a canopy of *Fraxinus excelsior*, *Betula pendula* and *Acer pseudoplatanus* and *Salix caprea* plus *Crataegus monogyna* and *Sambucus nigra*. The groundflora is ruderal with *Rubus fruticosus* agg., *Chamerion angustifolium* and *Fallopia japonica*.

TN 39: Scrub
Open scrub dominated by *Crataegus monogyna* with *Rubus fruticosus* agg. and occasional saplings of *Fraxinus excelsior*, plus abundant *Fallopia japonica*.

TN40: Ruderal Vegetation
Rank vegetation of *Rubus fruticosus* agg., *Rubus idaeus*, *Cirsium arvense*, *Dactylis glomerata* and *Chamerion angustifolium*.

TN41: Broadleaved Woodland
Open woodland dominated by *Acer pseudoplatanus* to 25m with abundant *Crataegus monogyna*, occasional *Ulmus glabra* regeneration over *Rubus fruticosus* agg. and grasses.

TN42: Standing Water
SWT 1997 records *Elodea canadensis*, *Potamogeton x bennettii*, *Glyceria fluitans*, *Myriophyllum spicatum*, *Lemna minor* and *Ceratophyllum demersum*.

TN43: Marginal Vegetation
Dominated by *Glyceria maxima* with locally frequent *Glyceria fluitans*, *Alisma plantago-lanceolata*, *Lycopus europaeus*, *Epilobium hirsutum*, *Apium nodiflorum*, *Solanum dulcamara*, and on the retaining walls *Dryopteris felix-mas* and *Athyrium felix-femina*.

TN44: Scrub
Dense scrub to 5m of *Crataegus monogyna* and *Sambucus nigra* with frequent *Fraxinus excelsior* saplings over *Rubus fruticosus* agg. and *Fallopia japonica*.

TN45: Scrub
Dense scrub dominated by *Salix caprea* with *Crataegus monogyna* and *Rubus fruticosus* agg. plus scattered small *Acer pseudoplatanus* and *Fraxinus excelsior* over grassy and ruderal ground layer with a clump of *Fallopia japonica*.

TN46: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 2) from this point south: *Glyceria maxima*, *Potamogeton lucens*, *Elodea nuttallii* and *Juncus inflexus*.

SWT 1997 records *Elodea canadensis*, *Ceratophyllum demersum*.

TN47: Standing Water
SWT 1997 records *Elodea canadensis*, *Potamogeton natans*.

TN48: Marginal Vegetation
Dominated by *Glyceria maxima* with occasional small patches *Typha latifolia*, plus scattered *Apium nodiflorum*, *Epilobium hirsutum*, *Eupatorium cannabinum*. *Dryopteris felix-mas* and *Athyrium felix-femina* on retaining walls.

TN49: Ruderal Vegetation
Rank vegetation of *Chamerion angustifolium*, *Rubus fruticosus* agg. , *Dactylis glomerata*, *Cirsium arvense* and *Trifolium pratense*.

TN50: Scrub
Dense scrub to 10m dominated by *Salix caprea* with *Crataegus monogyna*, *Sambucus nigra*, *Betula* sp*.,* over *Rubus fruticosus* agg., *Chamerion angustifolium*, *Aster* sp., and *Dactylis glomerata*.

TN51: Scrub
Open scrub or immature woodland dominated by *Salix caprea* with small trees of *Fraxinus excelsior*, *Acer pseudoplatanus* and *Betula* sp*.* over grassy and ruderal ground layer.

TN52: Standing Water and marginal
SWT 1997 records *Elodea canadensis*, *Ceratophyllum demersum Potamogeton x bennettii*, *Glyceria maxima*, *Glyceria fluitans*.

TN53: Standing Water and marginal
SWT 1997 records *Myriophyllum spicatum*, *Elodea canadensis*, *Ceratophyllum demersum*, *Lemna minor*, *Potamogeton friesii*.

TN54: Broadleaved Woodland
Dominated by *Acer pseudoplatanus* to 20m with *Betula* sp*.* and *Salix caprea* over *Rubus fruticosus* agg., ruderal herbs and grasses.

TN55: Scrub
Varied scrub. Sections dominated by *Rubus fruticosus* agg. with abundant *Chamerion angustifolium*; other parts dominated by *Salix caprea* and frequent *Crataegus monogyna* to 8m over *Rubus fruticosus* agg., *Dactylis glomerata* and *Chamerion angustifolium*.

TN56: Scrub
Patchy scrub of *Salix caprea* plus occasional *Salix viminalis*, *Rubus fruticosus* agg. with scattered small *Fraxinus excelsior* and *Acer pseudoplatanus* over a ground flora of *Rubus fruticosus* agg., *Rubus idaeus* and *Agrostis capillaris*. Within this are patches of rank grassland of *Dactylis glomerata* and *Arrhenatherum elatius*.

TN57: Standing Water
SWT 1997 records *Potamogeton x bennettii*, *Elodea canadensis*, *Potamogeton friesii*.

Also present are *Alisma plantago-lanceolata* and *Nuphar lutea*.

TN58: Marginal Vegetation
Dominated by *Glyceria maxima* plus a patch of *Iris pseudacorus*, scattered *Apium nodiflorum*, *Epilobium hirsutum*, *Solanum dulcamara* and *Lycopus europaeus*. *Dryopteris felix-mas* and *Athyrium felix-femina* on retaining walls.

TN59: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 1) from this point south: *Glyceria maxima*, *Potamogeton lucens*, *Elodea nuttallii*, *Myriophyllum spicatum*, *Petasites albus*, *Sparganium erectum*.

Forth and Clyde Canal: from western city boundary

TN60: Semi-improved Neutral Grassland
Rank species-poor *Arrhenatherum elatius* grassland on banks.

TN61: Ruderal Vegetation
Rough vegetation of *Urtica dioica*, *Epilobium hirsutum*, *Senecio jacobaea*, *Rumex obtusifolius*, *Rubus fruticosus* agg., *Calystegia sepium* and *Vicia cracca*.

TN62: Scrub
Open scrub and hedge of *Crataegus monogyna*, *Corylus avellana*, *Sambucus nigra* and occasional small *Alnus glutinosa* over ruderal vegetation.

TN63: Marginal Vegetation
Dominated by *Glyceria maxima* both banks, with scattered *Phalaris arundinacea*, *Filipendula ulmaria*, *Aster* sp., *Lycopus europaeus*.

TN64: Standing Water
Scattered plants of *Myriophyllum spicatum*, *Persicaria amphibia*, *Elodea canadensis*.

TN65: Broadleaved Woodland
Immature and scrubby woodland along Yoker Burn, with *Alnus glutinosa*, *Salix caprea*, *Fraxinus excelsior*, *Betula* sp. and *Crataegus monogyna* over ruderal herbs.

TN66: Scrub
Open scrub of *Salix caprea* with ruderal herbs *Epilobium hirsutum*, *Urtica dioica*

TN67: Scrub
Open scrub of *Crataegus monogyna* and *Sambucus nigra* with *Rubus fruticosus* agg., *Urtica dioica* and *Aegopodium podagraria*.

TN68: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 9) from this point west: *Glyceria maxima*, *Potamogeton x bennettii*, *Potamogeton berchtoldii*, *Potamogeton perfoliatus*, *Scirpus sylvatica*, *Carex otrobae*, *Carex hirta*.

TN69: Broadleaved Woodland
Immature woodland to 10m with *Fraxinus excelsior*, *Salix caprea*, *Aesculus hippocastanum*, *Crataegus monogyna*, *Sambucus nigra* and *Rubus fruticosus* agg.

TN70: Scrub
Dense scrub of *Crataegus monogyna*, *Sambucus nigra*, *Salix viminalis*, *Prunus spinosa*, *Betula* sp. and *Rubus fruticosus* agg.

TN71: TN57: Standing Water
SWT 1997 records *Potamogeton crispus*, *Elodea canadensis*.

TN72: Broadleaved Plantation
Established maturing trees over amenity grassland.

TN73: Marginal Vegetation
Scattered small colonies of *Glyceria maxima* with *Caltha palustris* and *Iris pseudacorus* establishing along this restored section of canal.

TN74: Standing Water and marginal vegetation

Kilometre section survey (1997) records (section 10) from this point west: *Glyceria maxima*, *Alisma lanceolatum*.

SWT 1997 records *Potamogeton friesii*, *Potamogeton berchtoldii*, *Potamogeton obtusifolius*, *Elodea canadensis*.

TN75: Scrub
Scattered scrub of *Crataegus monogyna* and *Salix viminalis* with ruderal vegetation of *Chamerion angustifolium* and *Cirsium arvense*.

TN76: Semi-improved Neutral Grassland
Rank species-poor grassland of *Agrostis capillaris*, *Dactylis glomerata* with scattered *Crataegus monogyna*.

TN77: Ruderal Vegetation
Dominated by *Chamerion angustifolium* with *Urtica dioica*, *Cirsium arvense* and occasional *Filipendula ulmaria* plus scattered *Sambucus nigra*, *Salix caprea*, *Betula* sp. and *Salix viminalis*.

TN78: Scrub
Dominated by *Salix caprea* with *Crataegus monogyna*, *Sorbus aucuparia*, occasional small *Acer pseudoplatanus* over *Rubus fruticosus* agg., *Urtica dioica* and *Fallopia japonica*.

TN79: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 11) from this point west: *Glyceria maxima*.

SWT 1997 records *Lemna minor*, *Potamogeton obtusifolius*, *Elodea canadensis*.

TN80: Scrub
Scrub dominated by *Salix caprea* with *Crataegus monogyna*, *Sambucus nigra* and *Rubus fruticosus* agg. with ruderal patches of *Chamerion angustifolium*, *Rubus idaeus*, *Urtica dioica* and *Dactylis glomerata*. Sections of immature woodland where *Salix caprea* reach 15m plus frequent small *Acer pseudoplatanus* and *Fagus sylvatica*.

TN81: Scrub
Scrub dominated by *Salix caprea* with *Crataegus monogyna*, *Sambucus nigra* and *Rubus fruticosus* agg. Ruderal patches of *Chamerion angustifolium*, *Rubus idaeus*, *Urtica dioica* and *Dactylis glomerata*.

TN82: Standing Water
SWT 1997 records *Potamogeton friesii*, *Elodea canadensis*.

TN83: Scrub
Open scrub of *Salix caprea*, *Sambucus nigra*, *Crataegus monogyna*, *Corylus avellana* and *Rubus fruticosus* agg. interspersed with small stands of ruderal vegetation of *Chamerion angustifolium*.

TN84: Standing Water and marginal vegetation
Kilometre section survey (1997) records (section 12) from this point west: *Glyceria maxima*.

SWT 1997 records *Potamogeton berchtoldii*, *Elodea canadensis*.

TN85: Marginal Vegetation
Dominated by *Glyceria maxima* plus scattered *Apium nodiflorum*, *Epilobium hirsutum*, *Solanum dulcamara* and *Lycopus europaeus*. *Dryopteris felix-mas* and *Athyrium felix-femina* on retaining walls.

TN86: Scrub
Open *Salix caprea* and *Crataegus monogyna* with *Chamerion angustifolium*, *Urtica dioica*, *Cirsium arvense* and *Dactylis glomerata*.

TN87: broadleaved Woodland
Salix caprea and *Fraxinus excelsior* to 15m with *Crataegus monogyna* and *Rubus fruticosus* agg.

TN88: Broadleaved Woodland
Railway embankments with immature specie-poor woodland dominated by *Betula pendula*.

TN89: Standing Water
SWT 1997 records *Glyceria fluitans*, *Elodea canadensis*.

TN90: Scrub
Mixed dense scrub of *Crataegus monogyna*, *Prunus spinosa*, *Sambucus nigra*, *Corylus avellana*, *Salix viminalis*, *Salix caprea*, *Acer campestre* and *Rubus fruticosus* agg.

TN91: Broadleaved Woodland
Open and scrubby immature woodland on railway embankment with *Salix caprea*, *Betula pendula*, *Fraxinus excelsior*, *Crataegus monogyna* and *Rubus fruticosus* agg. plus ruderal patches.

TN92: Broadleaved Woodland
Open and scrubby immature woodland to 10m high on railway embankment. Dominated by *Salix caprea* with abundant *Betula pendula* and *Fraxinus excelsior* over *Rubus fruticosus* agg. and grasses.

TN93: Standing Water, marginal vegetation, etc
Kilometre section survey (1997) records (section 13) from this point west: *Glyceria maxima*, *Lemna gibba*, *Potamogeton trichoides*, *Potamogeton perfoliatus*, *Sparganium emersum*, *Alisma lanceolatum*, *Berula erecta*, *Lycopus europaeus*, *Rumex conglomeratus*, *Scuttellaria galericulata*, *Asplenium ruta-muraria*, *Asplenium trichomanes*, *Epipactus helleborine*.

TN94: Marginal Vegetation
Dominated by *Glyceria maxima* with scattered *Epilobium hirsutum*, *Athyrium felix-femina*, *Urtica dioica*.

TN95: Broadleaved Woodland
Woodland to 20m high along dismantled railway, with *Salix caprea*, *Acer pseudoplatanus*, *Betula pubescens*, *Sambucus nigra*, *Crataegus monogyna* over *Urtica dioica* and *Dryopteris felix-mas*.

TN96: Scrub

Dense scrub or immature woodland *Salix caprea*, *Sambucus nigra* and *Crataegus monogyna* with occasional *Acer pseudoplatanus* and *Betula pubescens*, over *Rubus fruticosus* agg. and *Pteridium aquilinum*.

TN97: Broadleaved Woodland
Immature woodland along dismanted railway line. Dominated by *Salix caprea*, with frequent *Acer pseudoplatanus* and *Betula pendula*, plus *Crataegus monogyna* over *Dryopteris felix-mas*, *Urtica dioica* and *Rubus fruticosus* agg.

TN98: Amenity grassland
Towpath verge of *Lolium perenne* and *Agrostis capillaris*. Rough margin with *Pteridium aquilinum*, *Rubus fruticosus* agg., *Rubus idaeus* and *Chamerion angustifolium*.

TN99: Scrub
Wide area of rough ground with a mosaic of scrub interspersed with patches of rough grassland and ruderal vegetation. The scrub is of *Salix caprea*, *Crataegus monogyna*, *Rubus fruticosus* agg. and *Fraxinus excelsior* saplings. The rough grassland is dominated by *Dactylis glomerata* with *Holcus lanatus*, *Agrostis capillaris* and *Ranunculus repens*. This grades to ruderal vegetation dominated by *Chamerion angustifolium* plus *Cirsium arvense*, *Urtica dioica* and *Rubus idaeus*. There are also small clumps of *Betula pendula* and scattered *Acer pseudoplatanus*.

TN100: Broadleaved Woodland
Immature woodland to 10m of *Salix caprea* and *Betula pendula* with occasional *Acer pseudoplatanus* over a species-poor ground flora of grasses and ruderal herbs.

TN101: Broadleaved Woodland
Mature woodland of Quercus spp., *Fraxinus excelsior* and *Acer pseudoplatanus* along the valley of the River Kelvin.

TN102: Ruderal Vegetation
Derelict land colonised by *Chamerion angustifolium*, *Cirsium arvense*, *Rubus idaeus* and *Aster* sp.

TN103: Standing Water
SWT 1997 records *Potamogeton natans*, *Elodea canadensis*.

TN104: Broadleaved Plantation
Recent plantation to 10m high with *Fraxinus excelsior*, *Prunus avium*, *Betula pendula* and *Salix caprea*. Also areas of amenity grassland, and patches of ruderal vegetation.

TN105: Standing Water
SWT 1997 records *Ceratophyllum demersum*, *Elodea canadensis*.

TN106: Standing Water, marginal vegetation, etc
Kilometre section survey (1997) records (section 14) from this point west: *Glyceria maxima*, *Potamogeton trichoides*, *Potamogeton x bennettii*, *Sparganium emersum*, *Berula erecta*, *Lycopus europaeus*, *Asplenium ruta-muraria*, *Ranunculus sceleratus*, *Salix x rubra*.

TN107: Standing Water
SWT 1997 records *Ceratophyllum demersum*, *Elodea canadensis*, *Lemna minor*.

Also recorded 2005: Nuphar lutea, *Glyceria maxima* and *Berula erecta*.

TN108: Standing Water
SWT 1997 records *Potamogeton berchtoldii*, *Potamogeton crispus*, *Ceratophyllum demersum*, *Elodea canadensis*, *Lemna minor*.

TN109: Semi-improved Neutral Grassland
Unmanaged sward of *Agrostis capillaris*, *Festuca rubra*, *Lolium perenne* and *Dactylis glomerata* with *Ranunculus repens*, *Plantago lanceolata*, *Centaurea nigra*, *Senecio jacobaea* and *Rumex obtusifolius*.

TN110: *Nuphar lutea* and *Potamogeton natans*.
SWT 1997 records *Potamogeton berchtoldii*, *Potamogeton crispus*, *Ceratophyllum demersum*, *Elodea canadensis*.

Also recorded 2005: *Nuphar lutea* and *Potamogeton natans*.

TN111: Ruderal Vegetation
Chamerion angustifolium, *Rumex obtusifolius* and *Dactylis glomerata* with scattered *Sorbus aucuparia*.

TN112: Standing Water
SWT 1997 records *Potamogeton berchtoldii*, *Ceratophyllum demersum*, *Elodea canadensis*.

TN113: *Nuphar lutea* and *Potamogeton natans*.
Nuphar lutea and *Potamogeton natans*.

TN114: Standing Water, marginal vegetation, etc
Kilometre section survey (1997) records (section 15) from this point west: *Glyceria maxima*, *Typha latifolia*, *Potamogeton trichoides*, *Potamogeton x bennettii*, *Ceratophyllum demersum*, *Alisma lanceolatum*, *Berula erecta*, *Ranunculus sceleratus*, *Phyllitis scolopendrium*, *Ranunculus sceleratus*, *Petasites albus*, *Salix x rubra*.

SWT 1997 records *Potamogeton natans*, *Potamogeton berchtoldii*.

TN115: Broadleaved Woodland
Open woodland to 25m of *Fraxinus excelsior* and *Acer pseudoplatanus* over *Rubus fruticosus* agg., *Urtica dioica* and *Chamerion angustifolium*.

TN116: Broadleaved Woodland
Open woodland to 20m of *Fraxinus excelsior*, *Betula pendula*, *Salix caprea* and *Acer pseudoplatanus* over *Rubus fruticosus* agg., *Urtica dioica* and *Chamerion angustifolium*.

TN117: Standing Water
SWT 1997 records *Potamogeton freisii*, *Potamogeton trichoides*, *Potamogeton berchtoldii*, *Potamogeton natans*, *Nuphar lutea*, *Elodea canadensis*.

TN118: Ruderal Vegetation
Rank mixture of stands of *Chamerion angustifolium*, *Dactylis glomerata*, *Rubus idaeus*, *Rubus fruticosus* agg. *Cirsium arvense*.

TN119: Semi-improved Neutral Grassland

Rank tufted grassland of *Dactylis glomerata*, *Arrhenatherum elatius*, *Agrostis capillaris*, *Festuca rubra*, *Plantago lanceolata*, *Achillea millifolium*, *Centaurea nigra* and *Ranunculus repens*.

TN120: Standing Water
SWT 1997 records *Potamogeton trichoides*, *Potamogeton berchtoldii*, *Potamogeton natans*, *Elodea canadensis*.

TN121: Scrub
Mixed scrub of *Crataegus monogyna*, *Salix caprea*, *Sambucus nigra*, *Betula* sp., *Rubus fruticosus agg.*, plus *Chamerion angustifolium*, *Urtica dioica*, *Dryopteris felix-mas*.

TN122: Semi-improved Neutral Grassland
Rough grassland of *Dactylis glomerata*, *Deschampsia cespitosa*, *Festuca rubra*, *Agrostis capillaris*, *Lolium perenne*, *Centaurea nigra*, *Trifolium pratense*, *Lathyrus pratensis*, *Vicia cracca*.

TN123: Scrub and Mixed Plantation
Patchy scrub of *Salix caprea*, *Crataegus monogyna*, *Rubus fruticosus* agg., *Sambucus nigra* plus small scattered *Betula pendula* and *Acer pseudoplatanus* interspersed with patches of rank grassland and ruderal vegetation. Also areas planted with broadleaved and conifer trees.

TN124: Standing Water, marginal vegetation, etc
Kilometre section survey (1997) records (section 16) from this point west: *Glyceria maxima*, *Typha latifolia*, *Nuphar lutea*, *Berula erecta*, *Rumex conglomeratus*, *Lycopus europaeus*, *Lemna gibba*, *Equisetum sylvaticum*, *Oreopteris limbosperma*, *Dactylorhiza purpurella*.

TN125: Semi-improved Neutral Grassland
Rank grassland of *Arrhenatherum elatius*, *Dactylis glomerata*, *Lolium perenne*, *Centaurea nigra*, *Plantago lanceolata*, *Festuca rubra*, *Cirsium arvense* and *Chamerion angustifolium*.

TN126: Standing Water
SWT 1997 records *Potamogeton crispus*, *Potamogeton berchtoldii*, *Potamogeton natans*, *Nuphar lutea*.

TN127: Marginal Vegetation
Dominated both banks by *Glyceria maxima* with locally frequent *Iris pseudacorus*, *Athyrium felix-femina*, *Dryopteris felix-mas*, *Epilobium hirsutum*.

TN128: Semi-improved Neutral Grassland
Rough pasture dominated by *Deschampsia cespitosa* with abundant *Holcus lanatus* plus frequent *Urtica dioica*, *Ranunculus repens*, *Arrhenatherum elatius* and *Dactylis glomerata*.

TN129: Semi-improved Neutral Grassland
Unmanaged grassland of *Deschampsia cespitosa*, *Agrostis capillaris*, *Dactylis glomerata*, *Trifolium repens*, *Trifolium pratense*.

TN130: Scrub
Dense scrub of *Salix caprea* with *Crataegus monogyna*, *Sambucus nigra*, *Betula* sp. over ruderal herbs.

TN131: Standing Water
SWT 1997 records *Alisma lanceolatum*, *Potamogeton berchtoldii*, *Potamogeton natans*, *Nuphar lutea*, *Elodea canadensis*.

TN132: Semi-improved Neutral Grassland
Rank *Arrhenatherum elatius* grassland with *Holcus lanatus*, *Agrostis capillaris*, *Dactylis glomerata*, *Cirsium arvense*, *Centaurea nigra* and scattered *Salix caprea*.

TN133: Standing Water
SWT 1997 records *Potamogeton berchtoldii*, *Potamogeton natans*, *Nuphar lutea*, *Elodea canadensis*.

TN134: Swamp
Large expanse of swamp, mainly *Typha latifolia* with locally abundant *Phalaris arundinacea*.

TN135: Broadleaved Woodland
Large stand of *Betula pubescens* over swamp vegetation.

TN136: Semi-improved Neutral Grassland
Rank *Arrhenatherum elatius* grassland with *Holcus lanatus*, *Agrostis capillaris*, *Dactylis glomerata*, *Cirsium arvense*, *Centaurea nigra* and scattered *Salix caprea*.

TN137: Semi-improved Neutral Grassland
Rank *Arrhenatherum elatius* grassland with *Holcus lanatus*, *Agrostis capillaris*, *Dactylis glomerata*, *Cirsium arvense*, *Centaurea nigra* and scattered *Salix caprea*.

TN138: Standing Water, marginal vegetation, etc
Kilometre section survey (1997) records (section 16) from this point west: *Glyceria maxima*, *Typha latifolia*, *Nuphar lutea*, *Berula erecta*, *Juncus tenuis*, *Salix x rubra*.

TN139: Swamp
Large stand of swamp of *Typha latifolia*, *Glyceria maxima* and *Phalaris arundinacea*.

TN140: Scrub
Dense scrub of *Salix caprea* over *Deschampsia cespitosa* and *Chamerion angustifolium*.

TN141: Standing Water and Marginal Vegetation
SWT 1997 records *Potamogeton natans*, *Nuphar lutea*, *Elodea canadensis*. *Glyceria maxima* dominant along both banks.