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INSTITUTE OF TERRESTRIAL ECOLOGY
(NATURAL ENVIRONMENT RESEARCH COUNCIL)

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ITE PROJECT 466

Final Report to Nature Conservancy Council

THE BIOLOGICAL SURVEY OF BRITISH RAIL PROPERTY

Appendix 5 Areas of biological interest on
British Rail Scottish Region

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1 INTRODUCTION

This appendix to the final contract report to the Nature Conservancy Council (NCC) by the Institute of Terrestrial Ecology (ITE) on the survey of British Rail (BR) land, iterates and condenses information about areas of biological interest supplied to the contractors (NCC). It is intended to be distributed within BR and to provide a basis for discussion between them and the NCC on preferred methods of vegetation management.

The appendix begins with a general statement about the conservation interest of railway land and suggests a strategy for verge and permanent way maintenance. This is followed by a list and brief description of sites of interest in the Region. The sites are located by line and mile post within BR areas and divisions, and are cross referenced to the more detailed information held by the NCC.

The list is by no means exhaustive. 18% of all randomly chosen sites visited during the survey proved to be of particular interest (either because habitats or species are locally or nationally scarce), the implication being that a considerable proportion of BR land is of importance to wildlife. An inspection of the regional map (following the list) will show that biological interest sites occur more frequently or are clustered along some lines. In discussion between BR and NCC it may be decided that an approach where particular attention is paid to a stretch of the line, rather than to individual sites would be more effective.

The appendix concludes with a list of NCC offices in the Region, who hold information about the sites in question.

2 MANAGEMENT FOR CONSERVATION AND SAFETY ALONG RAILWAY LINES

"The question of grass cutting is one that a majority of permanent way staff do not like." (Dobson, 1956).

Management at present is concerned largely with the track bed and cess, although the vegetation along verges reflects a century of hand maintenance. Cutting and scything led to a rich grassland with many flowering plants, including primroses, cowslips and orchids, and associated animals. Burning and ballast tipping, however, produced coarse grassland, bramble and tall herb communities. The spread of scrub and secondary woodland was carefully controlled.

The railways were built before the widespread introduction of agricultural chemicals, and serve as a refuge for many plants becoming increasingly rare elsewhere in the countryside. Close to the cess, where disturbance keeps the vegetation open, plants like the Oxford ragwort, narrow-leaved willow herb and small toadflax have been able to spread whilst some seaside plants, such as Danish scurvy-grass and the sand sedge have moved inland along railway lines. On the cinder cess and in yards casual plants, brought in with goods or attached to rolling stock, have appeared and sometimes become established. The most famous of these are the 'shoddy aliens' studied by John Dony (1955) on the Bedfordshire railways.

In recent years the substitution of chemical spraying along the track and a narrow strip of adjacent verge, for hand maintenance, has led to considerable change. Without scything or burning, the character of grassland is altered, with a few coarse species replacing the rich diversity. Scrub develops and secondary woodland spreads. Where yards and tracks are intensively sprayed, the numbers of interesting casual plants diminishes, and plant movement becomes inhibited.

The BR land survey has shown that much of the grassland of conservation interest occurs on previously managed cuttings. The excavated slopes tend to have a nutrient poor mineral soil which supports locally and regionally characteristic plants, and inhibits competition from false oat, even where previously burnt. Embankments, which were often topsoiled after construction, and flat verges, generally support a more disturbed vegetation with many commonly occurring competitive species. Spent ballast is tipped on these formations and chemical and organic wastes from trains drain onto flats and negative slopes. Embankment footings are less well drained than other areas of verge, and ballast may act as a mulching agent, beneath which a damp, organic soil forms. Such areas support nettle, cleavers and rosebay willow herb, whilst false oat grass and bramble colonise the more freely draining upper slopes. In the Scottish uplands, ragwort, bracken and raspberry are more commonly found. Where scrub is not cut, bramble, thorn and sallow may become dense and in many areas give way to secondary ash woodland. Oak and beech woodland are more usually restricted to cuttings.

In general, where manpower is available, priority should be given to the maintenance of cuttings. This coincides with the permanent way engineers' requirement that trees or scrub likely to drop litter or branches onto the line be controlled. Scything and occasional burning of grassland will prevent the development of scrub, whilst encouraging diversity. Burning, however, should only be carried out over limited areas of verge and not at all during the bird nesting season (as per discussion between BR and NCC). Application of chemical scrub control agents is effective, but leaves standing dead material and does little to encourage the less competitive grassland plants. The use of a flail adapted to be carried by train has been found effective for clearing bramble and low scrub in some areas. A swathe about 3 metres wide can be cleared on either side of the line and, once any mature trees close to the cess have been felled, can be readily maintained by annual or, more usually, biennial flailing.

On embankments the spread of scrub and secondary woodland on lower slopes may lend stability. It will provide cover and nesting habitat. Casualty recordings have shown that over 70% of bird fatalities occur in cuttings where flight from oncoming trains is inhibited. This suggests that it is preferable to leave cover on embankment rather than cutting slopes, although where woodland on the latter is well developed and offers no hazard to rail traffic, this should clearly not be cut. In highland areas of Scottish Region woodland is often at a premium and should not be cleared.

The requirement that annual spraying of main lines by BR and contractor's trains should leave the ballasted width 98%, and the cess 95%, weed free is stringent. Probably the most serious weed along the track bed is the common horsetail. This is a perennating plant which could be controlled by

biennial spraying of the track. The majority of plants which are spray-killed are small annual species and bryophytes which are adapted to survive the very dessicating conditions found during high summer. Many of these are still found on tipped ballast and cinder, although when the vegetation closes over, they are no longer able to compete successfully. It is suggested that, on less important lines, and perhaps initially for a trial period only, tracks on either side be sprayed during alternate years. This will enable some annual plants to maintain their populations. Further, it should substantially reduce maintenance costs without introducing hazard, since all perennating plants will be controlled.

REFERENCES

- DOBSON, J. 1956. The work of a length ganger. *J. Proc. Perm.-Way Instn*, 74, 2.
- DONY, J. 1955. Notes on the Bedfordshire railway flora. *Beds. Nat.*, 9. 12-17.

SCOTTISH REGION

A SOUTH-EAST DIVISION

(1) Berwick-upon-Tweed - Edinburgh (East Coast Main Line)

M.P.	Our Reference	Formation	Vegetation	Preferred Management
53½-54	B194	Cutting	Calcareous grassland, rock cuttings heath and cinder flats	Scything of coarser grassland.
(11)	(Falkirk) - Lochmill - Edinburgh (Haverley)			
37½	R279	Embankment	Mixed deciduous woodland with grassy areas	Selective coppicing.
(111)	(Shotts) - Fauldhouse - Midcalder Junction			
15 3/4-16	R277 & B198	Embankment	Coarse grassland, cinder scree and calcifuge turf. Scrub and tall herb vegetation	Burning.
(1v)	Edinburgh (Saughton Junction) - Dundee			
9-9½	B199	Cuttings	Rich grassland, pioneer scrub, secondary woodland, old track bed	Scrub control and mowing.
12	R290	Cutting/Embankment	Rock cutting, scree, heath and rich grassland	Scrub removal.
23-23½	B203	Cutting	Diverse rich coastal grassland	Mowing of coarser grassland.
(v)	Clackmannon - Dunfermline Lower			
2½	R294	Cutting	Calcifuge grassland, some scrub	Mowing
11½-11½	D202	Cutting	Woodland, scrub, varied grassland	Some scrub clearance and mowing.
(vi)	Ladybank - Bridge of Eare			
9	R300	Cutting	Damp and dry grassland and scrub	Mowing of grassland.
B SOUTH-WEST DIVISION (GLASGOW)				
(1.)	Glasgow Central - Greta			
18 3/4-19	B191	Cutting	Rock faces, runnels and moorland	Remove self-seeded conifers.

SCOTTISH REGION

B SOUTH-WEST DIVISION (GLASGOW SOUTH)

(ii) Glasgow Shields Road - Ayr - Stranraer

N.P.	Our Reference	Formation	Vegetation	Preferred Management
15-15j	B207	Cutting/Embankment	Deciduous woodland, scrub, rough grass	Local scrub cutting.
35-35 3/4	B188	Flat/minor slope	Marsh, heath, sandy grassland and scrub	Local scrub removal.
42 3/4	R246	Embankment	Varied coarse grassland, scrub and ditches	Local burning and scrub removal.
5 3/4-6j	B184	Cutting/Embankment	Deciduous woodland, scrub rough grassland. Marsh and rock areas	None.
(iii) Carstairs - Cobbinshaw (- Midcaider)				
75j-76	B196	Flat, Ditch and Cutting	Birch and sallow scrub, damp and dry calcifugo grassland; cinder flats	Some scything in the major cutting.
(iv) Kilmacole Branch				
24	R307	Cutting	Rock faces, scrub, calcifugo grassland	Scything of coarse grassland.
C NORTH-WEST DIVISION (GLASGOW NORTH)				
(i) Glasgow - Mallaig (West Highland Line)				
19j	R313	Cutting	Birch woodland; wet rocks; <i>Molinia</i> , bracken	Bracken clearance
43j-44	B208	Cutting/Embankment	Submontane grassland, moor, bog and rocks	Control of ballasting better grassland.
80-80 3/4	B212	Cutting/Embankment	Scrub, pine, heather, bog, rudoral areas	Local scything of grassland.
28j	R324	Cutting	Rock face, heather moor, birch and bracken	Some heather burning and removal of coarse plants on cliff.
(ii) Crianlarich - Oban				
60j	B209	Cutting/Embankment	Oak woodland, rock cutting, open scrub	Restriction of spraying.

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C NORTH-WEST DIVISION (GLASGOW NORTH)

(111) Springburn - Coatbridge

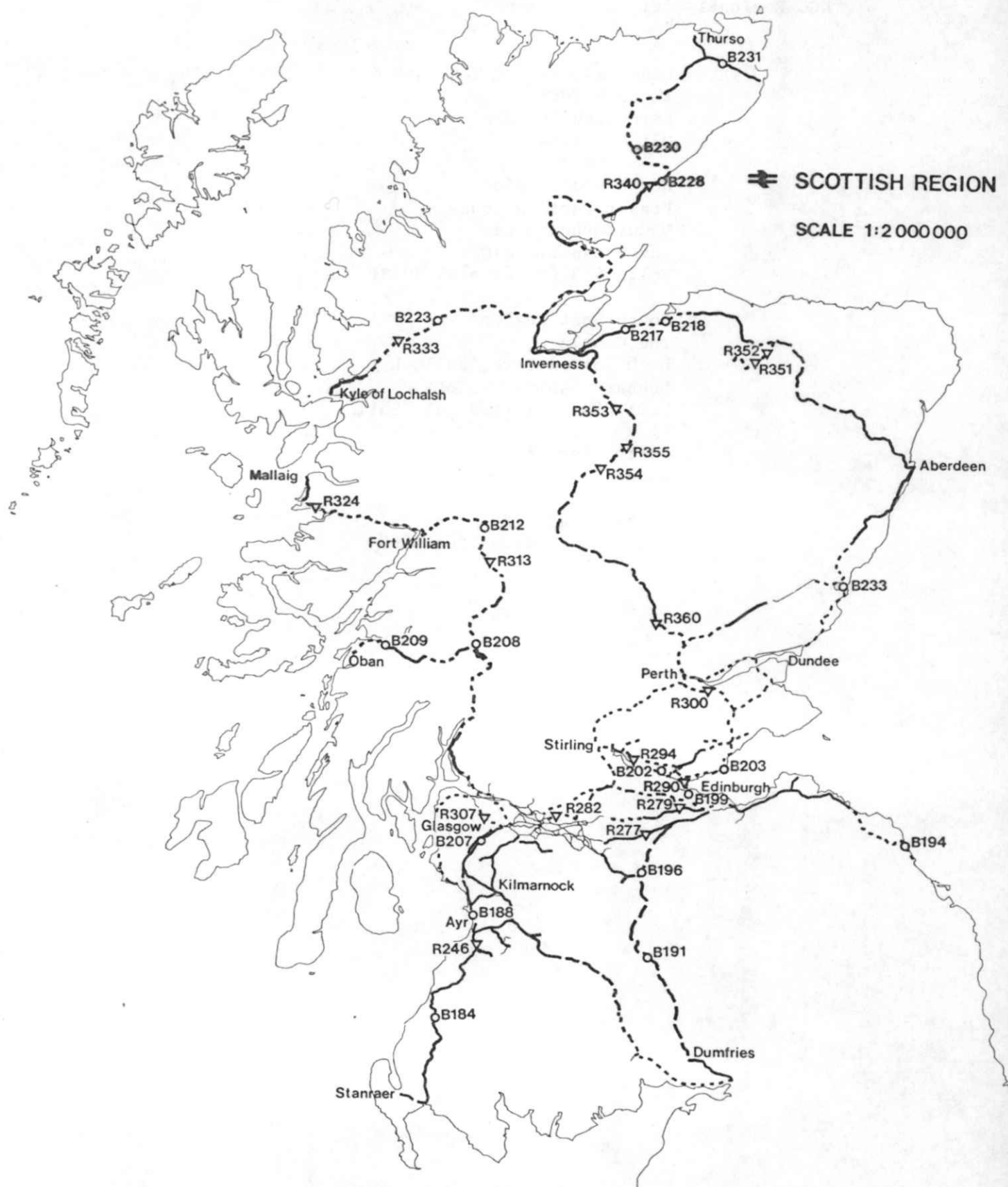
M.P.	Our Reference	Formation	Vegetation	Preferred Management
(N5643582)	R282 & B200	Flat	Sallow scrub, dump and dry cinder grassland. Ballast with ruderals	Renewed disturbance, otherwise none.
D NORTH-EAST DIVISION				
(1)	Perth - Inverness (Central Highland Line)			
17	R360	Cutting/Embankment	Mixed deciduous woodland, scrub	None
73½	R354	Cutting/Flat	Calcifugo grassland; scrub	None.
81½	R355	Embankment	Pioneer scrub, heather, acid grassland	Mowing of heather and grass.
95	R353	Cutting/Embankment	Rock face, heather, upland grassland	Heather burning/mowing.
(11) Dundee - Aberdeen				
31	B233	Flat	Dry grassland, cinder and ballast flats	Renewed disturbance.
(111) Aberdeen - Inverness				
119 3/4 & 0	B218	Flat	Cinder and ballast grassland	Renewed disturbance.
120 3/4	B217	Cutting	Calcifugo grassland heath and scrub	Mowing of grassland.
(1v) Dufftown Branch				
56 3/4	R352	Flat & Embankment	Tall herb; cinder waste ground; scrub	Some sowing and removal of rosebay
60 3/4	R351	Cutting/Flat	Deciduous woodland, some open scrub	None.
(v) Inverness - Wick				
95½-95 3/4	R340 & B229	Cutting/Embankment	Calcicolo and calcifugo grassland, rock exposure, bracken and low scrub	None.
98½-08 3/4	B228	Flat & Cutting	Calcicolous grassland and rock faces	Scything of coarser grassland.
112-113	D230	Embankment/Cutting	Varied coarse and upland grassland, scrub and rock faces	Local mowing of grassland.

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D NORTH-EAST DIVISION

(vi) Inverness - Wick (continued)

M.P.	Our Reference	Formation	Vegetation	Preferred Management
151-152	E231	Embankment/Flat	Damp grassland, reedswamp and scrub	Removal of scrub from better damp grassland.
(vii) Dingwall - Kyle of Lochalsh				
28 3/4	B223	Flat/Cutting	Rich calcifuge grassland, heather moor, bog and sallow scrub	None.
39 3/4	B333	Cutting/Flat	Bracken, tall herb and calcifuge grassland. Scrub and rock faces	Some bracken control.



SCOTTISH REGION

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SITES OF PARTICULAR BIOLOGICAL INTEREST

SITES FOUND DURING :

▽ Random Survey

○ Biological Interest Survey

NCC Regional Offices, Scotland

Headquarters for Scotland & South East Region
12 Hope Terrace
Edinburgh EH9 2AS
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