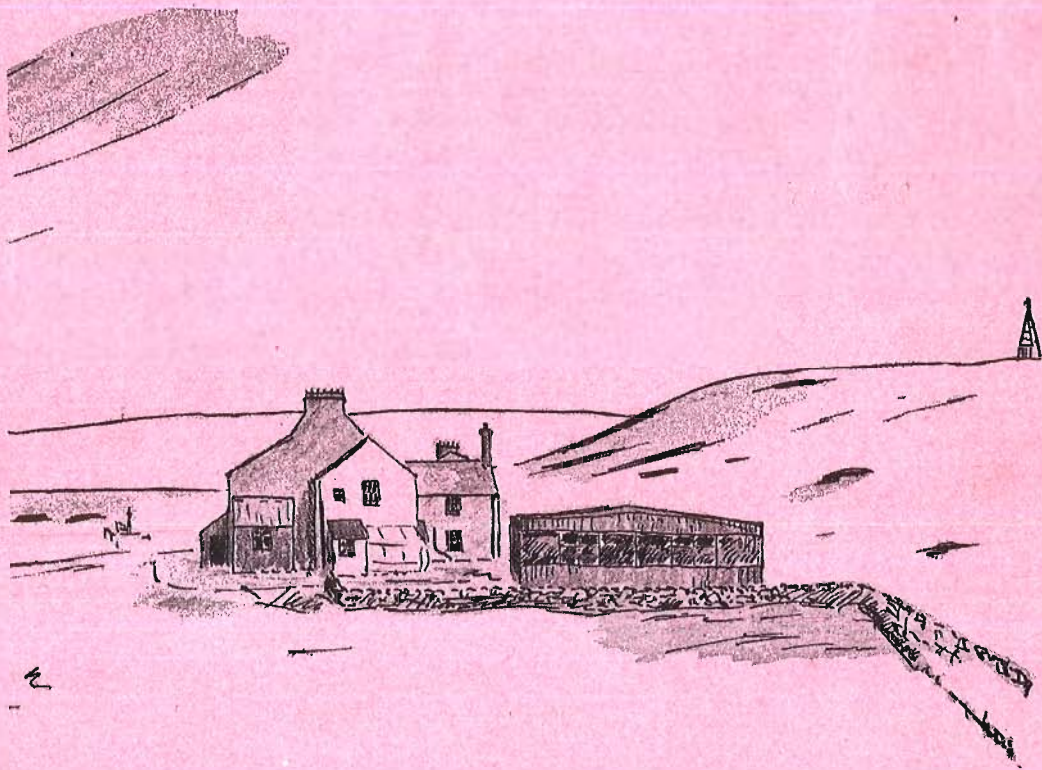


**Aspects of the Ecology of  
The Northern Pennines**

**Occasional Papers**

**No. 2**



**MOOR HOUSE**





# Aspects of the Ecology of the northern Pennines

## 2. Moor House Publication List

Moor House Field Station, Garrigill, Alston, Cumberland.

December, 1971

This is an author list of publications by members of staff, by research workers from Nature Conservancy Research Stations particularly Merlewood, and by research students and others from Universities and Research Organisations, who have worked on the Reserve and used the Field Station's facilities during the period 1952 - 1971.

The list, all entries are numbered, is arranged alphabetically, based on the first named author only. There is an author index at the end and there are 208 entries. Papers are grouped into nine broad subject categories (see below), which in turn are divided into those that originate from work done wholly, or at least primarily, at Moor House, of which there are 156, or those where the research has only partly been done on the Reserve. A third section includes 10 references of work done here before 1952, when the Nature Conservancy purchased the property.

Within this grouping, especially in the second class, there are a number of border-line cases, and the list is likely to be incomplete. The use of data derived from research at Moor House is widespread in ecological journals; it is impossible to include these references here, although, especially when comparisons are made, they are of research interest.

The arrangement of the list:

### Subject categories

- BOTANY - systematics, distribution
- BOTANY - production
- CLIMATE, HYDROLOGY
- CONSERVATION, MANAGEMENT, ECOSYSTEM RESEARCH
- FORESTRY
- GEOGRAPHY, GEOLOGY, SOILS (physical and chemical)
- MICROBIOLOGY, DECOMPOSITION
- ZOOLOGY - vertebrates, amphibians
- ZOOLOGY - invertebrates

### Origin

- Class A publications of data derived from Moor House Research
- B publications in which only part of the research was done at Moor House
- C publications of work prior to 1952

### Type

- I Books and papers published
- II Degree theses
- III Occasional papers

Each year in the autumn, an Annual Report is produced, whilst a separate Project Register is drawn up from time to time. Meteorological data from the Climatological Station is published monthly and summarised annually by the Meteorological Office.

Copies of most papers are held at the Field Station, where they are available for consultation. In some cases free copies may be available to those wishing their own. Biological type specimens, herbaria and invertebrate collections, are maintained, and a photographic and site use index kept. Small projects are written up in the volumes of the Reserve Record, held in the library.

"Aspects of the Ecology of the northern Pennines", is a series of informal review and discussion papers for the reader with a general interest in the subject. They are not official publications of the Nature Conservancy and do not necessarily reflect the Conservancy's official views.

BOTANY - systematics, distribution

Class A

Type I

1. Eddy, A. & Welch, D. 1967. A species-list of flowering plants and ferns for the Moor House National Nature Reserve in Upper Teesdale. Proc. bot. Soc. Br. Isl., 325-336.
2. Eddy, A., Welch, D. & Rawes, M. 1969. The vegetation of the Moor House National Nature Reserve in the northern Pennines, England. Vegetatio, 16, 239-284.
3. Ratcliffe, D.A. & Eddy, A. 1960. Alopecurus alpinus Sm. in Britain. Proc. bot. Soc. Br. Isl., 3, 389-391.
4. Swinscow, T.D.V. 1958. An Arctic-Alpine lichen new to England. Lichenologist, 1, 29-30.
5. Welch, D. 1966. Biological Flora of the British Isles : Juncus squarrosus L. J. Ecol., 54, 535-548.
6. Welch, D. 1967. Studies in the germination and establishment of Juncus squarrosus. New Phytol., 66, 89-98.
7. Welch, D. 1967. Communities containing Juncus squarrosus in Upper Teesdale, England. Vegetatio, 14, 229-240.
8. Welch, D. & Rawes, M. 1967. An erroneous naming of a Callunetum in the northern Pennines. Field Naturalist, 12, 25-26.
9. Welch, D. & Eddy, A. 1969. Bryophyte species list for the Moor House National Nature Reserve in Upper Teesdale. Trans. Northumb. Durham. & Newtle. Nat. Hist. Soc., 17, 47-56.

Type II

10. Welch, D. 1964. Studies in the autecology of Juncus squarrosus L. M.Sc., University of Durham.

Class B

Type I

11. Barling, D.M. 1962. Studies on the biology of Poa subcaerulea Sm. Watsonia, 5, 163-171.
12. Bell, P.R. & Lodge, E. 1963. The reliability of Cratoneuron commutatum (Hedw.) Roth, as an "indicator moss". J. Ecol., 51, 113-122.



13. Bradshaw, M.E. 1962. The distribution and status of species of Alchemilla vulgaris L. aggregate in Upper Teesdale. J. Ecol., 50, 681-706.
14. Bradshaw, M.E. 1963. Studies on Alchemilla filicaulis Bus., sensu lato and A. minima Walters. Introduction, and I. morphological variation in A. filicaulis sensu lato. Watsonia, 5, 304-320.
15. Bradshaw, M.E. 1963. Studies on Alchemilla filicaulis Buser, sensu lato, and A. minima Walters. II. Cytology of A. filicaulis sensu lato. Watsonia, 5, 321-326.
16. Bradshaw, M.E. 1964. Studies on Alchemilla filicaulis Bus., sensu lato and A. minima Walters. III. Alchemilla minima. Watsonia, 6, 76-81.
17. Elkington, T.T. 1963. Biological Flora of the British Isles: Gentiana verna L. J. Ecol., 51, 755-767.
18. Elkington, T.T. 1964. Biological Flora of the British Isles: Myosotis alpestris F.W. Schmidt. J. Ecol., 52, 709-722.
19. Grant, S.A. & Hunter, R.F. 1962. Ecotypic differentiation of Calluna vulgaris (L.) in relation to altitude. New Phytol., 61, 44-55.
20. Harvey, M.J. 1966. An experiment with Epilobium angustifolium. Proc. B.S.B.J., 6, 229-231.
21. Pettet, A. 1964. Studies on British Pansies. I. Chromosome numbers and pollen assemblages. Watsonia, 6, 39-50.
22. Pettet, A. 1964. Studies on British Pansies. II. The status of some intermediates between Viola tricolour L and V. arvensis Murr. Watsonia, 6, 51-69.
23. Raven, P.H. & Moore, D.M. 1964. Chromosome numbers of Epilobium in Britain. Watsonia, 6, 36-38.
24. Taylor, K. 1971. Biological Flora of the British Isles: Rubus chamaemorus L. J. Ecol., 59, 293-306.
25. Welch, D. 1967. Notes on Myosotis scorpioides agg. Watsonia, 6, 276-279.

Type II

26. Elkington, T.T. 1962. Experimental taxonomy of some members of the Teesdale flora. Ph.D., University of Durham.

BOTANY - production

Class A

Type I

27. Forrest, G.I. 1971. Structure and production of North Pennine blanket bog vegetation. *J. Ecol.*, 59, 453-480.
28. Gore, A.J.P. 1961. Factors limiting plant growth on high-level blanket peat. I. Calcium and Phosphate. *J. Ecol.*, 49, 399-402.
29. Gore, A.J.P. 1961. Factors limiting plant growth on high-level blanket peat. II. Nitrogen and Phosphate in the first year of growth. *J. Ecol.*, 49, 605-616.
30. Gore, A.J.P. 1963. Factors limiting plant growth on high-level blanket peat. III. An analysis of growth of Molinia caerulea (L.) Moench. in the second year. *J. Ecol.*, 51, 481-491.
31. Gore, A.J.P. & Urquhart, C. 1966. The effects of water-logging on the growth of Molinia caerulea and Eriophorum vaginatum. *J. Ecol.*, 54, 617-633.
32. Grace, J. & Woolhouse, H.W. 1970. A physiological and mathematical study of the growth and productivity of a Calluna-Sphagnum community. I. net photosynthesis of Calluna vulgaris L. Hull. *J. appl. Ecol.*, 7, 363-381.
33. Jones, H.E., Forrest, G.I. & Gore, A.J.P. 1971. First stage of a model for the growth and decay of Calluna vulgaris at Moor House. In: Tundra Biome working Meeting on analysis of Ecosystems, Kevo, Finland. (ed. O.W. Heal); 133-160.
34. Park, K.J.F., Rawes, M. & Allen, S.E. 1962. Grassland studies on the Moor House National Nature Reserve. *J. Ecol.*, 50, 53-62.
35. Rawes, M. 1961. The problem of Nardus and its productivity in relation to sheep grazing at Moor House, Westmorland. *J. Br. Grassld. Soc.*, 16, 190-193.
36. Rawes, M. 1963. The productivity of a Festuca-Agrostis alluvial grassland at 1,700 ft. in the northern Pennines. *J. Br. Grassld. Soc.*, 18, 300-309.
37. Welch, D. & Rawes, M. 1964. Herbage production of some Pennine grasslands. *Oikos*, 16, 39-47.
38. Welch, D. 1966. The reproductive capacity of Juncus squarrosus. *New Phytol.*, 65, 77-86.

Type II

39. Grace, J. 1970. The growth-physiology of moorland plants in relation to their aerial environment. Ph.D., University of Sheffield.

Class B

Type I

40. Clymo, R.S. 1970. The growth of Sphagnum : methods of measurement. J. Ecol., 58, 13-49.

Type II

41. Urquhart, C. 1969. The effects of waterlogging on the growth and mineral nutrition of some moorland plant species, with special reference to the soil redox potential. M.Sc., University of Birmingham.

CLIMATE, HYDROLOGY

Class A

Type I

42. Conway, V.M. & Millar, A. 1960. The hydrology of some small peat covered catchments in the Northern Pennines. J. Instn. Wat. Engrs., 14, 415-424.
43. Gore, A.J.P. 1968. The supply of six elements by rain to an upland peat area. J. Ecol., 56, 483-496.
44. Gorham, E. 1956. On the chemical composition of some waters from the Moor House National Nature Reserve. J. Ecol., 44, 375-382.
45. Green, F.H.W. 1953. A remarkable low humidity. Weather, 8, 182-184.
46. Millar, A. 1964. Notes on the climate near the upper forest limit in the northern Pennines. Q. Jl. For., 58, 239-246.
47. Smith, K. 1971. Some features of snow-melt recession in the upper Tees basin. Water & Water Engineering, 345-346.

Type II

48. Jamieson, D.G. 1967. The spatial and temporal distribution of storm rainfall. Ph.D., University of Newcastle upon Tyne.
49. Painter, R.B. 1967. The formation of flood waves in natural channels. Ph.D., University of Newcastle upon Tyne.



Class B

Type I

50. Collinge, V.K. & Janieson, D.G. 1968. The spatial distribution of storm rainfall. *J. Hydrol.*, 6, 45-57.
51. Crisp, D.T. & Le Cren, E.D. 1970. The temperature of three different stony streams in northwest England. *Hydrobiologia*, 35, 305-323.
52. Green, F.H.W. 1956. Basic research on mountain climates in Great Britain and their relation to ecology and land-use. *Proc. & Pap. 6th tech. Meet. Int. Un. Conserv. Nat.* Edinburgh.
53. Green, F.H.W. 1959. Some observations of potential evaporation, 1955/1957. *Q. Jl. R. met. Soc.*, 85, 152-158.
54. Green, F.H.W. 1959. Four years' experience in attempting to standardise measurement of potential evapo-transpiration in the British Isles, and the ecological significance of the results. *Met. Ass. Sci. Hydrol.*, 92-100.
55. Green, F.H.W. 1965. The incidence of low relative humidity in the British Isles. *Met. Mag.*, 94, 81-88.
56. Richardson, W.E. 1956. Temperature differences in the South Tyne Valley with special reference to the effects of air mass. *Q. Jl. R. met. Soc.*, 82, 342-348.

Class C

Type I

57. Glasspoole, J. 1953. Frequency of cloud at mountain summits. *Met. Mag.*, 82, 156-157.
58. Manley, G. 1936. The climate of the northern Pennines : the coldest part of England. *Q. Jl. R. met. Soc.*, 62, 103-115.
59. Manley, G. 1938. High-level records from the northern Pennines. *Met. Mag.*, 73, 69-72.
60. Manley, G. 1939. On the occurrence of snow cover in Great Britain. *Q. Jl. R. met. Soc.*, 65, 2-27.
61. Manley, G. 1942. Meteorological observations on Dun Fell. *Q. Jl. R. met. Soc.*, 68, 151-165.
62. Manley, G. 1943. Further climatological averages for the northern Pennines. *Q. Jl. R. met. Soc.*, 69, 251-261.
63. Manley, G. 1946. The helm wind of Cross Fell 1937-1939. *Q. Jl. R. met. Soc.*, 71, 197-219.

CONSERVATION, MANAGEMENT, ECOSYSTEM RESEARCH

Class A

Type I

64. Allen, S.E. 1964. Chemical aspects of heather burning. *J. appl. Ecol.*, 1, 347-364.
65. Conway, V.M. 1955. The Moor House National Nature Reserve, Westmorland. Handbook of the Society for the Promotion of Nature Reserves, 1-7.
66. Conway, V.M. 1957. Lines of development in ecology. *Proc. Chem. Soc.*, 246-250.
67. Cragg, J.B. 1957. Britain's decaying moorlands. *New Scient.* Feb., 12-13.
68. Cragg, J.B. 1958. The future of British uplands. In: *The Biological Productivity of Britain.* *Inst. Biol.* 1-13.
69. Crisp, D.T. 1966. Input and output of minerals for an area of Pennine moorland; the importance of precipitation, drainage, erosion and animals. *J. appl. Ecol.*, 3, 327-348.
70. Eddy, A. 1963. Conservation and land-use. In: *The conservation of the British Flora.* (ed. E. Milne-Redhead)(B.S.B.I. Conference Report No. 8).
71. Gore, A.J.P. & Olson, J.S. 1967. Preliminary models for accumulation of organic matter in an *Eriophorum/Calluna* ecosystem. *Bot. Ser. Aquilo.*, 6, 297-313.
72. Newbould, P.J. 1966. Studies at Moor House Field Station, Cumberland. B.B.C. Publication: Land and People: The Countryside for use and leisure.
73. Rawes, M. 1965. Residual effect of a manurial treatment in the northern Pennines. *Scot. Agric.*, 45, 39-41.
74. Rawes, M. 1966. Productivity of upland grazings. *Proc. N. Engl. Soils Discussion Group*, 2, 34-40.
75. Rawes, M. & Welch, D. 1964. Studies on sheep grazing in the northern Pennines. *J. Br. Grassld. Soc.*, 19, 403-411.
76. Rawes, M. & Welch, D. 1966. Further studies on sheep grazing in the northern Pennines. *J. Br. Grassld. Soc.*, 21, 56-61.
77. Rawes, M. 1968. Sheep as an ecological factor. *Chimæra, Journal of the Biological Society, Sheffield University.* Spring 1968, 7-10.
78. Rawes, M. & Welch, D. 1969. Upland productivity of vegetation and sheep at Moor House National Nature Reserve, Westmorland, England. *Oikos, Sup. II*, 72pp.

79. Taylor, K. & Marks, T.C. 1971. The influence of burning and grazing on the growth and development of Rubus chamaemorus L. in Calluna-Eriophorum bog: The Scientific management of plant and animal communities for Conservation. (ed. E.A.G. Duffey & A.S. Watt), 153-166. Oxford.
80. Welch, D. & Rawes, M. 1964. The early effects of excluding sheep from high-level grasslands in the north Pennines. *J. appl. Ecol.*, 1, 281-300.
81. Welch, D. & Rawes, M. 1966. The intensity of sheep grazing on high-level blanket bog in upper Teesdale. *Ir. J. agric. Res.*, 5, 185-196.
82. Welch, D. 1968. Sheep grazing in northern England : some ecological considerations. In : *Proc. European Grassld. Fed. Symposium on Hill Land Productivity* (ed. I.V. Hunt) 173-176.

Type III

83. Gore, A.J.P. 1969. Ecosystem simulation. Merlewood Research & Development Paper, Number 12.
84. Gore, A.J.P. 1970. A method of estimating optimum sampling numbers with an application to productivity studies on vegetation. Merlewood Research & Development Paper, Number 18.
85. Heal, O.W. 1968. The International Biological Programme Project at Moor House. Merlewood Research & Development Paper, Number 2.
86. Jones, Helen E. 1969. A preliminary survey of Potassium circulation in the Moor House blanket bog. Merlewood Research & Development Paper, Number 10.
87. Rawes, M. 1971. The influence of agriculture. In : *Aspects of the Ecology of the northern Pennines*. Moor House Occasional Paper, Number 1.

Class B

Type I

88. Crisp, D.T. Gledhill, T. 1970. A quantitative description of the recovery of the bottom fauna in a muddy reach of a mill stream in southern England after draining and dredging. *Arch. Hydrobiol.*, 67, 502-541.
89. Valentine, D.H. (ed) 1965. *The Natural History of Upper Teesdale*.



Class C

Type I

90. Butcher, R.W., Longwell, J. & Pentelow, T.F.K. 1957. Survey of the river Tees, Pt. III. The non-tidal reaches - chemical and biological. Nat. Poll. Res. Tech. Pap., 6, 189.
91. Pearsall, W.H. 1950. Mountains and Moorlands. Collins, 312 pp.

FORESTRY

Class A

Type I

92. Brown, A.H.F., Carlisle, A. & White, E.J. 1964. Nutrient deficiencies of Scots pine (*Pinus sylvestris* L.) on peat at 1,800 ft. in the northern Pennines. Commonwealth Forestry Review, 43, 292-302.
93. Millar, A. 1965. The effect of temperature and day length on the height growth of birch (*Betula pubescens*) at 1,900 ft. in the northern Pennines. Jnl. appl. Ecol., 2, 17-29.
94. White, E.J. 1970. Orthogonalized regressions of height increments on meteorological variables. In : Aspects of Forest Climates. Aberystwyth Symposia in Agricultural Meteorology, Symposium XII, 1-12.

Class B

Type I

95. Lines, R. & Howell, R.S. 1963. The use of flags to estimate the relative exposure of trial plantations. For. Records, 51, 31.

GEOGRAPHY, GEOLOGY, SOILS (physical and chemical)

Class A

Type I

96. Bower, M.M. 1960. Peat erosion in the Pennines. Advmt. Sci., Lond. No. 64, 323-332.
97. Bower, M.M. 1961. The distribution of erosion in blanket peat bogs in the Pennines. Trans. Inst. Brit. Geogr., 17-30.
98. Bower, M.M. 1962. The cause of erosion in blanket peat bogs. A review of evidence in the light of recent work in the Pennines. Scot. Geogr. Mag., 78, 33-43.
99. Crisp, D.T., Rawes, M. & Welch, D. 1965. A Pennine peat-slide. Geogr. J., 130, 519-524.

100. Gore, A.J.P. 1965. Water, peat and erosion in the northern Pennines. Proc. N. Engl. Soils Discussion Group, 1, 41-44.
101. Gore, A.J.P. & Allen, S.E. 1956. Measurements of exchangeable and total cation content for H<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>, Mg<sup>++</sup>, Ca<sup>++</sup> and iron in high-level blanket peat. Oikos, 7, 48-55.
102. Johnson, G.A.L. & Dunham, K.C. 1963. The geology of Moor House Monogr. Nat. Conserv., H.M.S.O., 182 pp.
103. Tufnell, L. 1966. Some little-studied British landforms. Proc. Geol. Soc. Cumberland, 2, 50-56.
104. Tufnell, L. 1971. Erosion by snow patches in the north Pennines. Weather, 26, 492-498.
105. Tufnell, L. 1971. Periglacial environments of north-west England. Paper given at Annual Conference : Symposia of the Institute of British Geographers. 133.
106. Welch, D. & Rawes, M. 1969. Moisture regime of soils on metamorphosed limestone in Upper Teesdale. Trans. Northumb. Durham & Newctle. Nat. Hist. Soc., 17, 57-67.

Type II

107. Bower, M.M. 1959. A summary of available evidence and a further investigation of the causes, methods and results of erosion in blanket peat. M.Sc., University of London.
108. Hornung, M. 1968. Soil morphology, mineralogy and genesis. Ph.D., University of Durham.

Class B

Type I

109. Gorham, E. Free acid in British soils. Nature, Lond., 181, 106.
110. Tufnell, L. 1969. The range of periglacial phenomena in northern England. Biuletyn Peryglacjalny, 291-323.

Class C

Type I

111. Dunham, K.C. 1948. The geology of the Northern Pennines ore field. I. Tyne to Stainmore. Mem. geol. Surv. U.K.

MICROBIOLOGY, DECOMPOSITION

Class A

Type I

112. Latter, P.M., Cragg, J.B. & Heal, O.W. 1967. Comparative studies on the microbiology of four moorland soils in the northern Pennines. *J. Ecol.*, 55, 445-464.
113. Latter, P.M. & Cragg, J.B. 1967. The decomposition of Juncus squarrosus leaves and microbial changes in the profile of a Juncus moor. *J. Ecol.*, 55, 465-482.

Type II

209. Martin, N.J. 1971. Microbial activity in peat with reference to the availability and cycling of inorganic ions. Ph.D., University of Edinburgh.

Class B

Type I

114. Clymo, R.S. 1965. Experiments of breakdown of Sphagnum in two bogs. *J. Ecol.*, 53, 747-758.
115. Heal, O.W., Bailey, A.D. & Latter, P.M. 1967. Bacteria, fungi and protozoa, in Signy Island soils compared with those from a temperate moorland. *Phil. Trans. R. Soc.*, 252, 191-197.
116. Latter, P.M. & Heal, O.W. 1971. A preliminary study of the growth of fungi and bacteria from temperate and Antarctic soils in relation to temperature. *Soil Biol. Biochem.*, 3, 365-379.

ZOOLOGY - vertebrates, amphibians

Class A

Type I

117. Coulson, J.C. 1956. Mortality and egg production of the Meadow Pipit with special reference to altitude. *Bird Study.*, 3, 119-132.
118. Crisp, D.T. 1963. A preliminary survey of brown trout (Salmo trutta L) and bull heads (Cottus gobio L) in high altitude becks. *Salmo Trout Mag.*, 45- 59.

Type II

119. Coulson, J.C. 1956. Biological studies on the Meadow Pipit (Anthus pratensis) and moorland Tipulidae, members of a food chain. Ph.D., University of Durham.



ZOOLOGY - invertebrates

Class A

Type I

120. Banage, W.B. 1962. Some nematodes from the Moor House National Nature Reserve, Westmorland. *Nematologica*, 7, 32-36.
121. Banage, W.B. 1963. The ecological importance of free-living soil nematodes with special reference to those of moorland soil. *J. Anim. Ecol.*, 32, 133-140.
122. Banage, W.B. 1966. Nematode distribution in some British upland moor soils with a note on nematode parasitizing fungi. *J. Anim. Ecol.*, 35, 349-363.
123. Benson, R.B. 1964. *Pachynematus glabriceps* Lindqvist, a new British sawfly and a note on *Empria liturata* Gmelin (Hym. Tenthredinicae). *Entomologist's Mon. Mag.*, 100, 263-264.
124. Block, W.C. 1965. The life history of *Platynothrus peltifer* (Koch 1839) and *Damaeus clavipes* (Hermann 1804) (Acarina : Cryptostigmata) in soils of Pennine Moorland. *Acarologia*, 4, 735-745.
125. Block, W.C. 1965. Distribution of soil mites (Acarina) on the Moor House National Nature Reserve, Westmorland, with notes on their numerical abundance. *Pedobiologia*, 5, 244-251.
126. Block, W.C. 1966. The distribution of soil Acarina on eroding peat blanket bog. *Pedobiologia*, 6, 27-34.
127. Block, W.C. 1966. Some characteristics of the Macfadyen high gradient extractor for soil micro-arthropods. *Oikos*, 17, 1-9.
128. Block, W.C. 1966. Seasonal fluctuation and distribution of mite populations in moorland soils, with a note on biomass. *J. Anim. Ecol.*, 35, 487-505.
129. Block, W.C. 1967. Recovery of mites from peat and mineral soils using a new flotation method. *J. Anim. Ecol.*, 36, 323-327.
130. Brown, V.M., Cragg, J.B. & Crisp, D.T. 1964. The Plecoptera of the Moor House National Nature Reserve, Westmorland. *Trans. Soc. Brit. Ent.*, 16, 123-134.
131. Cherrett, J.M. 1963. Notes on the seasonal occurrence of some Linyphidae (Araneida) on the Moor House National Nature Reserve, Westmorland, with some new county records. *Entomologist's Mon. Mag.*, 99, 152-156.

132. Cherrett, J.M. 1964. The distribution of spiders on the Moor House National Nature Reserve, Westmorland. *J. Anim. Ecol.*, 33, 27-48.
133. Coulson, J.C. 1959. Observations on the Tipulidae (Diptera) of the Moor House Nature Reserve, Westmorland. *Trans. R. ent. Soc., London*, 3, 157-174.
134. Coulson, J.C. 1962. The biology of Tipula subnodicornis Zetterstedt, with comparative observations on Tipula paludosa Meigen. *J. Anim. Ecol.*, 31, 1-21.
135. Cragg, J.B. 1953. The action of climate on the larvae, prepupae, and pupae of certain blowflies. 14th Int. Zool. Congr., Copenhagen.
136. Cragg, J.B. 1956. Studies on the animal ecology of Pennine moorland. *Proc. 16th Int. Zool. Congr., Copenhagen, 1953.*, 401-402.
137. Cragg, J.B. 1961. Some aspects of the ecology of moorland animals. *J. Anim. Ecol.*, 30, 205-223.
138. Crisp, D.T. & Nelson, J.M. 1965. The Ephemeroptera of the Moor House National Nature Reserve, Westmorland. *Trans. Soc. Brit. Ent.*, 16, 181-187.
139. Davies, L. & Smith, C.D. 1958. The distribution and growth of Prosimulium larvae (Diptera : Simuliidae) in hill streams in northern England. *J. Anim. Ecol.*, 27, 335-348.
140. Hadley, M. 1971. Aspects of the larval ecology and population dynamics of Molophilus ater Meigen (Diptera : Tipulidae) on Pennine moorland. *J. Anim. Ecol.*, 40, 445-466.
141. Hadley, M. 1971. Pupation and fecundity of Molophilus ater Meigen (Diptera : Tipulidae) in relation to larval weight. *Oecologia*, 7, 164-169.
142. Hale, W.G. 1963. The Collembola of eroding blanket bog. *Soil Organisms*, (ed. J. Doeksen and J. Van Der Drift), 406-413.
143. Hale, W.G. 1964. A flotation method for extracting Collembola from organic soils. *J. Anim. Ecol.*, 33, 363-369.
144. Hale, W.G. 1964. Experimental studies on the taxonomic status of some members of the Onychiurus armatus species group. *Rev. Ecol. Biol. Sol.*, 3, 501-510.
145. Hale, W.G. 1965. Observations on the breeding biology of Collembola. *Pedobiologia*, 5, I. 146-152, II. 161-177.
146. Hale, W.G. 1965. Post-embryonic development in some species of Collembola. *Pedobiologia*, 5, 228-243.

147. Hale, W.G. 1965. The taxonomic status of some members of the Onychiurus armatus species group, (Collembola). Proc. 13th Int. Congr. Ent. London. 1964.
148. Hale, W.G. 1966. A population study of moorland Collembola. Pedobiologia, 6, 65-99.
149. Hale, W.G. 1966. The Collembola of the Moor House National Nature Reserve, Westmorland : a moorland habitat. Rev. Ecol. Biol. Sol., 3, 97-122.
150. Heal, O.W. 1961. The distribution of testate amoebae (Rhizopoda : Testacea) in some fens and bogs in Northern England. J. Linn. Soc. Zool., 44, 369-382.
151. Heal, O.W. 1962. The abundance and micro-distribution of testate amoebae (Rhizopoda : Testacea) in Sphagnum. Oikos, 13, 35-47.
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