

Contents

Acknowledgements	ix
Summary	xi
Citations of Archived Documents	xv
1 Understanding Woodland	3
2 Lady Park Wood and its History	9
2.1 Physical Environment	9
2.2 Soils	11
2.3 Stand Composition and Ground Vegetation	14
2.4 History	16
2.5 Prehistory	21
2.6 Archaeology	21
3 The Ecological Reserve	27
3.1 Origins	27
3.2 The Managed Compartment	31
3.3 Fencing	31
3.4 Recording and Research	32
4 Recording Trees and Expressing Change	37
4.1 Oxford University	37
4.2 Nature Conservancy and Successor Bodies	39
4.3 Recording since 1992	41
4.4 Other Records of Trees	43
4.5 Review of Recording	44
4.6 Measuring and Recording Trees	44
4.7 Quantifying and Expressing Growth of Individual Trees	45
4.8 Characterising Populations and Stands	47
4.9 Expressing Changes within Populations and Differences between Stands	47
5 The Changing Woodland	51
5.1 How Stands Grow	51
5.2 Lady Park Wood as a Chronosequence	52
5.3 Early Stand Development and the Impact of Deer	53
5.4 Growing through the Thicket: The Young-growth	55
5.5 Mature Stand Development: The Old-growth above the Cliff	56
5.6 Woodland below the Cliff	61
5.7 General Features of Change over 145 Years	65
5.8 Disturbances and Gaps	65
5.9 Population Changes	66
5.10 Dead Wood	69
5.11 Composition and Diversity	70

5.12	Looking Ahead: Prospects for the Unmanaged Stands	71
5.13	Comparisons with Other Woods	72
5.14	Stands in the Managed Compartment	73
5.15	Commentary	74
6	Ash: The Tree in the Spotlight	77
6.1	Trees in General	77
6.2	Ash in Britain	77
6.3	Regeneration after Felling	78
6.4	Outline of Ash Population Changes over 150 Years	81
6.5	Population Turnover: Mortality and Recruitment	82
6.6	What Limits Regeneration and Recruitment?	84
6.7	Growth and Survival within Established Stands	84
6.8	Survivors and Failures	90
6.9	Causes of Death	91
6.10	Decay: Snags and Logs	95
6.11	Review	95
7	Beech and Oak, The Major Forest Trees	99
7.1	Beech in Britain	99
7.2	Beech in Lady Park Wood	100
7.3	Changes in the Population of Beech	100
7.4	Beech Regeneration	103
7.5	Beech Growth and Mortality	106
7.6	What Kills Beech?	114
7.7	Decaying Beech	119
7.8	Oak in Britain	120
7.9	Oaks in Lady Park Wood	122
7.10	Changes in the Population of Oaks	122
7.11	Growth of Oak	124
7.12	Oak Decay	126
7.13	The Relationship between Beech and Oak	126
8	Limes and Wych Elm	131
8.1	Limes in Britain	131
8.2	Limes in Lady Park Wood	131
8.3	Population Changes	133
8.4	Regeneration and Recruitment	133
8.5	Growth	137
8.6	Mortality and Decay	139
8.7	Lime Populations in Terms of Plants, not Trees	141
8.8	Wych Elm in Britain	142
8.9	Wych Elm in Lady Park Wood	144
8.10	Population Changes	144
8.11	Long-term Impact of Elm Disease	147
8.12	Limes and Elms in Natural Woodland	147
9	Birch and other Short-lived Canopy Trees	153
9.1	Birch	153
9.2	Birch Regeneration	154
9.3	Birch Growth and Survival	154
9.4	Sallow	157

9.5	Gean	160
9.6	Aspen	160
9.7	Alder	162
9.8	Review	164
10	Field Maple and Hazel, the other Coppice Species	167
10.1	Field Maple	167
10.2	Hazel in General	169
10.3	Recording Hazel	170
10.4	Hazel in the Young-growth Stands	171
10.5	Hazel in the Old-growth Stands	175
10.6	Hazel below the Cliff	175
10.7	Hazel Summary	177
11	Minor Trees and Shrubs	179
11.1	Hawthorn	179
11.2	Wild Service	180
11.3	Whitebeam	182
11.4	Crab Apple	184
11.5	Yew	184
11.6	Holly	186
11.7	Shrubs	189
11.8	Small Trees and Shrubs Generally	190
12	Habitats	193
12.1	Dead Wood	193
12.2	Open Spaces in General	196
12.3	Open Spaces in Lady Park Wood	198
12.4	Cliffs as Open Spaces	199
12.5	Canopy Gaps in General	200
12.6	Gap Formation in Lady Park Wood	200
12.7	Stand Responses to Gap Formation	201
12.8	Overview of Chapters 5–12	203
13	Species	209
13.1	Ground Flora	209
13.2	Floristic Changes at Small Scales	211
13.3	Floristic Changes at the Whole-wood Scale	212
13.4	The Role of Canopy Gaps	216
13.5	Floristic Changes in the Managed Compartment	218
13.6	Floristic Changes in Context	218
13.7	Bryophytes (text by Sam Bosanquet)	219
13.8	Lichens	221
13.9	Fungi	222
13.10	Vertebrates	222
13.11	Invertebrates	225
13.12	Review	228
14	Long-term Ecological Studies	231
14.1	Permanent Plots in Woodland	232
14.2	When do Observations become Long-term?	233

14.3	Experience from Lady Park's Permanent Plots	234
14.4	Value of Long-term Permanent Plot Studies	234
15	Natural Woodland in Theory and Practice	239
16	Near-to-Nature Forestry	245
16.1	Silvicultural Systems	246
16.2	Using Natural Regeneration to Restock	248
16.3	Allowing Stands to Thin Naturally	249
16.4	Using Natural Gap Creation Patterns as a Guide to Felling Patterns	249
16.5	Building up Dead-wood Volumes	249
16.6	Biosecurity: Countering Pests and Diseases	250
16.7	Varying Stand Structure to Suit Site Type	250
16.8	Matching Species to Site	251
16.9	Constant Re-evaluation of the Preferred Timber Species	251
16.10	Continuous Cover Forestry	251
16.11	Habitat Networks	252
17	Rewilding, Remoteness and Wilderness	255
17.1	Does Rewilding Benefit Wildlife?	255
17.2	Remoteness and Wilderness	256
17.3	What Kind of Wildness Can We Achieve?	258
17.4	Will People Like What They Get?	258
17.5	Rewilding in Practice	259
	References	263
	Vascular Plant Species	271
	Index	275