Thinning Plan .. possibly 2001

Uned Technical
Cefnogaeth Support
Dechnegol Unit
(De) (South)
Cefn Gethiniog Cefn Gethiniog
Talybont-ar-Wysg Talybont-on-Usk
Aberhonddu Brecon
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LD3 7YN

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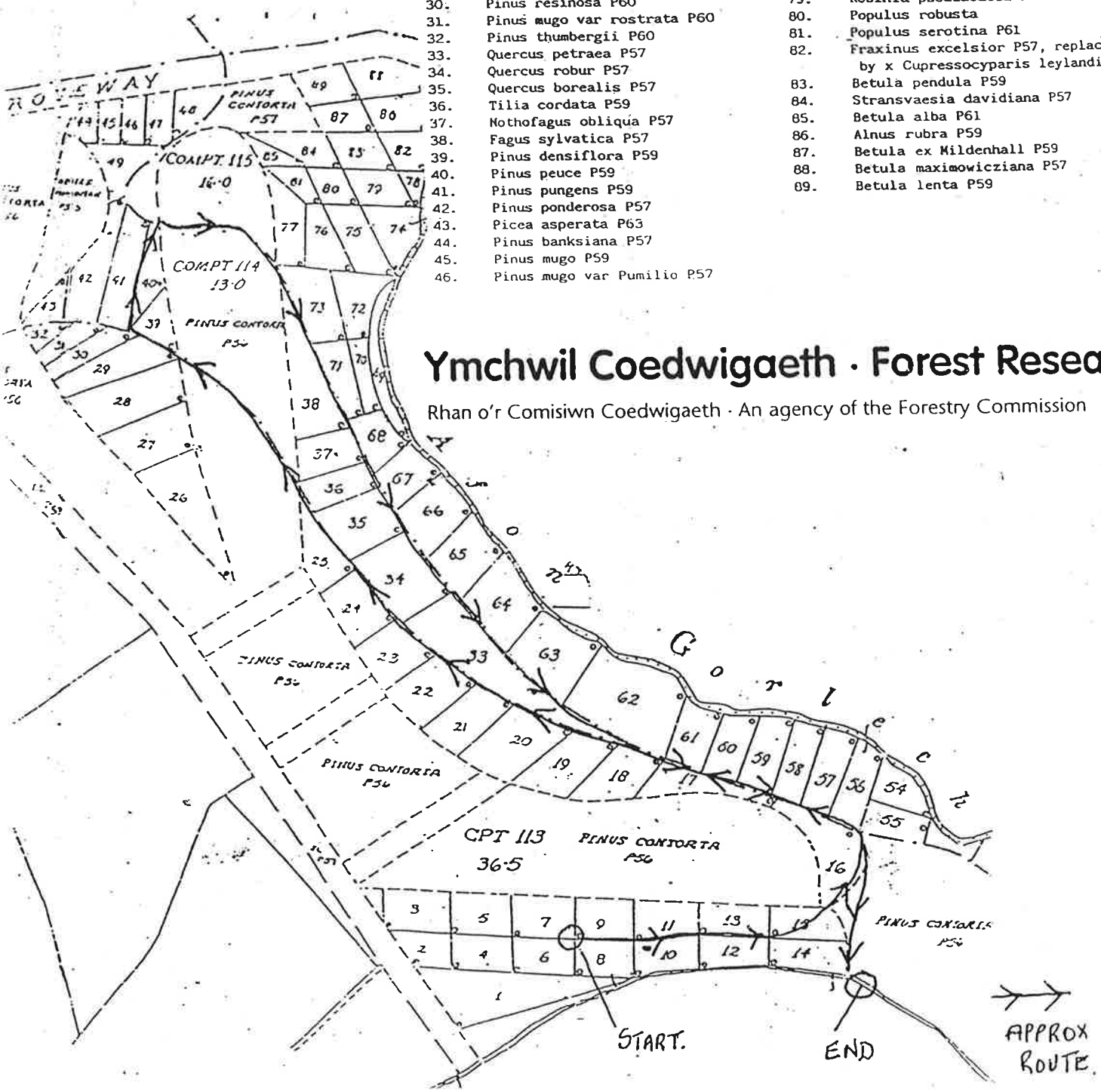
Number	
1.	Pseudotsuga menziesii P57
2.	Larix decidua P60
3.	Larix sibirica P59
4.	Tsuga heterophylla P57
5.	Tsuga mertensiana P57
6.	Chamaecyparis lawsoniana P57
7.	Thuja plicata P59
8.	Abies fraseri P61
9.	Cupressus macrocarpa P58
10.	Sequoiadendron giganteum P59
11.	Sequoia sempervirens P58
12.	Alnus glutinosa P68 (replacing Cedrus libani)
13.	Cedrus deodara P58
14.	Picea abies P57
15.	Abies koreana P61
16.	Abies grandis P57
17.	Abies procera P57
18.	Abies cephalonica P57
19.	Abies nordmanniana P58
20.	Abies concolor P58
21.	Abies veitchii P58
22.	Abies lowiana P58
23.	Abies homolepis P59
24.	Abies amabilis P59
25.	Abies delavayi P59
26.	Pinus nigra var pallasiana P60 (caramanica)
27.	Pinus nigra var nigra P60
28.	Pinus muricata P60
29.	Pinus strobus P59
30.	Pinus resinosa P60
31.	Pinus mugo var rostrata P60
32.	Pinus thumbergii P60
33.	Quercus petraea P57
34.	Quercus robur P57
35.	Quercus borealis P57
36.	Tilia cordata P59
37.	Nothofagus obliqua P57
38.	Fagus sylvatica P57
39.	Pinus densiflora P59
40.	Pinus peuce P59
41.	Pinus pungens P59
42.	Pinus ponderosa P57
43.	Picea asperata P63
44.	Pinus banksiana P57
45.	Pinus mugo P59
46.	Pinus mugo var Pumilio P57

Number	
47.	Pinus contorta P57
48.	Pinus radiata P57
49.	Pinus jeffreyi P57
50.	Cryptomeria japonica P57
54.	Picea orientalis P59
55.	Picea rubens P63 (replaced Gingko)
56.	Picea omorika P59
57.	Picea mariana P60
58.	Picea smithiana P59
59.	Abies lasiocarpa P60
60.	Abies balsamea P60
61.	Acer pennsylvanicum P60
62.	Ulmus glabra P60
63.	Quercus mirbeckii P59 (Canariensis)
64.	Acer saccharinum P59
65.	Quercus lusitanica P59
66.	Quercus cerris P58
67.	Acer pseudoplatanus P57
68.	Acer platanoides P57
69.	Populus tach/trich P61
70.	Tilia cordata P59
71	Liriodendron tulipifera P59
72.	Castanea sativa P57
73.	Aesculus hippocastanum P58
74.	Populus trichocarpa P61
75.	Picea koyamai P61
76.	Juglans regia P60/61
77.	Tilia platyphyllos P59
78.	Davidia vilmoriana P58
79.	Robinia pseudacacia P57
80.	Populus robusta
81.	Populus serotina P61
82.	Fraxinus excelsior P57, replaced by x Cupressocyparis leylandii P?
83.	Betula pendula P59
84.	Stransvaesia davidiana P57
85.	Betula alba P61
86.	Alnus rubra P59
87.	Betula ex Mildenhall P59
88.	Betula maximowicziana P57
89.	Betula lenta P59



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BRECHFA FOREST GARDEN — BROADLEAVED MARKED FOR THINNING

Plot No	Species	No marked.	Tariff No.	mean dbh	m^3.	Top ht.
33	Oak	47	22	18	7.2	13.9m
34	Oak	41	24	16	5.2	16.4 m
35	Oak	45	23	19	8.2	14.5 m
36	Lime	—				
37	Nothofagus	21	27	29	11.0	20.0 m
38	Fagus Syl.	100	25	16	11.3	17.2 m
72	Sweet Chestnut	86	25	17	13.2	17.0 m
73	Aesculus	—				
68	acer Platanoides.	63	24	14	5.8	19.0 m.
67	" Pseudoplatanus.	24	22	14	2.0	17.8 m
66	Oak	65	23	17	9.2	15.3 m
65						
64	Acer Sac.	27	22	16	3.2	17.0 m
62	Ulmus Glabra	—				
63	Oak (surround)	25	20	16	2.6	13.0 m
61	Acer Pensylvanum	48	24	12	2.9.	15.0 m
		592			81.8 m^3.	

(ABOVE)

(approx only)

68	*Acer platanoides*	Hexham
69	*Populus TT.*	–
70	*Tilia cordata*	–
71	*Liriodendron tulipifera*	–
72	*Castanea sativa*	France
73	*Aesculus hippocastanum*	–
74	*Populus TT.*	–
75	*Picea koyamai*	–
76	*Picea sitchensis*	Oregon
77	*Tilia platyphyllos*	Lower Austria
78	*Davidia vilmoriana*	–
79	*Robinia pseudoacacia*	–
80	*Populus robusta*	–
81	*Populus serotina*	–
82	*Cupressocyparis leylandii*	–
83	*Betula pendula*	–
84	*Stranvaesia davidiana*	–
85	*Betula alba*	Hants
86	*Alnus rubra*	Hants
87	*Betula pendula*	Mildenhall
88	*Betula maximowicziana*	Nagano Japan
89	*Betula lenta*	Pennsylvania
114	*Pinus contorta*	Mixed inc Lulu Island

BRECHFA FOREST PLOTS

Plot No	Species	Origin
1	*Pseudotsuga menziessii*	Washington
2	*Larix decidua*	Poland
3	*Larix potaninii*	–
4	*Tsuga heterophylla*	Q.C.I.
5	*Tsuga mertensiana*	–
6	*Chamaecyparis lawsoniana*	Goytre W
7	*Thuja plicata*	Ladysmith V.I.
8	*Abies fraseri*	–
9	*Cupressus macrocarpa*	–
10	*Sequoiadendron giganteum*	California
11	*Sequoia sempervirens*	California
12	*Eucalyptus (debeauzevillei)*	Australia
13	*Cedrus deodara*	Northern Italy
14	*Picea abies*	Tyrol Austria
15	*Abies koreana*	–
16	*Abies grandis*	Kittitas County, Washington
17	*Abies procera*	Washington
18	*Abies cephalonica*	–
19	*Abies nordmanniana*	SW Germany
20	*Abies concolor*	Colorado
21	*Abies veitchii*	Japan
22	*Abies concolor var lowiana*	Montana
23	*Abies homolepis*	Nagano Japan
24	*Abies amabilis* WNA	Washington
25	*Abies delavayi*	–
26	*Pinus nigra var pallasiana*	–
27	*Pinus nigra var austriaca*	Austria
28	*Pinus muricata*	–
29	*Pinus strobus*	Adirondack Mts, USA
30	*Pinus resinosa*	–
31	*Pinus unicata*	–
32	*Pinus thunbergii*	–

Conifer Plots for retention – plot + surround marked for thin

Plots contain measurement plots – sample plots felled surround marked for thin

Hardwood to be retained – surround plots marked for thinning

33	*Quercus petraea*	Brechfa (L)
34	*Quercus robur*	Cilgwyn (L)
35	*Quercus rubra*	Holland
36	*Tilia cordata*	Lower Austria
37	*Nothofagus obliqua*	-
38	*Fagus sylvatica*	Dedham
39	*Pinus densiflora*	Nagano Japan
40	*Pinus peuce*	Macedonia
41	*Pinus pungens*	New England USA
42	*Pinus ponderosa*	Susanville Calif
43	*Picea asperata*	-
44	*Pinus banksiana*	-
45	*Pinus mugo*	Dorset
46	*Pinus mugo var pumilo*	France
47	*Pinus contorta*	Long Beach
48	*Pinus radiata*	-
49	*Pinus jeffreyi*	Chester Calif
50	*Cryptomeria japonica*	Sanwa Japan
51	*Picea glauca*	Denmark
52		
53		
54	*Picea orientalis*	-
55	*Picea rubens*	-
56	*Picea omorika*	-
57	*Picea mariana*	Ontario
58	*Picea smithiana*	-
59	*Abies lasiocarpa*	Oakridge Oregon
60	*Abies balsamea*	Wisconsin
61	*Acer pennsylvanicum*	Austria
62	*Ulmus glabra*	-
63	*Quercus canariensis (merbeckii)*	Gloucester
64	*Acer saccharinum*	Tennessee
65	*Quercus lusitanica*	Kew
66	*Quercus cerris*	Home
67	*Acer pseudoplatanus*	-

BRECHFA FOREST GARDEN — BROADLEAVED MARKED FOR THINNING

	Plot No	Species	No marked.	mean dbh		Top ht.
ABOVE	33	Oak	47	18	7.2	13.9m
	34	Oak	41	16	5.2	16.4m
	35	Oak	45	19	8.2	14.5m
	36	Lime	—			
	37	Nothofagus	21	29	11.0	20.0m
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	72	Sweet Chestnut	86	17	13.2	17.0m
	73	Aesculus	—			
	68	acer Platanoides.	63	14	5.8	19.0m.
	67	" Pseudoplatanus.	24	14	2.0	17.8m
	66, 65	Oak	65	17	9.2	15.3m
	64	Acer Sac.	27	16	3.2	17.0m
	62	Ulmus Glabra	—			
	63	Oak (surround)	25	16	2.6	13.0m
	61	Acer Pensylvanicum	48	12	2.9	15.0m
			592			

$81.8\,m^3$

approx very!!

MK II

Forestry Commission (Research)

Silviculture (South)

Dendrologist's Report on Brechfa Forest Garden - December 1987.

Summary

This report confines itself to the potential value of the exotic species in the garden relative to the British Isles Tree Register. The recreational objectives of the site are being defined elsewhere by Wales Conservancy, but it is considered impossible to entirely separate interpretive value from essential scientific merit here. It is hoped that divergence of opinion in these matters will be minimal. Trees are assessed here for authenticity, specimen quality and conservation potential, in preference to productivity, assessment of which remains a valuable function of the local Silv (N) outstation. The most important part of this report is it's taxonomic evaluation of each plot and individual species seen.

1. Site Assessment and Potential.

The geography of the site can only be described as difficult, almost all of the plots are on very steep slopes. This will always hinder interpretation, but appears to be no impediment to good tree growth (except for the occasional landslide in 1987). The site is remote and because of this relatively safe from interference and malicious damage, although odd christmas trees have been taken. The performance, of conifers particularly, clearly indicates that the climate is affable for tree growth. A subjective assessment is as follows:-

1.1. Scientific strengths.
A large number of taxa are represented
Taxonomy and nomenclature is about correct
Origin of seed and planting notes are available for most plots.
Several or many individuals are present of most species.
There are many rare species.
Research Division have an enthusiastic commitment to the project.

1.1.1. Scientific requirements or weaknesses.
Tree identification labels are needed.
Plot information and orientation signs are needed - origin, species, geography, physiology and location maps.
In many plots no account is taken of provenance (eg. in some instances the plot may represent the best trees, and in others a poor form).

1.1.2. Interpretation strengths.
No restrictions are placed upon visiting specialists.

1.1.3. Interpretation weaknesses.

There is no clear and simple guide to what is available on the site for pre-visit use.
An educational field study resource centre would be useful to house equipment, maps, leaflets, etc.
There is no interpretive leaflet, guide, or suitable map.
No orientation panels.
No interpretive Ranger Service
Difficult geography. (In places potentially dangerous).
Very difficult access from the nearest public road.
It is probably undesirable to have public vehicular traffic using the forest roads to, and within, the site.

1.2. Capacity of the site for wider use.

The garden is clearly under used by researchers and casual visitors at the present time. The capacity of the collection to take greatly increased numbers will require the consideration of re-development, particularly of through plot paths more or less along contours. Erosion is clearly a serious problem and tree root cutting would almost certainly provoke a windthrow problem. Viewing the collection from the existing new forest roads is only of limited value as nothing but (frequently poor) plot edges are seen. Maintenance of such a large and comprehensive collection can only be justified, however, if it is more widely used for a whole range of interpretive purposes.

1.3. Potential for growth.

It is suggested that almost no extra land is used for this project on the grounds that 80 or so species are not only enough for local management to maintain, but are more than enough to keep even a specialist visitor happy. It is important that plots regarded at first sight to have failed are examined very carefully. Frequently if only one tree remains alive it is of more value than a re-planted plot of some less valuable species. Beating up plots in this way has caused confusion and losses (from the conservation aspect) in forest gardens elsewhere. Gaps within and between plots from a dendrologists point of view are of considerable value. It is most important that the whole tree can be seen at least from one angle. It is worth remembering that the potential height growth of many species planted at Brechfa is greater than the width of the plot. A plot by plot assessment of the most notable species follows, giving suggestions for removals, replacements or treatment if these are appropriate. The object, presumed here, being to create a dendrological collection of lasting value.

2. Plot Assessment.

* Wild collected, and of special conservation value.
NB. "special value" = To a dendrologist.
"thinning required" = To produce specimen tree/trees.

Plots

1. * Pseudotsuga menziesii. A good plot in prime valley bottom site, some rough trees but some outstanding ones. Ex Washington.

2. * Larix decidua. Of German origin ~~some very tall trees for 28 years old.~~

3. * Larix potaninii. (Name change). All dead ~~A most valuable plot.~~

4. * Tsuga heterophylla. Good quality and origin (QCI).

5. Tsuga mertensiana. Very poor plot, perhaps of poor provenance origin, sadly not worth keeping.

6. Chamaecyparis lawsoniana. Very dense plot, of no special value except as a "forest environment". Seed from Monmouth.

7. * Thuja plicata. An outstanding plot, excellent quality. Ladysmith Vancouver.

8. * Abies fraseri. A difficult species to establish. Particular rarity value as known wild origin.

9. Failed plot. Cupressus macrocarpa.

10.* Sequoiadendron giganteum. Good plot. Ex California.

11.* Sequoia sempervirens. An outstanding grove on a very steep slope at 29 yrs. 65cm x 17.5m (best tree). Ex California.

12. Failed plot. Cedrus libani, one tree left. X

13. Cedrus deodara. Fair condition but not a good origin. (Italy).

14. Picea abies. Very steep exposed plot. Seed collected in Austria.

15.* Abies koreana. An outstanding plot of healthy trees. The best plantation of this species known.

16.* Abies grandis. Some very fine trees, but as would be expected stem cracking on the largest. From Kittitas County, Washington.

17.* Abies procera. As plot 16, also from Washington State.

18. Abies cephalonica. Good specimens but taxonomy suspect. Possible Abies alba in places. This and the previos 2 plots are very steep with an eroding cliff to the road on the low side.

19. Abies nordmanniana. Good plot. Seed collected in Germany.

20.* Abies concolor. Many dead and dying. Common in plots of this age elsewhere. It is important that every living specimen is retained. Ex Colorado.

21.* Abies veitchii. A good healthy plot, should be opened up to retain green foliage down to eye level. No merit in "pole stage" A.veitchii, it is very much a foliage plant. Sanwa Trading Co. Japan.

22.* Abies concolor var lowiana. A fine plot with many specimens from the A.concolor end of the range in Montana.

23.* Abies homolepis. Excellent plot. Ex Japan.

24.* Abies amabilis. Outstanding. A good example of Silver fir forest environment. Ex Washington.

25. Abies delavayi. Collected from Benmore Forest Garden and subject to contamination from other species.

26. Not seen.

27.* Pinus nigra ssp nigra. Poor condition. Ex Austria.

28. Pinus muricata. Very rough plot, of little merit.

29. Pinus strobus. Good example of species. ~~Wrong~~ seed lot No [redacted] origin ~~unknown~~. ADIRONDACK 56/693

30. Pinus resinosa. A valuable plot of a rare species. Wrong seed lot No., so origin uncertain.

31. Pinus uncinata. Of no special value.

32. Pinus thunbergii. Not growing very well but so many in one place is worth while.

33. Quercus petraea. very small plot in apex between two roads. Seed from this forest.

34. Quercus robur. No special merit. Needs thinning out. Ex Cilgwyn (local).

35. Quercus rubra. Fairly good quality plants. Needs heavy thinning. Seed from Holland.

36.* Tilia cordata. A good typical form. Needs heavy thinning, even coppicing some individuals. Of European (Austria) origin.

37. Nothofagus obliqua.

38. Fagus sylvatica. Nomenclature in doubt.

only 1

39.* Pinus densiflora. A valuable rare species. Not growing particularly well but very worthwhile. Seed from Japan.

40. Pinus peuce. A valuable plot showing the potential of this species on this site in direct comparison with 16 other pines. Wrong seed lot No., so of unknown origin. 56/615 Macedonia

41. Pinus pungens. Another valuable pine, poor growth. Origin uncertain.

42.* Pinus ponderosa. Species repeated more widely in other gardens that other pines in adjacent plots to this one. Poor growth. From Susanville, California.

43. Picea asperata. A very small plot, or remnant of original plot. 57(49)

44.* Pinus banksiana. Typical rough type of plot.

45. Pinus mugo. A thick jungle - typical of species. Ex New York State.

46. Pinus mugo var pumilo. Nomencalture in doubt. If correct then not seen. French origin.

47.* Pinus contorta. Of no special value. Longbeach type, rough form.

48. Pinus radiata. Plot almost failed, of no special value.

49.* Pinus jeffreyi. A reasonable plot, of considerable interest. Chester, California. - Failing

50.* Cryptomeria japonica. Good, in part spoiled by new road. Ex Japan.

51. Picea glauca. Very good plot. Valley bottom by road. Of doubtful origin.

~~52. Picea engelmannii. Not wild origin.~~

~~53. Picea jezoensis. Seed lot number wrong so of doubtful origin.~~

54. Picea orientalis. Very good quality trees. No special scientific value. Not of wild origin.

55. Picea rubens. A healthy valuable plot. Foliage of this species can only be distinguished from Picea abies when seen as a mass (as in this plot), from which it is possible to stand back. Of doubtful origin (seed number is for Oak!).

56. Picea omorika. This is an endangered species in the wild and wild origin plots of this type are of enormous conservation value. The origin of this plot is uncertain, but it may be wild collected.

57. Picea mariana. A good, but slow growing plot (perhaps provenance). 57(713) Ontario

58. Failed plot. Picea smithiana.

59.* Abies lasiocarpa. Excellent plot, healthy thick foliage. Oakridge, Oregon.

60.* Abies balsamea. A poor plot, but valuable species.

61. Acer pennsylvanicum. No special value.

62. Ulmus glabra. No special value.

63. Quercus canariensis (name change). A good plot needs opening up to specimen trees.

64. Acer saccharinum. Thin out. Check identity in summer - seed collected as Acer saccharum.

65. Quercus lusitanica. Important species - not common. This collected from Kew where hybrid influence is great.

66. Quercus cerris. Thin out heavily.

67. Acer pseudoplatanus. Thin heavily. Collected from Slebech, S.Wales.

68. Acer platanoides. Thin out almost to final crop so that foliage remains low.

69. Populus T x T. not seen in detail.

70. Tilia cordata. Valuable plot, thin out. Origin in doubt.

71.* Liriodendron tulipifera. A few surviving trees, well worth keeping. Origin in doubt, given the wrong seed lot number.

72.* Castanea sativa. No special value. Thin out. from France.

73. Aesculus hippocastanum. No special value.

74. Populus. Not seen.

75. Picea koyamae. Not good, but worth keeping.

76. Failed plot.

77.* Tilia platyphyllos. Keep remaining trees. From Austria.

78. Davidia vilmoriniana. Not seen.

79. Robinia pseudoacacia. Rough, but of interest. Doubtful origin.

80. Populus. Not seen.

81. Populus. Not seen.

82. Fraxinus excelsior. Almost failed. Cap hay Cellone 11.

83. Betula pendula. Good plot. Distinctive form. Seed collected as Betula lenta.

84. Stranvaesia davidiana. Outstanding plot. A clear indication of how little used this high amenity species is on upland sites.

85. Betula pendula. (listed as B.alba).

86. Alnus rubra. failed plot.

87. Betula pendula (Mildenhall). An odd form of curiosity value.

88.* Betula maximowicziana. Of no special value now wild provenances are available elsewhere. From Nagano, Japan.

89.* Betula lenta. A good plot. Ex Pennsylvania.