Brechfa 15.

ROYAL FORESTRY SOCIETY

SOUTH WEST WALES DIVISION VISIT SEPTEMBER 1999

THE BRECHFA FOREST PLOTS,

LLANYMDDYFRI FOREST DISTRICT

Some later dated plantings.

The Brechfa Forest plots were an ambitious project organised and planted by the local Forestry Commission staff between 1957 and 1961. Choice of site, species and provenance appears to have been on a "What's available" basis. Over the years certain failed plots have been re-used. Sitka spruce, the most important planted species at the time and which would have made a good 'control' species was not included.

Silviculture (South) Research at Talybont-on-Usk, first became aware of the plots in 1980 and formally took over the running of the unmanaged area in 1982. Over the last fifteen years a new access road has been opened up. Measurements; light thinnings and, general maintenance, on a limited budget have continued.

Recent changes in forestry policy have made it desirable to reconsider the current state of species research in British forestry. These changes include the greater interest in farm woodlands, community forestry, and native woodlands. There is also the commitment to the diversification of production forests which may well include greater use of mixtures and broadleaves. Species research is also of considerable relevance to any attempt to increase biodiversity in British forestry. Other aspects which need to be considered are the potential impact of climatic change.

At present there are 2,400 taxa of tree capable of growing in Great Britain; 180 are established or are potential forestry species. Brechfa Forest plots have over eighty species of tree established. – weakness – unknown Provenance – eg seed from small British plots – Provenance where known may be business address eg. Radnor Austria.

Kilmun.

In 1992 it was proposed at an internal F.C. Species Discussion Meeting that the Brechfa Forest plots should be developed as one of four major collections of forest plots in the UK The plots represent the South Western quarter of Great Britain.

P.T.O.

At present the plots are managed as follows:

11 are or will be full Mensuration Branch Sample Plots,

22 are Silviculture (S) Measurement Plots,

The remaining plots are for observation on a minimum care and maintenance basis.

FROST

Brechfa 15/81

Project No: 840 Species

<u>Site Details</u>

Geology: Silurian (Tarannon and Llandovery series).

Soil: Deep upland brown earth with an area of surface water gley in the flushed hollow. ↖ derived from glaciated Silurian Shales.

PH: 4.5 - 5.

Elevation: 220 - 250 M.

Rainfall: 1700 mm.

Climate: Cool, wet and unexposed (C2M Hartnup and Bendelow bioclimatic classification).

Plot size: Variable but most large enough for a 0.02 ha assessment plot. original spacings either 5' or 6'

Fertiliser: Most plants received the standard 2 oz of Ground Mineral phosphate at planting. (must have reflected poor ground vegetation at time of planting)

Some plots 3 thinnings - Some No Thinnings.

GENERAL TRENDS

SPECIES NOT SUITED TO CONDITIONS (WET/MOIST/ELEVATION/FROST)
→ PINES / CEDARS POOR OR DEAD.

SUITED ABIES/N.Hem.

NA SS planted at a [illegible] [illegible] by KG

Uned Gefnogaeth Dechnegol (De)
Cefn Gethiniog
Talybont-ar-Wysg
Aberhonddu

Technical Support Unit (South)
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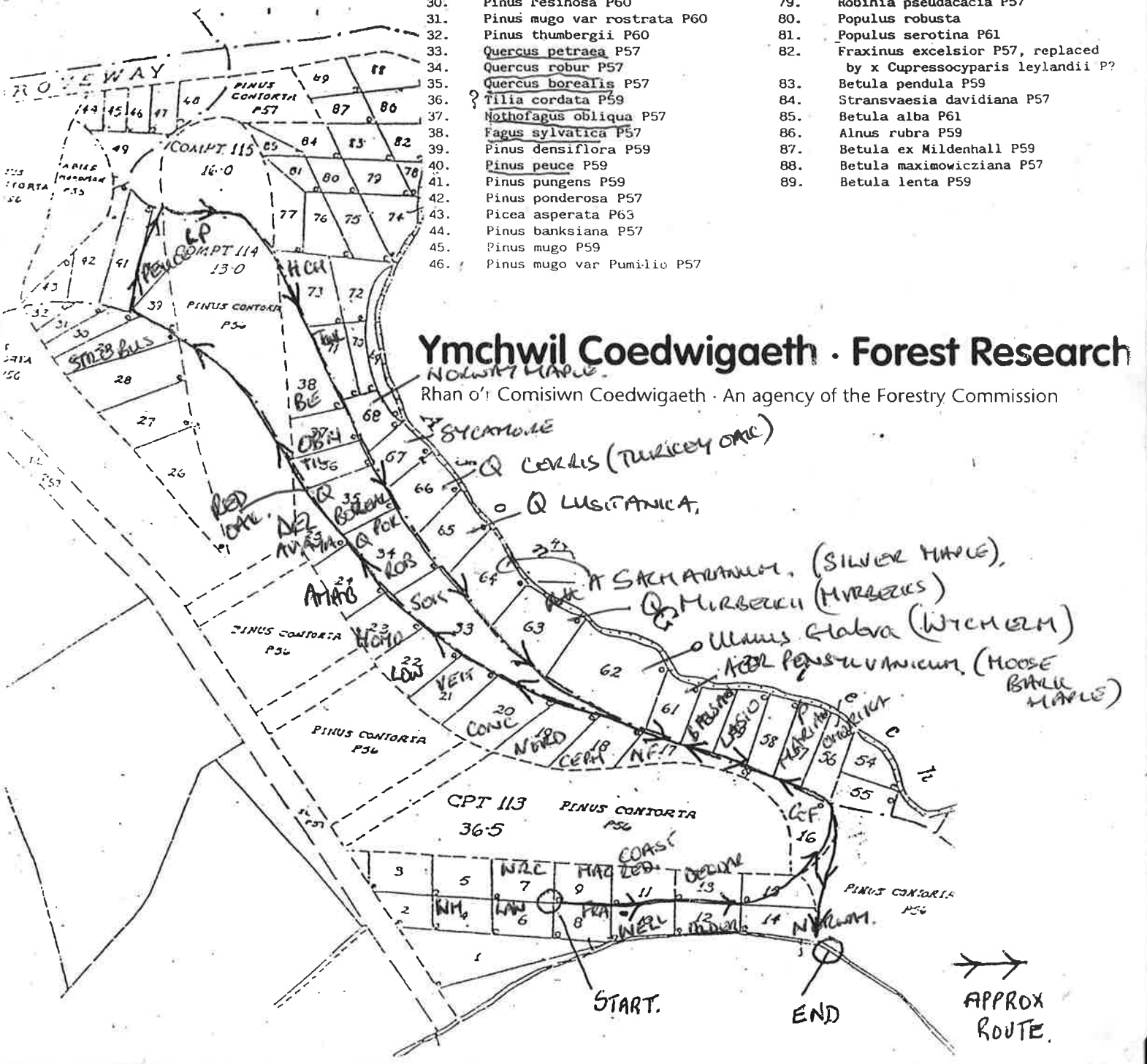
Number		Number	
1.	Pseudotsuga menziesii P57	47.	Pinus contorta P57
2.	Larix decidua P60	48.	Pinus radiata P57
3.	Larix sibirica P59	49.	Pinus jeffreyi P57
4.	Tsuga heterophylla P57	50.	Cryptomeria japonica P57
5.	Tsuga mertensiana P57	54.	Picea orientalis P59
6.	Chamaecyparis lawsoniana P57	55.	Picea rubens P63 (replaced Gingko)
7.	Thuja plicata P59	56.	Picea omorika P59
8.	Abies fraseri P61	57.	Picea mariana P60
9.	Cupressus macrocarpa P58	58.	Picea smithiana P59
10.	Sequoiadendron giganteum P59	59.	Abies lasiocarpa P60
11.	Sequoia sempervirens P58	60.	Abies balsamea P60
12.	Alnus glutinosa P68 (replacing Cedrus libani)	61.	Acer pennsylvanicum P60
13.	Cedrus deodara P58	62.	Ulmus glabra P60
14.	Picea abies P57	63.	Quercus mirbeckii P59 (Canariensis)
15.	Abies koreana P61	64.	Acer saccharinum P59
16.	Abies grandis P57	65.	Quercus lusitanica P59
17.	Abies procera P57	66.	Quercus cerris P58
18.	Abies cephalonica P57	67.	Acer pseudoplatanus P57
19.	Abies nordmanniana P58	68.	Acer platanoides P57
20.	Abies concolor P58	69.	Populus tach/trich P61
21.	Abies veitchii P58	70.	Tilia cordata P59
22.	Abies lowiana P58	71	Liriodendron tulipifera P59
23.	Abies homolepis P59	72.	Castanea sativa P57
24.	Abies amabilis P59	73.	Aesculus hippocastanum P58
25.	Abies delavayi P59	74.	Populus trichocarpa P61
26.	Pinus nigra var pallasiana P60 (caramanica)	75.	Picea koyamai P61
27.	Pinus nigra var nigra P60	76.	Juglans regia P60/61
28.	Pinus muricata P60	77.	Tilia platyphyllos P59
29.	Pinus strobus P59	78.	Davidia vilmoriana P58
30.	Pinus resinosa P60	79.	Robinia pseudacacia P57
31.	Pinus mugo var rostrata P60	80.	Populus robusta
32.	Pinus thumbergii P60	81.	Populus serotina P61
33.	Quercus petraea P57	82.	Fraxinus excelsior P57, replaced by x Cupressocyparis leylandii P?
34.	Quercus robur P57	83.	Betula pendula P59
35.	Quercus borealis P57	84.	Stransvaesia davidiana P57
36.	? Tilia cordata P59	85.	Betula alba P61
37.	Nothofagus obliqua P57	86.	Alnus rubra P59
38.	Fagus sylvatica P57	87.	Betula ex Mildenhall P59
39.	Pinus densiflora P59	88.	Betula maximowicziana P57
40.	Pinus peuce P59	89.	Betula lenta 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		



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BRECHFA FOREST PLOTS

Plot No	Species	Origin	P.Year	Notes
1	*Pseudotsuga menziessii*	Washington	57	Many good trees
2	*Larix decidua*	Poland	60	Patchy plot
3	*Larix potaninii*	-	59	Failed
4	*Tsuga heterophylla*	Q.C.I.		Tall trees, fluting
5	*Tsuga mertensiana*	-	57	Poor, bushy
6	*Chamaecyparis lawsoniana*	Goytre W	57	Multi stemmed
7	*Thuja plicata*	Ladysmith V.I.	69	Excellent form
8	*Abies fraseri*	-	61	A rare abies
9	*Cupressus macrocarpa*	-	68	Poor health
10	*Sequoiadendron giganteum*	California	59	Good specimen trees
11	*Sequoia sempervirens*	California	58	Some excellent trees
12	*Eucalyptus (debeauzevillei)*	Australia	86	Hardy
13	*Cedrus deodara*	Northern Italy	58	Poor
14	*Picea abies*	Tyrol Austria	57	Healthy
15	*Abies koreana*	-	61	Small and rare
16	*Abies grandis*	Kittitas County, Washington	57	Excellent form and vigour
17	*Abies procera*	Washington	57	Excellent form and vigour
18	*Abies cephalonica*	-	57	Not too healthy
19	*Abies nordmanniana*	SW Germany	58	Better health
20	*Abies concolor*	Colorado	58	Few trees surviving
21	*Abies veitchii*	Japan	58	Healthy
22	*Abies concolor var lowiana*	Montana	58	Some deaths
23	*Abies homolepis*	Nagano Japan	59	Healthy
24	*Abies amabilis*	Washington	59	Healthy
25	*Abies delavayi*	-	59	Small plot
26	*Pinus nigra var pallasiana*	-	60	Poor plot
27	*Pinus nigra var austriaca*	Austria	60	Poor plot
28	*Pinus muricata*	-	59	Rough plot
29	*Pinus strobus*	Adirondack Mts, USA	59	Well stocked, healthy
30	*Pinus resinosa*	-	60	Poor condition
31	*Pinus unicata*	-		Poor condition
32	*Pinus thunbergii*	-	60	Slow growth

33	*Quercus petraea*	Brechfa (L)	57	Reasonable form
34	*Quercus robur*	Cilgwyn (L)	57	Reasonable form
35	*Quercus rubra*	Holland		Reasonable form
36	*Tilia cordata*	Lower Austria	59	Bushes
37	*Nothofagus obliqua*	-	57	Large rough trees
38	*Fagus sylvatica*	Dedham	57	Squirrel damaged stems
39	*Pinus densiflora*	Nagano Japan	59	Failed
40	*Pinus peuce*	Macedonia	59	Excellent
41	*Pinus pungens*	New England USA	59	A poor plot
42	*Pinus ponderosa*	Susanville Calif	57	Poor plot
43	*Picea asperata*	-	58	Small group
44	*Pinus banksiana*	-	57	Very rough
45	*Pinus mugo*	Dorset	59	Bushlike
46	*Pinus mugo var pumilo*	France	57	Bushlike
47	*Pinus contorta*	Long Beach	57	A rough windblown plot
48	*Pinus radiata*	-	57	A failed plot
49	*Pinus jeffreyi*	Chester Calif	57	Unhealthy plot
50	*Cryptomeria japonica*	Sanwa Japan	57	Fair form
51	*Picea glauca*	Denmark	57	Fair form
52				Lost
53				Lost
54	*Picea orientalis*	-	57	Fair plot
55	*Picea rubens*	-	57	Fair plot
56	*Picea omorika*	-	59	Healthy plot
57	*Picea mariana*	Ontario	60	Healthy, rare
58	*Picea smithiana*	-	59	Failed, now LP expt
59	*Abies lasiocarpa*	Oakridge Oregon	60	Healthy
60	*Abies balsamea*	Wisconsin	60	Poor plot
61	*Acer pennsylvanicum*	Austria	60	Fair plot
62	*Ulmus glabra*	-	60	A few bushes
63	*Quercus canariensis (merbeckii)*	Gloucester	59	Good plot
64	*Acer saccharinum*	Tennessee	59	Poor form
65	*Quercus lusitanica*	Kew	59	Poor plot
66	*Quercus cerris*	Home		Healthy
67	*Acer pseudoplatanus*	-	57	Fair form

68	*Acer platanoides*	Hexham	57	Good plot
69	*Populus TT.*	-	61	Not impressive
70	*Tilia cordata*	-	59	Fairly healthy plot
71	*Liriodendron tulipifera*	-	59	Bush like trees
72	*Castanea sativa*	France	57	Coppice like
73	*Aesculus hippocastanum*	-	58	Poor plot
74	*Populus TT.*	-	61	Not impressive
75	*Picea koyamai*	-	61	Good complete plot
76	*Picea sitchensis*	Oregon	88	Now OSS
77	*Tilia platyphyllos*	Lower Austria	59	Few left
78	*Davidia vilmoriana*	-	58	Failed
79	*Robinia pseudoacacia*	-	57	Few unhealthy trees
80	*Populus robusta*	-	61	Poor
81	*Populus serotina*	-	61	Poor
82	*Cupressocyparis leylandii*	-	65	Vigorous
83	*Betula pendula*	-	59	Not impressive
84	*Stranvaesia davidiana*	-	57	Thicket
85	*Betula alba*	Hants	61	Fair
86	*Alnus rubra*	Hants	59	Poor
87	*Betula pendula*	Mildenhall	59	Unimpressive
88	*Betula maximowicziana*	Nagano Japan	57	Fair plot
89	*Betula lenta*	Pennsylvania	58	Fair plot
114	*Pinus contorta*	Mixed inc Lulu Island	56	Filler

ABIES - Confined to Temperate Regions of N Hemisphere
- Europe, N Africa, Asia, N. America.

MAIN CROP AFTER THINNING MARCH 1999

Plot No	Species	No Trees/ha Age.	Top ht	Mean dbh	BA/ha	O/Bark Vol
4	Western Hemlock	595	30.9	29.4	40.4	551
7	Western Red Cedar	846	23.4	29.7	58.4	557
11	Coast Redwood	334	25.6	51.6	69.8	660
10	Wellingtonia	701	21.4	37.7	78.4	563
56	Picea Omorika	1049	19.1	21.6	38.6	296
19	Abies Nordmanniana	881	22.7	22.9	36.3	387
21	Abies Veitchii	831	20.4	22.6	33.3	296
23	Abies Homolepsis	688	20.5	24.8	33.3	341
29	Weymouth Pine	970	19.8	24.5	45.8	370
40	Pinus Peuce	758	19	27.5	45.1	380
63	Quercus Mirbeckii	839	15.3	15.9	16.7	100

VOLUME REMOVED IN THINNINGS

No of Trees	Mean dbh	Volume YC.
425	23.5	249
615	22.5	234
334	36.8	339
573	27.7	231
375	19.7	86
573	15.6	110
208	17.4	47
315	18.9	91
620	16.8	105
421	20.4	114
911	10.6	38

Abiabalis YC22
Grandis YC24
Procera YC28
Douglas YC26

No SS planted but locally YC 14-16.

Better than SS — GF/NF/DF/2x Sequoia + WH/WRC.