FORESTRY COMMISSION

HISTORY

OF

MONAUGHTY

FOREST

E(S) CONSERVANCY

FORESTRY COMMISSION

HISTORY

of

MONAUGHTY FOREST

1920 - 1951

EAST (SCOTLAND) CONSERVANCY

MONAUGHTY FOREST HISTORY

C O N T E N T S

HISTORY of MONAUGHTY FOREST

CHAIRMAN'S COMMENTS

The records of my earliest inspections of Monaughty are missing, though Lord Lovat's comments on one of them (1924) are worth reading if only because our then-Chairman did not often comment at such length. In this case he was writing about a type of country which he knew intimately and his strictures were well-merited (Appendix IV).

Monaughty in fact made a poor start. Some 1,100 acres - far too many - were planted in the first two years, the main reason being, I think, competition between the Assistant Commissioner for Scotland and his colleague for England and Wales, to show the larger planting programme. The errors arising from undue haste were consequently not confined to Monaughty or to Scotland. Had more time been taken to study conditions and get the "feel" of the place the choice of species might have been better. The chief mistake was in respect of the morainic and shallow stony soils which in the long run had to be extensively beaten up with Scots pine.

Perhaps we expected too much but already, by October 1925, I was able to see some improvement and noted that the hard ground required stirring up at the time of planting (we would plough it now). By 1933 parts were growing vigorously and the only thing to do with the backward parts was to exercise patience. I noted after an inspection in 1937 that there had been a remarkable improvement since 1933 and that even the slow parts should ultimately give a satisfactory crop. Sir Alexander Rodger inspected Monaughty in 1937 and commented that it was a good forest, well stocked on the whole.

In 1943 I took Sir Kingsley Wood (Chancellor of the Exchequer) and Sir William Jowitt (Minister without Portfolio; later Viscount Jowitt and Lord Chancellor) and in 1944 Mr. Hugh Dalton (Chancellor of the Exchequer) through the Forest. All

three were interested and pleased with what they saw and the visits I am sure helped to stimulate interest in high places in the work of the Commission.

The forest has since been extensively roaded and thinned with consequent improvement.

Silviculturally one of the most interesting pieces of work has been the underplanting of larch and mixed pine/larch with Douglas fir and Tsuga, initiated in P.26 by the Divisional Officer J.F. Annand. The project is the largest and one of the best-tended things of its sort in the country, but not the oldest - which is a series of sample plots in Dymock Woods, Gloucester, established by Mr. A.P. Long in 1914. It is important that such areas be handled with care and that the quality as well as the quantity production of both under- and over-crop be investigated.

(initialled) R.

Dec. 1951.

HISTORY OF MONAUGHTY FOREST

GENERAL DESCRIPTION OF THE FOREST

Situation and origin of name

The forest is situated about 1½ miles from Alves station and about 6 miles south west of Elgin in the county of Moray. It lies south of Monaughty Farm.

Brief History prior to Acquisition

The Forestry Commission took over the first part of the main block, Heldon Hill, in 1920, after the previous crop had been cut. The previous crop consisted mainly of European larch, the remainder being Scots pine except for some very rough beech on the south side. The beech around the Cauldwell which is now Compartment 25, were also cut. There are no records to show when these trees were planted but the old people of the district say that they must have been planted between 1840 and 1850. Previously the hill had been used for agriculture. A small area was cultivated and the remainder was used for the grazing of cattle and sheep.

Felling appears to have been a continuous operation from 1880 to 1919. One of the early merchants was Mr. Wilson of Troon, Ayrshire. From 1900 onwards the whole of the cutting was done by the firm of Frank Sime, Beauly and Inverness. Part of the south side, including the beech, was felled by Mr. King, Kingsmills, Elgin, and the beech was sawn at the mill of Messrs. A & R. Watson, Morayshire Sawmills, Elgin. The beech apparently were very rough and crooked and were converted to railway sleepers, mining timber and firewood.

The larch of the old crop were of exceptional quality and the acquisition of this species by the timber merchant was the main attraction of the purchase. Many of the trees were over 60 cu. ft. in volume and 80 ft. in height and had good red heartwood almost to the bark. Canker and pumping were unheard of according to Mr. James Souter Alves, who did most of the carting. He also states that the larch on the south side were better than those on the north side.

The Scots pine were an average lot. The best Scots were 20 cu. ft. to 25 cu. ft., the average tree being about 15 cu. ft. The pine lacked height.

Much of the larch was used for boatskins and for the making of vats for the whisky industry. Railway sleepers, telegraph poles and mining timber were also produced. In the early years of the 1914-1918 war, tannin was extracted from the bark of the larch. The Scots pine were used for boarding, railway sleepers and mining timber. During the 1914-1918 war, three sawmills were continually at work.

The extraction of timber was done by horse or by horse and wood cart. A light railway was in operation in what is now Compartments 47, 54, 55 and 56. The railway ran from the foot of the hill to the top. Horses pulled up the empty bogies which, after being loaded, went down on their own. Brakes were fitted to the bogies.

Area and Utilisation

Acquisition details and the utilisation of land at 30.9.51 are given in the following tables (Tables I and II).

MONAUGHTY FOREST HISTORY

Table I

From	By	Date	Plantations Acquired	Plantable excl. Col. 4.	Nurseries	Agricultural.	F.W.H.	Unplantable excl Col.4	Other land				Total
									Land Permanently Transferred		Land Temporarily Transferred		
									Description	Acreage	Description	Acreage	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Duke of Fife	Feu	1920		1920									1520
G.R. MacKessack	Feu	1922		278									278
Lord Colum E. Crighton-Stuart	Feu	1922	61¾	484¼				75					621
W. M. Yool	Purchase	1925		560		32	3						595
Burgh of Elgin	Feu	1949		412				15					427
I. K. Thomson	Purchase	1950	94	439		423							956
			155¾	3693¼		455	3	90					4397
Disposal to Wm. Cattanach	Feu	1943				¼							¼
Total			155¾	3693¼		454¾	3	90					4396¾

TABLE II

Utilisation of land as at 30.9.51

Plantations			
Acquired		107	
Formed by Commission		3106.2	3213.2
In hand awaiting replanting		123.8	
Tenanted pending replanting		512.0	635.8
Agricultural	...	...	469.7
Forest workers' Holdings	...	...	3.0
Unplantable	...	...	75.0
		Total	4396.7

Physiography

The altitude ranges from 160 ft. On the north boundary to 760 ft. at the extreme south west corner. Only a few acres are situated above the 700 ft. contour. The slope over the greater part of the area is gradual. On the north side it is about 1 in 10, but on the south side it is steeper, ranging from 1 in. 9 to 1 in. 3.

The aspect is mainly north, north-east and north-west. The ground is sheltered from the prevailing south and south west winds but is exposed to the north and north west winds.

Geology and Soils

On Heldon Hill section most of the underlying rock is a metamorphic gneiss with bands of mica schist. At the south and eastern boundaries, there are small areas of Lower Old Red Sandstone conglomerate. The whole is mantled with glacial boulder till, except for some scree areas on the south side. On the north face the till is more compacted than on the south. Over most of the areas the soils are podsolic. On the north face there is gleying in the depressions.

Meteorology

The rainfall is low and varies from 20in. to 26in. per year. Snow does not lie very long except on the higher slopes. The amount of sunshine per

year ranges from 1350 to 1500 hours.

Vegetation

On the sections of the area which had been cleared of timber for a considerable number of years the principal surface vegetation consisted of a strong growth of heather, mixed with patches of bracken, short grasses, and some Juncus. On the more recently felled areas, heather still predominated but the growth was less strong.

Risks

The fire risk on Heldon Hill block is not now great owing to the killing of the undergrowth by tree growth. However, this section is still vulnerable from the following county roads:-

(1) The Burgie Hill road which joins the Rafford Pluscarden Road.

(2) The Rafford Pluscarden road Compartments 69 to 75.

The Burgie section is vulnerable from the road mentioned above (1).

The Quarry Wood section is highly vulnerable to fire from all quarters.

Roe-deer have been troublesome in the past and will continue to be so in the Quarry Wood and Burgie sections. In the Heldon Hill section the trees are now past the danger stage, but nevertheless roe-deer will be kept down as this section is now an ideal harbour for this pest.

Capercailzie are on the increase on the surrounding hills and it is expected that we may be troubled by these birds on Burgie when planting commences.

Fomes annosus has attacked some of our best Sitka spruce plantations notably in Compartments 16, 21, 22 and 25. So far, the number of stems affected is not large.

Roads

Monaughty was one of the first forests where major road construction was carried out.

The work was begun in a hurry with poor labour and little plant. The specification was also too elaborate. Quarries were opened up on the south face without adequate plant to operate them, and the stone was hand loaded into and unloaded out of flat lorries, as adequate tippers were not available.

The result was that the costs from the start of the operations to

September, 1947, worked out at about £7000 per mile.

In the winter of 1947 all work in quarries was closed down, as an adequate type of road material was lying loose in screes on the south face, and the priorities of road construction were altered, to ensure tapping these sources of material as soon as possible.

Excavators were introduced for loading, a bulldozer used for spreading material, and labour correspondingly reduced. Some difficulty was experienced with hired plant, and hand labour had to be reintroduced on occasion. Improvised chutes were used to get the scree quickly off the hillside into tippers, and incentive bonuses fixed to speed up loading. As a result of these alterations costs in F.Y.48 averaged £3000 per mile.

In F.Y.49 the demand for metalled roads was not so urgent, and bulldozed formations were given some time to dry out before being used by traffic.

The soil was tested by Aberdeen Univeristy with a view to trying mechanical stabilisation, but proved unsuitable owing to lack of clay. Cement stabilisation was considered, but ruled out as the subsoil contained too many large stones, which would have damaged the Howard Rototillers available for mixing.

However, it was clear from the dried out formation that 4 in. - 6 in. surfacing would be adequate, provided it was applied when the formation was dry. Also a supply of rotten rock was uncovered in the forest, reasonably close to the roads to be constructed. Roads in F.Y.49 were constructed at an average cost of £1600.

The road system was now reasonably complete on existing rides, but on the north face rides were approximately 500 yards apart, whereas it was considered that horse drags should be limited to something between 200 and 300 yards. It was decided to put in roads approximately half way between existing rides.

Disagreement about the width to which trees should be cut to enable bulldozers to operate efficiently hampered formation construction, and resulted in some formations lying water logged all through the winter and spring of 1950. After the minimum width of 30 ft. had been conceded in April, 1950, work proceeded reasonably smoothly. Gravel found in the Torrieston section was used to surface roads in the main block which cost approximately £1000 per mile.

The roads in the Torrieston section cost £250 per mile as it was only necessary to bulldoze, to gravel and shape the surface.

A 24 ft. bridge was built across the Black Burn at a cost of £220.

In 1951 two miles of fire trace cum road were bulldozed in the Quarry Wood section. The ground here was sandy, and a little more should be required other than adequate culverting to make a serviceable road.

The total mileage constructed at Monaughty is 25 all weather, 2 fair weather, 5 tracks.

The total plantable acreage (excluding Burgie) is 3316 acres.

Two miles more will be required at Quarry Wood making a total of 34 miles or about 97 acres per mile of road.

Labour and Housing

The staff is 35 to 40 and is recruited chiefly from Elgin. There is a house for the forester and five other houses. Two of these workers' houses have been recently acquired from Burgie the other three are situated on the Hillside road at the north east side of Heldon Hill.

The impediment to house building at Monaughty is the scarcity of water and it is not expected that any houses will be built until the regional water scheme is functioning.

SILVICULTURE

Plantations and the Choice of Species

Planting commenced in 1921 and the programme in that year was 541 acres. In 1922 it was 546 acres and in 1923, 230 acres. The species used for planting in the first three years were, European larch, Japanese larch, Norway spruce, Sitka spruce, Douglas fir and Scots pine. The programmes for the first two years were too large with the result that a lot of indifferent planting was done. The subsequent death rates were much heavier than they should have been. The 1923 programme was reduced in order to allow the large scale beating up of the earlier plantations to be carried out.

European larch

This tree has been planted freely on both the north and south faces. On the north side, much of the early plantings of European larch in P.21 and P.22 failed badly and were replaced with Scots pine with the result that there is now a large area of European larch/Scots pine mixtures. The type of larch in this mixture is very good. From 1936 to 1939 this larch did not appear to be at all promising but since then it has made a good recovery. The larch on the south side in 1936 was better than the larch on the north side. Today the better larch is on the north side. Canker is more prevalent on the south side larch. The branching of the north side larch is finer and the form is better. The south side larch has suffered appreciably from canker. In Compartment 73 it has also suffered from an attack by the Larch Leaf Miner.

Japanese larch

Japanese larch was planted in P.21 and P.22 on the north side, mainly in Compartments 6, 21, 25 and 26. In these Compartments the species has grown very satisfactorily. The first thinning was carried out in F.Y.43 and subsequent thinnings took place in F.Y.47 and F.Y.49. The yield from thinnings to date has been 750 cu.ft. per acre. The Japanese larch in Compartments 25 and 26 is Quality Class II.

Hybrid larch

The only hybrid larch in this forest was planted in Compartments 77 and 78 (P.28). The first thinning of the larch was done in F.Y.43 and subsequent

thinnings took place in F.Y.45, F.Y.47 and F.Y.48. Altogether 500 cu.ft. per acre have been removed. About 250 trees per acre have been selected for the final crop and marked with white paint.

Scots pine

This species has not grown very satisfactorily at Monaughty. It compares unfavourably with Scots pine on the sand area forests of Culbin and Roseisle. Scots pine has been extensively planted throughout the area on the poorer soils notably on the Torriston section (Compartments 91 to 97) and on top of Heldon Hill. It has also been used to beat up plantations of European larch. The pine appears to be better in mixture. The average Scots pine at Monaughty is Quality Class III.

Pinus contorta

This tree has been confined to the poorer "panny" soil at Torriston and to the exposed hilltops. The growth is good. A finer type of tree, of this species, is grown at Monaughty, than that grown at Roseisle. The trees are not so rough and double leaders are not so numerous.

Sitka spruce

This tree has been planted extensively on both sides of the area. On typical Sitka sites it has grown extremely well; on the poorer moraine sites it has checked but in many cases it has come out of check and is now growing vigorously. The best Sitka is in Compartments 18 and 21 (P.21); Compartments 22, 25, 26 and 29 (P.22) are Quality Class I.

The Sitka in Compartments 18 and 29 has been attaked by Fomes annosus. This attack has retarded the growth but so far no trees have been completely killed. Those affected are removed in the thinnings.

Norway spruce

This tree does very well at Monaughty. In many cases on poor ground it checks, but generally it overcomes the check and puts on a very good growth. The best plots of this species are in Compartment 17 (P.21) and Compartment 32 (P.22) and the spruce there are Quality Class II.

Norway spruce was planted extensively in the two first years (P.21 and P.22) on moraine which was sometimes not too well drained. Most of spruce

checked, and was given up as lost and the area was beaten up with Scots pine. This replacement was a little hasty. In these places there is now a mixture of the two species. The Scots are more or less the "overcrop" to the spruce, which is now doing well and will, where there is light for survival, be the better tree of the two.

Douglas fir

This tree has been planted extensively especially on the south side of the Forest, where it is a large volume producer. The P.24 planting is particularly good on the south side (Compartments 61, 62 and 63) and the trees are Quality Class I. The Douglas planted on the north side of the forest are rougher than the south side Douglas and the volume per acre is less.

Abies grandis

There is just one plot of this species at Monaughty in Compartment 78 and planted in P.28. This had a very light thinning in 1945 and was thinned again in 1948. The Research Branch established and thinned, a plot here in 1948. The volume per acre after thinning in this plot was 2,019 cu.ft.

Tsuga heterophylla

There are one or two plots of this species throughout the forest in Compartments 54, 73A, 78 and 80. These plots were planted from P.26 to P.33. The main Tsuga planting is as an undercrop and this is described in the paragraph on underplanting.

In 1948, a sample plot was established in Compartment 78 (P.28). The volume per acre after thinning was 1171 cu.ft., 558 cu.ft. being removed in the thinning.

Of the trees removed it was estimated that 16% showed the early stages of heart rot.

Underplanting of Acquired Plantations.

The area of acquired plantations underplanted at this forest from 1926 until 1929 was 63 acres. The species used were Douglas fir, Tsuga heterophylla and a little Thuya plicata. The Thuya was underplanted in Compartment 54. The other compartments underplanted were 80, 83 and 84. In Compartment 54 the overcrop was European larch. In the other compartments the overcrop was mainly European larch but there was some Scots pine which was felled

before the underplanting commenced. The overcrop was thinned in 1934 and thinnings were continued in subsequent years, so as to reduce the number of stems per acre to 50 and to clear out any remaining Scots pine.

The undercrop was first thinned in 1948 and thinnings will be continued at intervals of three years. The undercrop trees are very finely branched as the result of being raised under an overcrop. This is particularly noticeable in the case of the Douglas fir. The raising of Douglas as an understorey crop appears to be the best method of growing good quality Douglas.

It is interesting to note that so far the damage to the undercrop caused by the felling of the overcrop is practically negligible.

Methods of Planting

The early methods of planting were similar to those adopted at the present time, the Schlich or Mansfield spade being used on gravelly soils. A half-worn garden spade can also be used for most species except Douglas fir. With the two former a slit was made; with the latter an L notch. Douglas fir were pit planted.

On the south side of the forest on the steep slopes and the screes, Hardy patent mattocks were used for planting.

Two acres of Norway spruce were sown in Compartment 45 (P.23), the method used was to make a screef with a garden spade and then to stir up the soil to make a good tilth. About 10 seeds were sown in each screef.

Thinning and the Marketing of Produce

Thinning at Monaughty has followed normal practice. There is a tendency for Scots pine to be rough and it is well to tackle the removal of wolves at an early date. The same applies to Douglas fir wherever it tends to be rough.

Limited thinnings became available from 1934 onwards and up to the outbreak of the 1939-45 war these were disposed of as follows :-

Larch were converted into stobs, strainers, rustic wood and stack props.

Other species were converted into pip props by the forest staff.

From the outbreak of war, there was a shortage of labour. Thinnings were felled and dragged to the side and sold there to the Home Grown Timber Production Department of the Ministry of Supply. The Ministry of Supply

converted the timber mainly into props and crown wood for the mines. The increase in the price of timber enabled the Commission to clear fell the the rougher Douglas fir plantations in Compartments 16, 21, 25 and 29. Mature (acquired) plantations of larch in Compartments 84, 86, 89 and 90 were felled and so were the acquired stands at the top of the hill in Compartments 64 to 69. All this clear felling was done by the Home Grown Timber Production Department.

After the war when labour became more plentiful, it was possible to clear off the arrears in thinning which had accumulated during the war. From 1947 to the present time, 340 acres to 500 acres have been thinned annually, the annual yield ranging from 100,100 cu.ft. to 160,000 cu.ft.

The method of disposal of thinnings has been as follows :-

Larch - Rustic wood, stobs, strainers, salmon net poles, pit props, tonnage wood, logs (to merchants) and some of the older larch to the Hydro-Electric Board for poles.

Other species - Props, tonnage wood, logs, and telegraph poles.

In 1949 thinnings were sold standing to timber merchants. This arrangement has worked very well to date. Because of the scarcity of timber and the eagerness of merchants to buy, no difficulty has been experienced in imposing conditions of sale designed to protect the remaining trees, in addition to getting a good price for the timber.

COMMENTS BY STATE FORESTS OFFICER

It is interesting to speculate on how much more quickly the poor Scots pine areas would have reached the thinning stage had they been ploughed initially. Our ploughs can now tackle this kind of ground but we sometimes hesitate to plough where it is clear that trees will start without such treatment. It is possible that with ploughing thinning might have been reached one or two years earlier. In this case, the cost of ploughing would have been easily retrieved.

Monaughty is not a problem forest but it can point a useful lesson in the raising of first quality Douglas fir and Tsuga and other shade-bearers. The side-shade of the overcrop of European larch and Scots pine has done good work and the same effect could frequently be obtained from advance growth on areas we are now planting. With this in mind we do try to retain birch in tight pure groups where quality is sufficiently good.

(Signed) T. H. WOOLRIDGE.

State Forest Officer.

APPENDIX I

Notes from Inspection Reports

1. The Chairman, then Technical Commissioner, on his visit of 21.8.25, noted that the Douglas fir on the steep slopes at Pluscarden was making excellent progress.

In the first formed plantation, Sitka and Norway spruce had developed in a very variable fashion. The growth was excellent on grass and bracken land and where heather is mixed with the grass and bracken. Both species were in bad check on pure heather ground, and particularly on hard knolls.

Japanese larch were at last showing signs of development. For the first time, Japanese larch had put out long shoots and no longer consisted solely of dwarf shoots.

Scots pine was developing slowly and should have been used more, especially on heather ground. It was being used to fill up failures on the hard ground.

2. The Chairman, Sir Roy Robinson, on his visit of 23.10.33, commented that it would have been better if planting distances had been closer in the past and especial mention was made of Japanese larch which had been planted at a spacing of 6 ft.

The Chairman, it was understood, took the view from this visit that little could be done to the more difficult planted ground other than to adopt a "wait and see"policy.

3. The Chairman visited Monaughty on 20.9.37. The underplanting carried out in 1926 was inspected. This underplanting had been thinned in 1936 and the Chairman thought that a further thinning would be necessary in a year or two.

The report on this visit states that the poorer areas along the top of Monaughty were inspected from Compartment 6 to Compartment 19. Only a few patches of spruces are now in check and the growth of European larch and Scots pine has been much better during the past two seasons - and the incidence of Argyresthia is much less.

Lord Robinson in his remarks on the visit records "There has been a remarkable improvement in Monaughty since my last visit (October 1933). Parts are still very slow but almost the whole of the area which I saw should ultimately be a satisfactory crop. The P.26 underplanting (Tsuga) looks particularly well."

4. The Chairman paid a visit on 9.10.41, and remarked on the fine appearance of the hybrid larch in Compartment 77 (P.28). The Chairman advocated the removal of wolves at once and that the crop should be thinned next year and thereafter every second year or so for a time.

The underplanting of larch/Scots pine overwood with Douglas fir and Tsuga in Compartments 80 and 83 was seen. The overcrop having been thinned in F.Y.40 the Chairman thought that further trees - semi-suppressed European larch and rougher Scots pine should come out.

Backward patches of Norway spruce on poor Calluna-Erica-Scirpus ground were seen in course of traverse through Compartments 4, 5, 7 and 8.

5. On 10.6.42. Mr. A.H. Gosling, as Assistant Commissioner (Scotland) now Director-General, visited Monaughty.

This visit, according to the report, seems to have been confined chiefly to thinnings, as thinnings or thinning results were examined in Compartments 58 to 64, and also Compartments 77 and 80. Mr. Gosling advocated heavier thinning in order to benefit the woods and to help the timber scarcity.

The report also records that Chermes had attacked the hybrid larch in Compartment 77 pretty severely. Here again the suggested remedy was heavier thinning.

6. On 7.12.44 Mr. Gosling commented on the clear felling in Compartment 86 by Home Grown Timber Production Department, of European larch 50-60 years old. He instructed that an investigation should be made to ascertain the incidence of heart rot. A half-acre plot was later enumerated and the result was that 63% of the trees were sound, 19% were showing the initial signs of rot and 18% had advanced heart rot.

7. On the 24th August, 1943, Lord Robinson was accompanied by The Rt.Hon Sir Kingsley Wood, M.P., P.C., Chancellor of the Exchequer, and the Rt. Hon. Sir William Jowitt, M.P., P.C., Minister without Portfolio. The party also included Mr. A.H. Gosling.

8. Lord Robinson on his visit of 20.8.46, was accompanied by the Rt. Hon. Hugh Dalton, M.P., P.C., Chancellor of the Exchequer in the Labour Government. The Compartments visited were 77, 78, 80 and 81 where plantations of hybrid larch, grandis, Douglas fir, were seen. Also of special interest was the underplanting.

Lord Robinson expressed the view that he thought that perhaps one more thinning of the overcrop would be required before the larch were thin enough on the ground to leave as part of the final crop. He also expressed the opinion that Douglas fir was a more generally useful tree for underplanting than Tsuga.

9. Lord Robinson on his visit of 4.9.47, inspected the recent road work and said that "the specification was over elaborate for forest roads."

In Compartment 25 the Japanese larch (P.22) after the F.Y.46 thinning was inspected and here the Chairman suggested that the future treatment of this plantation might be underplanting with Douglas fir or Tsuga. This being so, he warned against the opening of Japanese larch crowns too early as with this species the crowns required to be checked from over development

Of the underplanting, Lord Robinson commented that the proper way to grow Douglas was as an undercrop, as the shade of the overcrop reduced the vigour of the undercrop and decreased the size of the branches.

10. Damage by Fomes annosus to Sitka spruce in Compartment 18 (P.22) was seen by Lord Robinson on his visit of 3.10.49. The Chairman thought that perhaps the site was too dry for Sitka and that there was no practicable preventative for this disease.

The underplanting in Compartments 80 and 84 were seen and the Chairman thought that the suggested 50 trees in the overcrop per acre was correct and said that any Scots pine trees in the overcrop should now be removed.

Of the undercrop the Chairman was inclined to the opinion that any big Douglas fir should not be removed as they were not really rough but big.

APPENDIX II

Record of Supervisory Staff

The following officers have been responsible for Mcnaughty since it was acquired in 1920:-

Conservators

1946 - 47 H. C. Beresford Peirse

1947 - to date F. Oliver

Divisional Officers

1921 - 32 J. F. Annand

1932 - 33 R. G. Forbes

1933 - 38 H. M. Steven

1938 - 39 F. Scott

1939 - 46 L. A. Newton

1948 - to date T.H. Woolridge as S.F.O.

District Officers

1921 - 22 I. Clark

1923 - 25 J. W. Mackay

1926 - 27 J. K. Leven

1932 - 34 R. Cowell Smith

1934 - 39 A. Warren

1939 - 47 I. Stewart

1947 - to date - J.A.M. Kennedy

Foresters

1920 - 1926 John McEwen

1925 - 36 J. D. Robbie

1936 - 40 D. M. Watt

1940 - 45 W. Rose (as Foreman)

1945 - to date - D. M. Watt

APPENDIX III

RATES OF GROWTH

Compt. No.	Species	P Year	Age	Geology and Soil	a) Altitude (ft) b) Aspect c) Slope d) Exposure	Mean Ht. of Dominants	Mean Annual Ht. Increment	Current Annual Ht Increment during last 5 years.
26	J.L.	22	29	Sandstone Boulder till.	a) 400' b) North c) Gentle d) Sheltered	45' Av. Ht.	1'2"	1'7"
71	D.F.	27	24	Blue whin stone Sandy loam Boulder till.	a) 300'-400' b) South c) Steep d) Sheltered	50' Av. Ht. 32'	1'4"	1'9"
10	N.S.	21	30	Boulder till	a) 200' - 250' b) North c) Gentle d) Sheltered	38' Av. Ht. 32'	1'	1'2"
61	E.L.	24	27	Sandstone gravel	a) 200' - 250' b) South c) Steep d) Slight	43' Av. Ht. 30'	1'1½"	10½"
78	A. Grandis	28	23	Sandstone Sandy loam	a) 160' - 200' b) South c) Fairly steep d) Slight	55' Av. Ht. 40'	1'10"	2'
21	S.P.	30	21	Boulder till	a) 200' b) North c) Gentle d) Slight	28½' Av. Ht. 25'	1'2"	1'2"
90	S.S.	29	21	Boulder till	a) 350' b) South c) Gradual d) Sheltered	44' Av. Ht. 34'	1'7"	2'
77	Hy. L.	28	23	Sandstone Sandy loam	a) 160' - 200' b) South c) Fairly steep d) Slight	55' Av. Ht. 42'	1'10"	2'

APPENDIX IV

Copy of a minute from the then Chairman (Lord Lovat) to the then Technical Commissioner, Mr. Robinson - now Lord Robinson.

Mr. Robinson

I have read the report of your visit to Monaughty forwarded from Scotland. I do not think that it altogether represents the position there.

Monaughty and Gwydyr seem to me to be quite the worst efforts of the Commission anywhere and, as we told Young in Wales, so do I think it should be brought to the notice of Annand that we are by no means satisfied with what has occurred.

1. The principal error is, of course, our error - that we allowed too large an area to be planted in one place.

2. This error, bad as it is, was accentuated (i) by the inexperience of those in charge, (ii) by their lack of foresight, e.g. the inadequacy of arrangements for cleaning plants in the 2nd and 3rd years, greatly increased by the fact that despite a warning they had failed to burn the heather ahead of planting in any single season.

3. There are a large number of minor errors.

   (A) Faulty selection of species. The failure to plant Scots fir is really astonishing. Notwithstanding the fact that there are satisfactory though squirrel-bitten Scots fir woods in the vicinity and that much of the ground is typical Scots fir ground - hard heather knolls etc. - comparatively little land is planted with this species.

   (B) Larch planting in heavy heather surely ought not to be done after one year's experience. The ground is exactly similar to Novar, parts of Beaufort and most of the Spey Valley. Experienced foresters like Mackenzie, Robertson and Brown would be amazed if they saw such land planted with larch without burning. In the gaps between the high heather larch can be seen flourishing, yet, as far as I can learn from the foremen, exactly the same mistake is going to be made on the neighbouring ground at Pluscarden.

(C) The drains are badly designed in the majority of cases and do not tap the water as it descends from the steep ground to the flats below. The drains are too narrow at the bottom and too steep in the sides.

(D) The compartments are too large - over 500 yards in length. It will be quite impossible to control vermin in these enormous blocks in three years' time. Indeed planting results are so bad that there will be a great deal of beating-up to do in the upper half of the ground. The Scots fir, Sitka and Douglas areas will form secure shelters for vermin from which rabbits, hares and roe will ruin the larch in the beating-up areas.

(E) I am not satisfied that the system of inspection is sufficient. I think it might be worth while finding out how often Mackay visits the district.

(F) I hear from the foremen that they propose to plant 2 year 2 year Scots fir and I also hear from amused local proprietors that our officers have been advocating planting 2 year 2 year Scots fir in preference to 2 year 1 year. (This may, but equally well may not be, a fact).

* Because our people do not burn the heather ahead of planting the fashio for big Scots fir appears to be creeping in. It is possible that this size plant may be necessary in certain districts but the experienced foresters of the north and east coast of Scotland, where the growth of herbage is slow and where the danger from heavy winds and droughts in spring is considerable, have long ago abandoned this size of plant.

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* (N.B. Autumn burning of heather)

I do not think that we can pretend that our planting efforts in the north and east have been such unqualified successes that we can abandon well established practices.

(G) The cleaning of larch has not been at all well done and I am very doubtful whether it is safe to open up the larch at this time of year to the extent they are doing. If there was a reasonable system of inspection and control it should be possible to clean the larch lightly in the heavy heather, but to lay bare these single stem plants which have been overlaid all through the summer seems very dangerous.

Do both Annand's district officers still live in Aberdeen ?

(sgd) LOVAT

31st October, 1924.

Monaughty

MONAUGHTY FOREST

QUARRYWOOD SECTION

S P Y N I E

Acres 5885·105

Quarry Wood

Oak Wood

River Lossie

200	29·5	P51
201	18·5	
202	41·0	
203	37·5	
204	27·0	P51
205	21·0	
206	33·5	
207	42·5	P51
208	27·0	
209	15·5	
210	32·0	
211	35·0	P51
212	30·0	P51
213	36·5	

Scale — Six Inches to One Statute Mile or 880 Feet to One Inch = 1/7920

10 Chains 5 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 Chains
40 Perches 20 | 0 | 40 | 80 | 120 | 160 | 200 | 240 | 280 | 320 Perches) 1 Mile

1000 Feet | 500 | 0 | 1000 | 2000 | 3000 | 4000 | 5000 | 5280 Feet
1 Furlong | 0 | ¼ | ½ | ¾ | 1 Mile

O.S.S. Elginshire VII S.W. & VII S.E.

MONAUGHTY FOREST BURGIE SECTION RAFFORD PH

Burgie Wood

Califer

Burgiehill

Tulloch Wood

Castlehill

Burgie Burn

Whitehill Burn

Scale 6 inches to One Statute Mile or 880 Feet to One Inch = 1/10560

O.S. Sheets Elginshire XI N.E., S.W., S.E., XVI N.E.

MONAUGHTY WOOD

SCALE

ft. 1000 500 0 1000 2000 3000 4000 5000 ft

TOTAL AREA 1520 ACRES
PLANTABLE AREA 1520 ACRES

MONAUGHTY WOOD

HELDON WOOD

Legend

Forest Boundary.
Compartment Boundary.
Compartment Nos Acreage.
Planting Year.
FWD Holdings
Land under D.O.A.S.
Public Roads
Existing Roads & Tracks.
Access Roads

LIBRARY
I.E.NO:
902 (410.7)
H.M. Forestry Commission

REF
R 9 / No 10