

AFFORESTATION IN THE MAZOWE VALLEY

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THE CENSUS OF 1904 records that there were over 137 000 gum trees (*Eucalyptus* spp.) in Zimbabwe.¹ In the Harare District, which at that time included the Mazowe valley, there were four plantations, each of over 1 000 trees; but it is almost certain that, apart from individual trees around European homesteads, none of these plantations were in the valley, as Nobbs did not refer to the subject in his detailed description of farming there in 1910.²

The Mazowe Valley is almost synonymous with the old Mazoe District, an administrative area comprising the entire basins of a series of more or less parallel rivers, flowing in a north-easterly direction from their source to their confluence with the Mazowe river. Commencing a few kilometres north of Harare, the valley extends for a distance of 130 km varying in width from 16 to 35 km where it straddles the Mazowe river. Tributaries on the left or north bank include the Tatagura, Garamapudzi, Wengi, Tsambe and Mufurudzi rivers. On the right or south bank are the Poti and Nyagui rivers, both draining large catchments, with the latter joined by the Umwindzi river arising close to the Harare city boundary.³

The topography of this irregularly shaped area of 7 000 km² is characterized by blocks of granite and ranges of steep rugged hills lying between the Mazowe river and its tributaries. These hills rise in places to 300 m or more above the adjacent valleys. The granite outcrops include Domboshawa in the south, Musorowodoni in the north-east and Kanyoto to the north in Chiweshe, all over 1 500 m in altitude. The Iron Mask range extends for 50 km to the south of Bindura, and its core of banded ironstone reappears as a ridge 30 km long south-east of Shamva. Five peaks between 1 400 m and 1 639 m high command spectacular views of the district, including the Mukore and Shashi hills on the north side of the river.⁴

¹ 'The Agricultural Census of 1904', *Rhodesia Agricultural Journal* (1904-5), II, 154.

² E. A. Nobbs, 'Farms and farming in Rhodesia, Mazoe District', *Rhodesia Agricultural Journal* (1910-11), VIII, 41-58.

³ Ibid; thirteen maps covering the Mazowe valley area on a scale of 1:50 000 derived from aerial photographs. Maps held in the Surveyor-General's Office.

1631C3	Banji	(1965)	1731A2	Bradley Institute	(1963)
1631C4	Mtepatapa	(1965)	1731B1	Bushu	(1969)
1631D3	Mount Darwin	(1969)	1731C1	Domboshawa	(1970)
1730B2	Umvukwes	(1969)	1731C2	Ewanrigg	(1970)
1730B4	Concession	(1969)	1731A3	Glendale	(1970)
1730D2	Mount Hampden	(1959)	1731A4	Bindura	(1970)
1731A1	Muchirakuenda	(1969)			

⁴ Nobbs, 'Farms and farming in Rhodesia, Mazoe District'; [Southern Rhodesia], *Official Year Book of Southern Rhodesia No. 4* (Salisbury, Central African Statistical Office, 1952), 750.

The rainfall declines from an annual average of over 900 mm in the west to under 700 mm in the east, being associated with the fall in altitude. In contrast, temperatures, evaporation and the length of the dry season increase in the lower reaches of the valley. There, late in the dry season, the combined effect of lower rainfall and higher temperatures is strikingly revealed in the almost leafless trees, while specimens of the same species further up the valley are larger and have produced a new flush of leaves. This musasa, munondo and mufuti woodland is more open in the lower altitudes, being partially replaced by thorn trees, and by mopane woodland below 900 m.⁵

Evidence of early occupation of the valley is provided by Bushman paintings dating from the Late Stone Age. The remains of iron-smelting works in the higher granite areas and ancient mine workings point to man's continuous occupation of the valley during the past 2 000 years. The valley, with its good land, abundant wood, water and shelter in defensible sites, provided the most advantageous place in which to live within an extensive region of the African continent.⁶

Photographs taken at the turn of the century show open, almost treeless, country in and around Harare, maintained deliberately or otherwise by regular annual veld fires during the dry winter months.⁷ Similar scenes may well have been typical of parts of the valley, particularly in the vicinity of vantage points and caves where the occupants required timber for firewood, stockades and rondavels, as well as grazing for their cattle, obtained by burning the veld. The first occupant of Komani farm, on the rim of the valley, is reputed to have sold it owing to the absence of potable water and enough wood to boil a kettle. In contrast, fine specimens of *Brachystegia* and *Julbernardia* were still to be seen in the 1950s on the Mazoe Citrus Estate, and these would have been near maturity in 1900.

The extent of deforestation at that time was almost certainly related to the local human and cattle population. Population figures were first recorded in 1901 in the administrative district of South Mazowe, whose poorly defined boundaries would appear to encompass some 300 000 ha.⁸ There were 25 villages, 8 847 inhabitants, 425 cattle, 1 847 goats, 161 sheep, and 3 670 acres (1 845 ha) were

⁵ J. M. Rattray, 'Vegetation types of Southern Rhodesia', *Kirkia: Journal of the Federal Herbarium* (1961-2), II, 68-93; J. M. Rattray and H. Wild, 'Vegetation map of the Federation of Rhodesia and Nyasaland', *ibid.*, 94-104 (map in end cover pocket); R. C. Hannington (comp.), *Mazoe Valley Agricultural Survey* (Salisbury, Department of Conservation and Extension, Planning Branch, 1972).

⁶ Thirteen maps in the Surveyor-General's Office — see fn. 3; D. Clark, 'Early man and the Stone Age', in W. V. Brelsford (ed.), *Handbook to the Federation of Rhodesia and Nyasaland* (Salisbury, Federal Information Dep., 1960), ch. iii, 39.

⁷ In the National Archives of Zimbabwe, Harare.

⁸ British South Africa Company, *Governments Gazette*, 20 Jan. 1899, Notice 13 of 1899, para C.

under cultivation.⁹ This implies a population density of only 2.9 persons per km². Five years earlier, before the Mashona War of Independence and the rinderpest cattle plague of 1896, both human and cattle numbers would undoubtedly have been larger than in 1901, with consequent demands on forest cover. The first forest officer was not appointed until 1920, so posterity has neither a botanical account nor specific evidence of the extent and density of tree cover in the valley during the first decade of this century.¹⁰ Indeed, his vegetation map of the country did not appear until 1931.¹¹

Further demands on the forest cover were made with the arrival, in 1890, of European prospectors and miners with their mechanical equipment.¹² This enabled them to re-open old African workings and commence new ones, which demanded ever-increasing supplies of wood, initially from the immediate vicinity of the mines and later from further afield. Felling indigenous timber, irrespective of who occupied the land, was permitted under the mining laws, except in the immediate vicinity of European dwellings.¹³ Not even rare specimens of trees were immune under the Forest and Herbage Preservation Act of 1859 for the 'Protection of Trees'.¹⁴

A measure of the rate at which trees were cleared off the land for cultivation during the first half of the century is the increasing acreage of crops. African cropland increased from 5 542 acres (2 242.81 ha) in 1904,¹⁵ to 43 300 acres (17 523.26 ha) in 1924,¹⁶ to 98 394 acres (39 819.50 ha) in 1938,¹⁷ doubling to 203 960 acres (82 541.48 ha) in 1946.¹⁸ On European farms the acreage rose from 2 180 acres (882.23 ha) in 1904¹⁹ to 93 478 acres (37 830 ha) in 1924,²⁰ to

⁹ [Southern Rhodesia] Rep[ort of the] C[hief] N[at]ive C[ommissioner], *Mashonaland, for the Year Ended 31st March, 1901* (Sess. Pap. 1901), 6.

¹⁰ H. Weinmann, *Agricultural Research and Development in Southern Rhodesia under the Rule of the British South Africa Company 1890-1923* (Salisbury, Univ. of Rhodesia, Dep. of Agriculture, Occasional Paper 4, 1972), 3.

¹¹ J. S. Henkel, 'Types of vegetation in Southern Rhodesia', *Proceedings and Transactions of the Rhodesia Scientific Association* (1930-1), XXX, 1-24.

¹² R. D. Franks, 'Jumbo Mine: A brief history', *Rhodesiana* (Mar. 1975), XXXII, 36-42.

¹³ *Official Year Book of Southern Rhodesia No. 4*, 363.

¹⁴ British South Africa Company, *Gov. Gazette*, 28 Aug. 1908, Notice 249 of 1908, 'Protection of Trees'. There was a fine not exceeding £100 under the Forest and Herbage Preservation Act of 1859 for cutting down the 'Wild Westeria', m'pakwa or m'poca, *Bolusanthus speciosus*, except for bona fide farming, mining or manufacturing purposes, *Rhodesia Agricultural Journal* (1909-10), VII, 998.

¹⁵ Rep. C. N. C., *Mashonaland, for the Year Ended 31st March 1904* (Sess. Pap. A. 17, 1904), 7.

¹⁶ Rep. C. N. C. [for the Year] 1924 (Sess. Pap. C.S.R. 7, 1925), 12.

¹⁷ Rep. C. N. C. and Sec[retary for] Native Aff[airs] 1938 (Sess. Pap. C.S.R. 20, 1939), 12.

¹⁸ Rep. Sec[retary for] Native Aff[airs], C. N. C., and Dir[ector of] Native Dev[elopment] 1946 (Sess. Pap. C.S.R. 48, 1947), 51.

¹⁹ 'The Agricultural Census of 1904', 154.

²⁰ A. B. Bell, 'Statistics of crops grown by Europeans in Southern Rhodesia for the season 1923-4', *Rhodesia Agricultural Journal* (1925), XXII, 11-22.

133 933 acres (54 201,94 ha) in 1949.²¹ The last figure did not include fallow land, probably at least twenty per cent of the cleared land, and neither did the 1946 figure for African lands. Thus by mid-century the total area of cleared land was about 361 000 acres (146 094,69 ha). In addition, as shown in the first aerial photographs taken in the early 1950s, large areas had been cut over for firewood, and to make way for huts and stockades and the activities of the mines.²²

Gum trees provided a good alternative to the indigenous timber with their more rapid growth, versatility and durability. Although their growth rate is curtailed at altitudes below 1 200 m with less than 76,2 cm of rainfall,²³ large old trees were to be seen in the valley in the 1950s in the vicinity of European homesteads. They would have been planted before 1914 when rectangular brick houses were being built in place of rondavels, and gardens enhanced with the planting of exotic trees for aesthetic purposes. The planting of gums in the valley to provide local sources of timber for building and firewood was carried out by both European farmers and Native Commissioners. Little is known about the early progress achieved by the former but the reports about plantings in the Reserves written by the Native Commissioners themselves and by forestry officers give detailed information upon which this article is based.²⁴

The Reserves, subsequently named Tribal Trust Lands and later Communal Lands, of which there were five in Mazowe, totalled 207 200 ha or approximately two-sevenths of the valley area. There is considerable variation in altitude, topography, soil types, rainfall, temperature, evaporation and vegetation both within and between these lands.²⁵ In the absence of man, all would have carried a relatively dense cover of woodland. The first recorded area to be planted by Native Commissioners on behalf of the government, and enlarged at irregular intervals, was in southern Chiweshe near the Rosa Mine. Reporting in 1931 the Native Commissioner, Mazoe, wrote that 'progress has been made in afforestation schemes and owing to the shortage of timber the result should be much appreciated by the Africans in Chiweshe in the course of time'.²⁶ In 1932 he wrote

²¹ Southern Rhodesia, *Fourth Rep. on the Agricultural and Pastoral Production of European Farmers 1949-50* (Salisbury, Central African Statistical Office, 1951), 56, Table III.

²² Aerial photographs from 1951 onwards, in the Surveyor-General's Office, Harare.

²³ Southern Rhodesia, *The Dev. of the Economic Resources of Southern Rhodesia with Particular Reference to the Role of African Agriculture: Rep. of the Advisory Committee*, John Phillips, John Hammond, L. H. Samuels and R. J. M. Swynnerton (Sess. Pap. C.S.R. 28, 1962), 287.

²⁴ [National] Arch[ives, Zimbabwe, Harare], S1563 [Chief Native Commissioner, Reports, Chief Native Commissioners and Native Commissioners, Annual Reports 1934-48], N. C., Mazoe, Ann. Rep., 1934; Ann. Rep., 1942; Ann. Rep., 1947.

²⁵ The Agricultural Development Authority, *Agro-Economic Survey of the Mazoe Area* (Salisbury, Gov. Printer, 1976), Maps of the Reserves (scale 1: 250 000), showing altitude, geology, rainfall, evaporation and dominant vegetation; for population see p.109, Table 39.

²⁶ Rep. C. N. C. 1931 (Sess. Pap. C.S.R. 7, 1932), 5.

that 'during February some additional four acres (1,61 ha) were planted to Eucalyptus'.²⁷ The Native Commissioner was probably prompted to commence this tree planting by the agriculturist E. D. Alvord who joined the Department of Native Affairs in 1927 and subsequently placed a demonstrator, Paulos by name, in Chiweshe, in 1933.²⁸

In 1934 there were 31 acres (12,54 ha) of eucalyptus and a further 4 acres (1,61 ha) were planted with 5 100 trees that year, making a total of 29 764 trees.²⁹ These figures imply a careful recording of a population of 1 275 trees per acre in the four-acre addition and 795 trees per acre in the older stand. Subsequent experience in the 1970s showed that this density of planting was excessive. On the Henderson Research Station, also in the valley, a population of 646 trees per acre (1 600 trees per ha at a spacing of 2,5 m) produced fine stands of timber under good management.³⁰

There was good rain for crop growth in 1931/2,³¹ followed by very poor rainfall in 1932/3,³² and drought towards the end of the 1934/5 season,³³ and so, presumably, there were casualties among the new plantings as well as among the older ones. It is not clear from the records whether it was the Native Commissioner, Mazoe, or Alvord who persevered, planting a further 15 000 trees during the 1936/7 season, of which C. Bullock, the Chief Native Commissioner, doubted 'if more than 5 000 survived'. Nevertheless, further patches of land were prepared and holes dug for many thousands of seedlings waiting for favourable weather when they could be planted. The work had been made possible with part of a grant of £5 880 from the African Trust Fund, of which Bullock was the Chairman, and he was confident that the money was well spent.³⁴ If further plantings took place between 1937 and 1939 they were not recorded, and there is no information for 1940. Nevertheless, the surviving trees from earlier plantings continued to grow. In 1941 J. S. Wilkins, the Forestry

²⁷ *Rep. C. N. C. 1932* (Sess. Pap. C.S.R. 9, 1933), 7. Incidentally, the Native Commissioner, on a visit to the Salvation Army Mission in Chiweshe, noted that 'specimens of native carpentry would be no disgrace to any European tradesmen', but unfortunately he did not record the type of wood being used, *ibid.*, 9.

²⁸ *Rep. C. N. C. 1927* (Sess. Pap. C.S.R. 18, 1928), 19, 20.

²⁹ *Natl Arch.*, S1563, N. C., Mazoe, *Ann. Rep.*, 1934, 6.

³⁰ R. E. Evans, 'The management of eucalypt plantations on Henderson Research Station', *Zimbabwe Agricultural Journal* (1982), LXXIX, 205-10.

³¹ Southern Rhodesia, *Ann. Rep. of the Maize Control Board for the Financial Year 1932/33* (Sess. Pap. C.S.R. 22, 1934), 1.

³² *Rep. C. N. C. 1933* (Sess. Pap. C.S.R. 9, 1934), 8.

³³ *Rep. C. N. C. 1935* (Sess. Pap. C.S.R. 7, 1936), 1.

³⁴ Southern Rhodesia, *The Native Reserves Trust Ann. Rep. for the Year Ending 31 March 1937*, 4.

Officer, reported that 317 poles were sold to Africans for the sum of £7 4s. 3d., and he 'understood that tree planting was undertaken during the past rainy season in ... Chiweshe'.³⁵

The details of two reports on Chiweshe in 1942 describing the removal of indigenous timber and the planting of gum trees merit quotation:

This Reserve was last visited in 1938, since when centralisation has been carried out, and in the Southern portion kraals have moved to permanent sites. The stocking of indigenous timber on the Southern portion of this Reserve is poor and there appears to be a slight shortage of timber to meet the fuel and timber requirements of the population. Plantations of Eucalypts established in the past have been cut over and the timber used for building purposes. Further afforestation is necessary and is being carried out in this portion of the Reserve. In the Northern portion ... which is hilly, the stocking of indigenous timber on the hills is good, but much timber is being removed from the areas of more level ground for cultivation ... In ... [Chiweshe] about five and a half acres [2,22 ha] were planted during the 1941/42 rainy season and an average stocking of about 50 per cent was attained. Total area of plantations in this District is now about 70 acres [28, 32 ha] ... [and] 878 poles [were bought by] Natives [for] £17 8s. 9d.³⁶

The Native Commissioner, Mazoe, also wrote at length:

Afforestation has continued during the year but the results were not as good as the previous year. There are many thousands of gum trees in Chiweshe ready for cutting. The new plantations put down in 1941 show an excellent stand. In the year under review 9 000 young trees were planted out in plantations and 2 084 were given to individuals. When aligning new villages, a strip is left for tree planting and it is hoped to have belts of trees in each village. At the present time I have a total of 50 acres [20,23 ha] in various plantations, but of those planted last year 4 acres [1,61 ha] were a complete failure owing to a drought at the critical time. In the coming year I am replanting these 4 acres, putting down a new plantation of 2 acres [0,8 ha] and filling up gaps in eight other acres [3,23 ha] put down in the past two years, and for this purpose I have already pricked out 10 000 seedlings into clay pots made in November. Many of these will also be given to individuals who want them. During the year 751 poles have been sold at a nominal price of three pence for a 4 inch [101 mm] butt, and six pence for a pole of over 4 inches to Natives for roofing poles, which is almost twice as many as last year.³⁷

The Native Commissioner, Mazoe, added, 'Hitherto most of the work in connection with reforestation has been done by the Demonstrators, but I have now been promised a trained Native forester and an urge forward is anticipated'.³⁸ If Paulos was still in charge of the work in 1942, he deserved further

³⁵ 'Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1941', in *Reps. Secr. Native Affs and C. N. C. 1941, 1942, 1943, 1944 and 1945* (Sess. Pap. C.S.R. 10, 1947), 46.

³⁶ 'Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1942', in *ibid.*, 98, 103, 105.

³⁷ Natl Arch., S1563, N. C., Mazoe, Ann. Rep., 1942, 7-8.

³⁸ *Ibid.*

commendation, for in addition to planting trees he would have been involved in Alvord's agricultural and community demonstration work which commenced in 1933.³⁹

The whereabouts of the 20 acres (8.1 ha) previously unaccounted for went unrecorded in 1942. Nor may we postulate the likely place, because other Reserves in the district were 'well wooded', as in Bushu,⁴⁰ or planting was not advocated by the Forestry Officer, as was the case in Masembura.⁴¹ This seems surprising because two nurseries had been started from which trees were to be distributed throughout the Reserves.⁴²

A trained African Forest Ranger was stationed in Chiweshe in 1943, and several visits were made by Wilkins to inspect the work and 'guide further development'; this included a new two-acre (0.8 ha) plantation, replanting in old ones, preparing 30 acres (12.14 ha) for additional planting and the distribution of seedlings in the Reserve; in 1943, revenue from the sale of 1 332 poles was £37 7s. 9d. (approximately 6d. per pole).⁴³

The advice given to the Assistant Native Commissioner for Bindura in 1942 was apparently shortly afterwards overruled, for in the following year a 'large number of Eucalypt seedlings were distributed' in Masembura. These, presumably, had been raised in the previous year in the two new nurseries referred to earlier. Also in 1943, 20 acres (8.09 ha) of ground in various parts of the Reserve had been prepared and were ready for planting.⁴⁴

The progress of afforestation in the valley during the years 1944 to 1946 went unrecorded in the Chief Native Commissioner's reports, nor is there any information about it in the National Archives. The 1946/7 season was, according to E. H. Beck, the Chief Native Commissioner, 'probably one of the worst drought years',⁴⁵ and it is, therefore, the more interesting to note progress in his report and in that of the Native Commissioner, Mazoe. Although it was a 'bad year for tree planting', improved planting was achieved by employing a few full-time labourers. There was a need to fence the plantations which were being damaged by stock, but material was not available for the purpose. Demand for gum poles exceeded supply so it was fortunate that regrowth was good after felling.⁴⁶

³⁹ *Rep. C. N. C. 1933*, 15.

⁴⁰ Natl Arch., S1563 N. C., Mazoe, Ann. Rep., 1942, 2.

⁴¹ *Ibid.*, 4.

⁴² *Ibid.*

⁴³ 'Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1943', in *Reps. Secr. Native Affs and C. N. C. 1941, 1942, 1943, 1944 and 1945*, 150, 157.

⁴⁴ *Ibid.*, 154.

⁴⁵ *Rep. Secr. Native Affs, C. N. C., and Dir. Native Dev. 1947* (Sess. Pap. C.S.R. 20, 1948), 70.

⁴⁶ Natl Arch., S1563, N. C., Mazoe, Ann. Rep., 1947, 5.

It is not clear who actually supervised the afforestation programme during these years, as Wilkins only made visits for inspection. The Native Commissioner was in the area all the time with a Forest Ranger. Alvord, however, had a total of ten staff in the district administering his resettlement scheme, as well as crop demonstration plots, livestock improvement, soil conservation and forestry (with its one demonstrator).⁴⁷ Possibly the Forest Ranger and Forest Demonstrator were one and the same person. Be that as it may, it was a creditable accomplishment to have twenty plantations on 106 acres (42,89 ha), augmented by four new ones on 18 acres (17,28 ha) established in 1947, together with nursery beds of gums and conifers for planting in 1948. Only 800 trees were felled for poles in 1947.⁴⁸

The report of the Assistant Native Commissioner for Bindura in 1947 is particularly informative. He estimated 'that 300 well-grown trees were required in the construction of a pole and dagga living hut'. By using sun-dried bricks instead of poles in the building of 1 135 new huts during the previous five years he calculated that 340 700 well-grown trees had been saved 'to the greater advantage of timber resources in the Reserve'. That year only two acres (0,8 ha) had been planted with gum seedlings which were an 'utter failure', owing to 'adverse climatic conditions', one acre having been replanted three times, but he was hopeful that 'future efforts will be more successful'.⁴⁹ Also in 1947 the new Conservator of Forests, A. A. Pardy, on visiting the whole district, noted that drought, lack of fencing and termites were the main drawbacks to establishing good stands. Surprisingly, this was the first occasion in the reports in which reference was made to termites, which severely attack seedling gums in the lower altitudes.⁵⁰

By the end of the 1947/8 season there were twenty-eight established gum plantations in Chiweshe covering 126 acres (50,99 ha), their exact whereabouts having gone unrecorded. The 2,5 acres (1,01 ha) of conifers was not increased because the Forestry Officer considered that eucalypts were by far the most suitable timber for Reserves. Seedlings had been pricked out in pots for planting a further ten acres (4,04 ha) in the following year.⁵¹ It was also a busy year for tree felling with a record output of 1 635 poles.⁵² In Masembura there were only ten acres (4,04 ha) of established plantations altogether, all showing a poor stand. A

⁴⁷ *Rep. Secr. Native Affs, C. N. C., and Dir. Native Affs 1947*, 73.

⁴⁸ *Ibid.*, 70.

⁴⁹ Natl Arch., S1563, Assistant N. C., Bindura, Ann. Rep., 1947, 3-5.

⁵⁰ *Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1947*, 47.

⁵¹ Natl Arch., S1563, N. C., Mazoe, Ann. Rep., 1948, 7-8.

⁵² *Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1948* (Sess. Pap. C.S.R. 27, 1949), 93.

further five acres (2,02 ha) had been ploughed, fenced and prepared for planting gum seedlings which had been pricked out in pots for the purpose.⁵³ In Bushu Reserve no afforestation work had been undertaken.⁵⁴

Seven years later, in 1955, the total area of government plantations in the valley had increased to 201,5 acres (81,54 ha). This included the establishment of new plantations in Msana, Bushu and Madziwa. One Forestry Demonstrator continued to serve the whole of the 194 acres (78,5) in Chiweshe, so it must be presumed that there was at least one other person to take care of the trees in Masembura and adjacent Msana and another in the Bushu and Madziwa Reserves. In Chiweshe the forestry area included eight acres (3,23 ha) of conifers which were a species of pine. An additional 41 acres (16,59 ha) of gums were being planted in 1956, making a total of 227 acres (91,86 ha).⁵⁵

Apparently this additional area of gums was not a success, for the plantation was only 186,3 acres (75,39 ha) in March 1957 when A. J. Barry, the Forestry Officer, provided the details in his three-page report presented to the Assessment Committee appointed under the Native Land Husbandry Act of 1951.⁵⁶ As shown in Table I there were five sites, with by far the largest one at Rosa of 143,7 acres (58,15 ha), including all the conifers; the other sites were widely distributed.

Table I

PLANTATIONS IN CHIWESHE IN MARCH 1957

Site	<i>Eucalyptus</i>		<i>Conifers</i>		Position in Chiweshe
	Acres	(ha)	Acres	(ha)	
Bari	5,6	(2,26)	—	—	Far north
Kanyemba	4,8	(1,94)	—	—	Far south-east
Manumanu	19,1	(7,72)	—	—	Not shown on maps
Rosa	136,0	(55,03)	7,7	(3,11)	South-central
Ruia	18,4	(7,44)	—	—	Not shown on maps
Shopo	2,4	(0,97)	—	—	Centre east
TOTAL	186,3	(75,36)	7,7	(3,11)	

⁵³ Natl Arch., S1563, N. C., Mazoe, Ann. Rep., 1948, 7-8.

⁵⁴ *Ibid.*

⁵⁵ 'Ann. Rep. Forestry in Native Reserves... 1956', in *Rep. Secr. Native Affs. C. N. C. and Dir. Native Dev. 1956* (Sess. Pap. C.S.R. 25, 1957), 114.

⁵⁶ A. J. Barry, 'Chiweshe Forestry Report' [Addendum to] 'Minutes to Meeting of Assessment Committee, Appointed by the Minister in Terms of Section 4 of the Native Land Husbandry Act for Chiweshe Reserve in the Mazoe District', Sept. 1957. Note 35,3 cubic feet = 1 cubic metre.

In contrast, an undated map of this period shows six plantations, all in the southern portion of Chiweshe, including one on the Howard Mission land.⁵⁷ Barry, however, failed to inspect all the plantation sites, but those that he did were 'doing well'. The Rosa plantation was subdivided into twenty-one different areas, and the species of gums were rather mixed, the seed having been collected locally. The conifers had not been pruned or thinned, and in some instances had double leaders. The growth of the trees was poor and the state of the plantation neglected when seen by the writer in March 1961. Obviously no fertilizer was being used and there was continued damage by cattle. This reflected indifferent management and care, although there had been a run of good seasons.

Barry provided figures showing the requirements for firewood by the local population and the production of timber in Chiweshe (Table II).

Table II
FIREWOOD REQUIREMENTS AND THE PRODUCTION
OF TIMBER IN CHIWESHE (1957)

Population	6 380 families
Consumption of firewood per family	400 cubic feet
Total consumption per annum	2 552 000 cubic feet
Estimated indigenous timber area	80 000 acres (32,37 ha)
Annual increment of timber	8 cubic feet per acre
Estimated annual volume available	640 000 cubic feet per acre
Annual deficiency of indigenous timber	1 912 000 cubic feet per acre
The existing gum plantations could be expected to yield	35 390 cubic feet per acre

Source: Barry, 'Chiweshe Forestry Report'.

The shortage of timber was serious, the more so as firewood was also being carried back to Harare by men who had been visiting their families at the weekend, although Barry failed to mention this fact. He noted that the southern section of Chiweshe was 'sparsely timbered' and the northern part was 'well timbered'; nevertheless he advised that the plantations should be extended in the latter. Chiweshe was not considered suitable for large-scale afforestation. He suggested small plantations for each village or group of villages, thereby providing local firewood, and that schools should be encouraged to establish plantations.⁵⁸

⁵⁷ Map of Chiweshe, undated, no name of publisher, obtained from the Native Commissioner's Office, Concession, in 1962.

⁵⁸ Barry, 'Chiweshe Forest Report'.

Subsequently, in the late 1970s, on Henderson Research Station — which is also in the valley, and has a similar total, although less erratic, rainfall to Chiweshe — good management of gum trees clearly demonstrated how a small area could provide for the needs of a large population. This scheme was based upon careful recording of production and consumption of wood over a five-year period. There, with a spacing of 2,5 m per tree, regularly fertilized and cut over on a rotation of seven to ten years, two trees, 12 m tall, provided for the annual needs for poles and firewood for one person.⁵⁹ Assuming five persons per family, the requirements of the population of Chiweshe in 1957 could have been met from a 43 ha plantation. Even allowing for casualties and fireguards, this figure was less than the 75 ha in existence in 1957.

In Bushu Reserve, afforestation commenced in 1953 after centralization. The Reserve was well timbered, particularly in the southern portion, but much of it was regrowth, and many of the trees were small in diameter. In 1955 the Assessment Committee noted that this indigenous timber 'should meet the local requirements for some time to come'. There were seven acres (2,83 ha) of gums, half *Eucalyptus rostrata* on sand veld near Chidanyika kraal, which within two years had 'done exceedingly well'. The balance of *E. saligna* had, 'apart from a small percentage of losses, due to white ants, also done well'. A further five acres (2,02 ha) of *E. saligna* were planted in 1954 when a member of the newly formed Forestry Commission visited Bushu. He estimated that the indigenous timber resource was 135 000 cords, based upon five cords per acre in the grazing area and one in the arable area. This implied that the arable areas were not clear-felled at the time. In 1955 more trees were planted in the vicinity of the community centre, with a very suitable site close-by for a nursery, being near the Mukonikoni dam. In addition to gums, small areas had been planted with *Callitris calcarat*, beefwood and jacaranda by way of an experiment. Willow trees had also been planted close to several dams, and although they started well, the results were disappointing. A further increase in the area of gums, recommended by the Forestry Officer, would, if achieved, have raised the total area to 62 acres (25,09 ha).⁶⁰

However, after 1956, when the area was only 7,5 acres (3,03 ha),⁶¹ there are no further references to afforestation projects in the Chief Native Commissioner's reports for Bushu, although those in Madziwa, in the same district, were

⁵⁹ Evans, 'The management of eucalypt plantations on Henderson Research Station'.

⁶⁰ 'Native Land Husbandry Act: Assessment Committee Report on Bushu Reserve: Shamva Sub-District 22 July 1955', 2, and [Addendum] 'Report on Bushu Reserve: Shamva Sub-District', 9, 11, 12. A cord is a unit volume of wood measuring 8 ft. long, 4 ft. wide and 4 ft. deep containing 128 cu. ft. (3 625 m³).

⁶¹ Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1956, 114.

recorded.⁶² Nor are the plantations to be seen on the maps of that period. Incidentally, some 200 fruit trees were established in a protected area where erosion was severe. They included mango, pawpaw, banana, guava, avocado pear, mulberry and citrus. Also, bananas were planted below the walls of earth dams where they were well established.⁶³

The year when afforestation was begun in Madziwa Reserve is not known, but it was probably in the early 1950s, because it was well timbered even in 1957.⁶⁴ Demonstration centres for crops had been established by Alvord in 1933,⁶⁵ followed by centralization in about 1950.⁶⁶ The estimated population density was only 42 persons per square mile (16,2 per km²) in the mid-1950s, compared with 101 persons per square mile (39,0 per km²) in Chiweshe and 82 persons per square mile (31,2 per km²) in Bushu.⁶⁷ In Madziwa in 1956 there were only 15 acres (6,07 ha) of planted trees, an area which was marginally increased to 17 acres (6,87 ha) through to 1959.⁶⁸ Subsequent Chief Native Commissioners' reports show no increase in area,⁶⁹ nor, as with Bushu, are the plantations shown on the 1:50 000 scale maps of the Surveyor-General. According to the Minutes of the Assessment Committee in 1957 the plantings were in more than one unit, so possibly they were too small to be shown on these maps.⁷⁰ The apparent abundance of indigenous trees led the Forestry Officer to believe that there was sufficient for the needs of the inhabitants and not to recommend areas for reservation. On both points the Committee agreed. Within a decade, however, when seen by the writer, much of the Reserve was almost treeless.

The year in which afforestation commenced in Msana Reserve, adjacent to

⁶² 'Minutes of Meeting of Assessment Committee, Appointed by the Minister in terms of Section 4 of the Native Land Husbandry Act, for Madziwa Reserve in the Shamva District', 11 Apr. 1957, 3.

⁶³ 'Native Land Husbandry Act: Assessment Committee Report on Bushu Reserve, Shamva Sub-District', 22 July 1955.

⁶⁴ 'Minutes of Meeting of Assessment Committee . . . for Madziwa Reserve in the Shamva District', 11 Apr. 1957, 3.

⁶⁵ *Rep. C. N. C. 1933*, 15.

⁶⁶ 'Minutes of Meeting of Assessment Committee . . . for Madziwa Reserve in the Shamva District', 11 Apr. 1957, 3.

⁶⁷ Population Estimates in Reports of Assessment Committee for Chiweshe (see fn. 56), Bushu (see fn. 60), and Madziwa (see fn. 62).

⁶⁸ *Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1956*, 113-14; *Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1957* (Sess. Pap. C.S.R. 11, 1958), 64; *Rep. Secr. Native Affs and C. N. C. 1958* (Sess. Pap. C.S.R. 25, 1959), 88; *Rep. Secr. Native Affs and C. N. C. 1959* (Sess. Pap. C.S.R. 18, 1960), 99, 105.

⁶⁹ *Rep. Secr. Native Affs and C. N. C. 1960* (Sess. Pap. C.S.R. 28, 1961), 83; *Rep. Secr. Native Affs and C. N. C. 1961* (Sess. Pap. C.S.R. 28, 1962), 79, 91, 92.

⁷⁰ 'Minutes of Meeting of Assessment Committee . . . for Madziwa Reserve in the Shamva District', 11 Apr. 1957, 3.

Masembura in the upper reaches of the Valley, is not known. Pardy visited it in 1947 and commented upon the adverse conditions affecting the establishment of trees.⁷¹ The poles which were subsequently sold in 1959 were probably from trees planted in the mid-1940s.⁷² In 1955 the officially-recorded area was 66 acres (26,7 ha)⁷³ but Barry, on visiting the Reserve in 1956, found approximately 64 acres (25,89 ha) distributed as follows:

	<i>Acres</i>	<i>(ha)</i>
Damusi	10	(4,04)
Nora	4	(1,62)
Nyava	30	(12,14)
Umvenzi	20	(8,09)

The gums were mainly *E. saligna*, the remainder being hybrids of this species. According to Barry, the Reserve was well timbered except in the Mpandira section, where he, together with the Land Development Officer, recommended the planting of ten acres (4,04 ha), which four months later was approved by the Assessment Committee.⁷⁴

Barry calculated that the area of indigenous timber with its annual increment of eight cu. ft. per acre, could just meet the requirements of the population in 1956, consuming 300 cu. ft. per family.⁷⁵ This figure of 300 cu. ft. (8,49m³) compared with 400 cu. ft. (11,3 m³) in Chiweshe a year later, shows that he had underestimated the family's needs for wood.⁷⁶ Consumption was exceeding production and the indigenous forests in the Reserve were beginning to be destroyed. The main Shamva-Harare road passes the eastern boundary of Msana, and gives ready access for men on weekend visits to their families to take firewood back to Harare, and this increased the felling of trees. Therefore, although the population in Msana was greater than in Bushu and less than in Chiweshe, being 76 persons per square mile (29 persons per km²), there was an ever-increasing demand for firewood, gathering momentum with the availability of transport in terms of bicycles, cars and even lorries.⁷⁷ In 1960, men came to buy the fruit of the

⁷¹ *Rep. Secr. Native Affs. C. N. C. and Dir. Native Dev. 1947*, 47-8, 70.

⁷² *Rep. Secr. Native Affs. C. N. C. 1959*, 105.

⁷³ *Rep. Secr. Native Affs. C. N. C. and Dir. Native Dev. 1956*, 113-14.

⁷⁴ Barry, 'Forestry Report: Msana Native Reserve' [Addendum to] 'Minutes of Meeting of Assessment Committee, Appointed by the Minister in Terms of Section 4 of the Native Land Husbandry Act for Msana Reserve in the Goromonzi District', 10 Nov. 1956.

⁷⁵ *Ibid.*

⁷⁶ Barry, 'Chiweshe Forestry Report'.

⁷⁷ Barry, 'Forestry Report: Msana Native Reserve'.

Parinari curatellifolia (muhacha or mobolo plum) at 1s. 6d. per bucket and undoubtedly collected some firewood at the same time.⁷⁸

The plantations were not fenced in 1956,⁷⁹ and were increased to 70 acres (28,32 ha) in 1959.⁸⁰ A further 6,9 acres (2,79 ha) were planted, increasing the area to 76,9 acres (31,12 ha) in 1960,⁸¹ at which it remained through to 1962.⁸² During 1961 the ground between the trees was cleaned and 274 poles were sold.⁸³ Six years later only one plantation, near Nyawa Township in Msana, is shown on the Surveyor-General's map (1731C2) which is dated 1970 and is based upon aerial photographs taken in 1967.

In Masembura, to which reference has already been made, plantations were increased to 34 acres (13,75 ha) of gums by 1955.⁸⁴ The area was raised to 40,8 acres (16,51 ha) in 1957,⁸⁵ and to 47,8 acres (19,34 ha) in 1959,⁸⁶ including 2,9 acres (1,17 ha) of softwood conifers in 1958.⁸⁷ Also in 1958, 40 oz. (1,13 kg) of hardwood seed (i.e. gums) and 10 oz. (283 g) of softwood seed were sown in the nursery, the 2,9 acres (1,17 ha) of maiden plantation were clean-weeded and three acres (1,21 ha) of ground were stumped and ploughed for planting.⁸⁸ A further four acres (1,61 ha) of trees were planted in 1960, and 12 oz. (340 g) of softwood seed was sown into the nursery.⁸⁹ In 1961 more hardwood and softwood seed was sown in the nursery, which contained 4 420 seedlings of which 1 234 were pricked out, presumably into small pots.⁹⁰ Normal maintenance of existing plantations continued, while in the following year one pine plantation was completely destroyed by fire, thereby reducing the afforested area to 48,3 acres (19,54 ha).⁹¹ Four of the plantations appear on the Surveyor-General's map (1731A4), which was published in 1970, being based upon aerial photographs taken in 1966.

In the Chief Native Commissioner's reports the figures for the production of poles from Masembura and Msana were grouped together. In 1958, 111 poles

⁷⁸ Rep. Secr. Native Affs and C. N. C. 1960, 83.

⁷⁹ Barry, 'Forestry Report: Msana Native Reserve'.

⁸⁰ Rep. Secr. Native Affs and C. N. C. 1959, 99.

⁸¹ Rep. Secr. Native Affs and C. N. C. 1960, 83.

⁸² Rep. Secr. Intern[al] Affs and C. N. C. 1962 (Sess. Pap. C.S.R. 27, 1963), 21, 86.

⁸³ Rep. Secr. Native Affs and C. N. C. 1961, 92.

⁸⁴ Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1956, 113 14.

⁸⁵ Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1957, 64.

⁸⁶ Rep. Secr. Native Affs and C. N. C. 1959, 99.

⁸⁷ Rep. Secr. Native Affs and C. N. C. 1958, 81.

⁸⁸ Ibid., 83-4.

⁸⁹ Rep. Secr. Native Affs and C. N. C. 1960, 83.

⁹⁰ Rep. Secr. Native Affs and C. N. C. 1961, 79.

⁹¹ Rep. Secr. Intern. Affs and C. N. C. 1962, 21.

comprising approximately 200 cu. ft. (5.66 m³) were sold, and in 1959, 1 057 poles realized £79 5s. 6d.⁹² In 1960, 416 poles sold for £31 5s.,⁹³ while in the following year 330 poles from Masembura plus 274 poles from Msana brought in £21 16s. 6d.⁹⁴

In Chiweshe, where Barry had recorded only 186.3 acres (75.39 ha) of gums in March 1957,⁹⁵ the Chief Native Commissioner reported a much higher figure of 235 acres (95.10 ha) plus 52 acres (21.04 ha) of new plantings in that year.⁹⁶ By the end of 1959, however, the total area, including 7.7 acres (3.11 ha) of conifers, had fallen to 216.2 acres (87.49 ha).⁹⁷ The sales of poles in the years 1959-61 are shown in Table III. The marked difference in price suggests that large poles were sold in 1960. The 4 254 poles sold in 1961 were further quantified as 2,986 cu. ft. (84.55 m³), or just under 23 cords.⁹⁸

Table III
SALE OF POLES 1959-1961

	<i>Number</i>	<i>Amount</i>	<i>Pence per pole</i>
1959	3 450	£133 8s. 8d.	9.28
1960	2 138	£153 19s. 3d.	17.28
1961	4 254	£164 4s. 4d.	9.26

Source: Rep. Secr. Native Affs, 1959, 105; Rep. Secr. Native Affs, 1960, 83; Rep. Secr. Native Affs, 1961, 92.

During that year the area remained at 216.2 acres (87.49 ha), while twelve acres (4.85 ha) of gums were clear felled, being ten years old, and three acres (1.21 ha) were coppiced, restricting two stems to each stump; also the nursery issued 2 120 gum and 1 037 *Callitris* seedlings to farmers.⁹⁹ There was no planting in 1962. The Surveyor-General's maps of Chiweshe in the 1960s (1730B2, 1731A1) printed in 1969 (compiled by stereoplotter from aerial photographs taken in 1966) show three plantations: Rosa, Chenema and Howard. Rosa was the oldest and largest government plantation in the valley, situated on the north bank of the

⁹² *Rep. Secr. Native Affs and C. N. C. 1958, 88.*

⁹³ *Rep. Secr. Native Affs and C. N. C. 1960, 83.*

⁹⁴ *Rep. Secr. Native Affs and C. N. C. 1961, 92.*

⁹⁵ Barry, 'Chiweshe Forest Report'.

⁹⁶ *Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1957, 64.*

⁹⁷ *Rep. Secr. Native Affs and C. N. C. 1959, 99.*

⁹⁸ *Rep. Secr. Native Affs and C. N. C. 1961, 92.*

⁹⁹ *Ibid.*, 79, 91.

Mutorandundu river, north of Rosa township. It is not known when the trees south-east of Chenema were planted. Gums at the Howard Institute would have been planted by the Salvation Army whose records in London have been destroyed.

DISCUSSION

At the end of the short period of three decades government plantations in the Reserves in the Valley were as shown in Table IV. Only in three Reserves,

Table IV

GOVERNMENT PLANTATIONS IN THE MAZOWE VALLEY (1970)

	<i>Acres</i>	<i>(ha)</i>
Bushu	7,5	(3,03)
Chiweshe	216,2	(87,49)
Madziwa	17,0	(6,87)
Masembura	48,3	(19,54)
Msana	76,9	(31,12)
TOTAL	365,9	(148,05)

Chiweshe, Masembura, and Msana, were the plantations large enough in area to be readily observed on the aerial photographs transcribed on to maps at a scale of 1:50 000. Clearly, government afforestation in the Reserves was not a success; indeed it was all but a failure.

There would appear to be a number of reasons for this near failure. First and foremost, afforestation in the Reserves in the Mazowe valley commenced shortly after the onset of the Great Depression, when funds for development were drastically curtailed. Severe restrictions continued through the period of the Second World War (1939-45), so that it was only in the late 1940s that intensive expansion could take place.

During the initial period the African population was also preoccupied with the restrictions of the Maize Control Act, the fall in commodity prices and with even having to barter their crops for goods instead of selling them for cash. These events did not endear the people to the other activities of government. Destruction of its trees appears not to have taken place in so far as the subject did not surface in official reports. Trees planted in 1941 around the new villages erected under Alvord's centralization plan could readily be tended and protected by the

headmen, who were possibly encouraged to do so by his (Alvord's) staff.¹⁰⁰ This would appear to have been the case in Rosa Township in Chiweshe, where the presence of large gums is shown on the map (1731A1) based upon aerial photographs taken in 1966.

The views of chiefs and headmen about planting exotic trees in their Reserves went unrecorded in official reports until 1955. Then they were reported as concurring with the opinion expressed by members of the administration. At the same time there was mounting opposition to the application of the Land Husbandry Act, which restricted the chiefs' power, so that planting trees was a minor matter and accordingly they gave their approval.

In terms of husbandry, soils at all the sites were inherently infertile and, therefore, seedling trees should have received an application of fertilizer. This was not done because research had not preceded or accompanied planting in the field. Artificial fertilizers, moreover, were relatively expensive and were not applied even to cash crops until the 1950s, and then only by some Master Farmers.¹⁰¹ Enclosing the plantings with fencing to keep out the cattle and goats was not done, again owing to expense, until late in the period when it was seen only around the Rosa site in Chiweshe. It can be inferred from Barry's comments in 1957 that selected seed was not used. Elimination of white ants was never possible in the absence of a cheap and reliable insecticide; nests, however, could have been dug out in and around the plantations. All this indicates the scarcity of funds and the absence of good management.

On the administrative side, the Native Commissioner, Mazoe, and the Chief Native Commissioner appeared to be unaware of the possible services of Dr J. S. Henkel and his forestry department which had a nursery and sylviculture experiment station in Harare dating from 1912.¹⁰² Pardy, Henkel's successor, first appeared in the reports for 1947. The Native Affairs Department, however, was a law unto itself and could look to its own staff, led by Alvord, for advice. He demonstrated the value of the use of kraal manure with crops but this was not available for planting trees. If Alvord had used artificial fertilizer experimentally, he would have recorded the fact, for he was not a man to hide his light under a bushel. Later, in the early 1950s, it may have been used, but certainly not outside the nurseries. It is unlikely that Alvord and Pardy were unaware of the importance of using selected seed in the nurseries during the period when varieties

¹⁰⁰ 'Rep. Secr. Native Affs, C. N. C. and Dir. Native Dev. 1941', in *Reps. Secr. Native Affs and C. N. C. 1941, 1942, 1943, 1944 and 1945*, 35.

¹⁰¹ P. Hamilton, 'Population pressure and land use in Chiweshe reserve', *Human Problems in Central Africa: Rhodes-Livingstone Journal* (Dec. 1964), XXXVI, 55.

¹⁰² Weinmann, *Agricultural Research and Development in Southern Rhodesia under the Rule of the British South Africa Company*, 3.

of tobacco, cotton, maize and wheat were the subject of research and experimental use in agriculture.¹⁰³

Finally, it is important to point out that in the early days all concerned were pioneers in planting exotic trees in the Reserves. It is to their credit that trees were planted.

Postscript

The writer held the view that every farm should possess a small plantation from which poles and firewood could be drawn. Accordingly, he obtained the advice of the Forestry Commission when developing the University College Farm, which was situated above the Mazowe dam, during the period 1956 to 1971.¹⁰⁴ Selected seedlings of *Eucalyptus* and *Callitris* were planted. The latter on sandveld were a failure. The former on poor Tatagura soils were a success under the care of Philemon Jambeya. By 1979 many trees exceeded 10–11 m in height. Abandonment of the farm by the University prevented the collection of data on yields.

¹⁰³ H. Weinmann, *Agricultural Research and Development in Southern Rhodesia 1924–1950* (Salisbury, Univ. of Rhodesia, Science Occasional Paper 2, 1975), 19, 51, 63, 85.

¹⁰⁴ A. G. Davis, *The University College Farm in the Agriculture of Rhodesia and Nyasaland: An Inaugural Lecture Given in the University College of Rhodesia and Nyasaland* (London, Oxford Univ. Press, 1966).