PERTH DISTRICT
FIRE 28 - 7/1/96

DEPARTMENT OF CONSERVATION and LAND MANAGEMENT
- 5 SEP 1997
CALMfire BUNBURY

G.J. NAPIER

502104

DEPARTMENT OF ENVIRONMENT
AND CONSERVATION
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SUMMARY

It can be seen clearly by the information presented in this report that in blow up fires, the relationship between ability to control/suppress the fire is directly linked to the fuel age/loadings in the path of the fire run.

Although I am stating the obvious, I wish to offer this information as a support to fuel reduction argument for large plantation areas.

If we are forced (for whatever reason) into a situation of non fuel reduction, then we can expect that when a fire occurs, it will be more severe, more difficult to suppress and more costly to suppress.

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P28 FIRE AREA 7/1/96

NEEDLEBED OPEN & UNTHINNED SITES 6 t/ha av.

NEEDLEBED OPEN & UNTHINNED SITES 12 t/ha av.

LOGGING SLASH 20-30 t/ha av.

- OLD NURSERY SITE (GRASS INVASION)

- PHOTO SITE

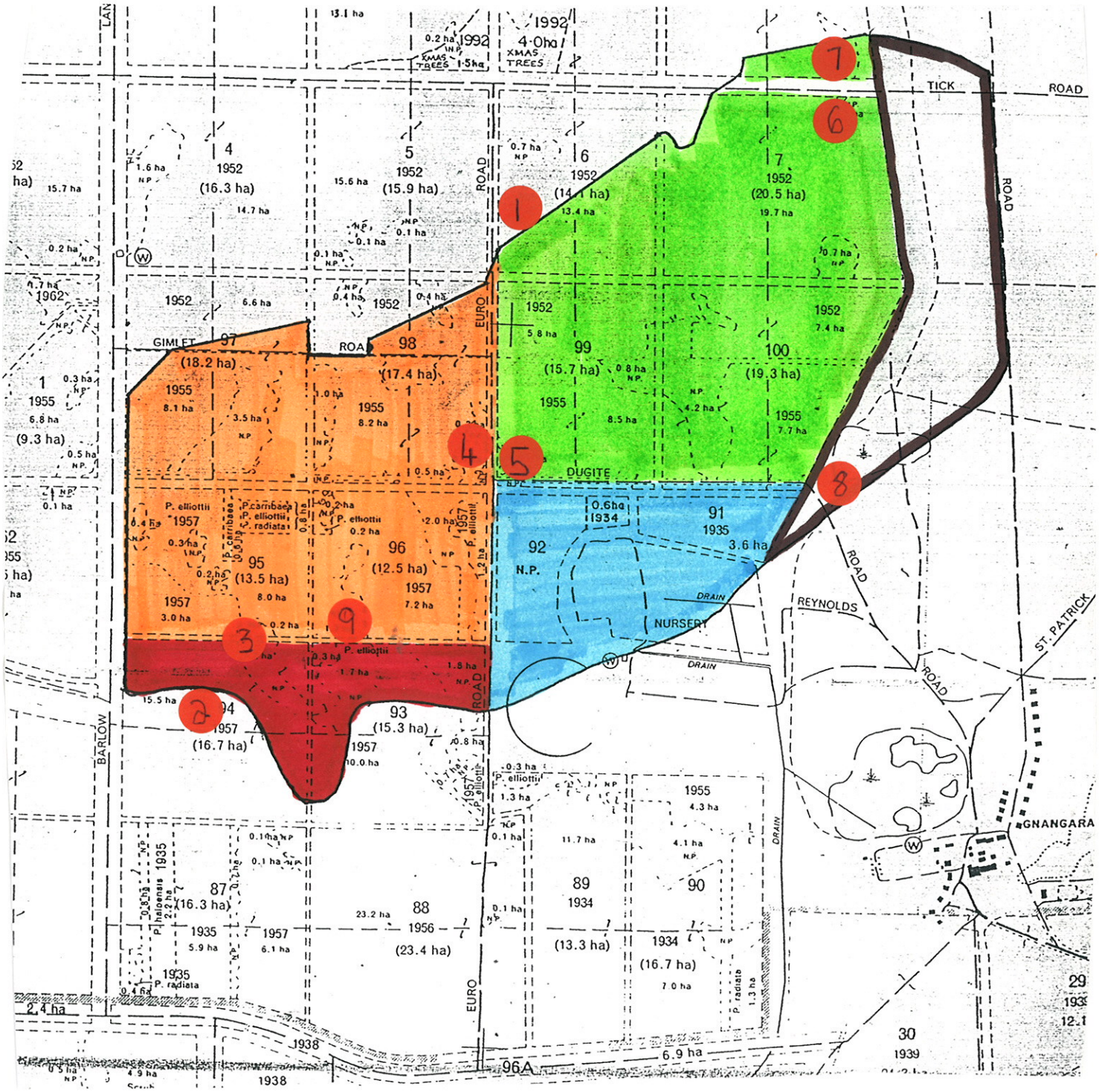

PHOTO - Site No.1

Planted 1952	1st thinning	6/72	250 spha
	2nd thinning	6/82	100 spha
	3rd thinning	12/91	75 spha

Last burnt - winter 1995

Fuel loading at time of fire 6 t/ha.

Comments

These photos reflect the overall area shaded green.

Fuels were light and when the fire ran into these fuels, the fire activity was drastically reduced compared with the fuels west of Euro Road.

Direct attack would have been possible here, with the flame height av. 3m.

PHOTO - Site No.2

Planted 1957 1st thinning 6/94 300 spha

Last burnt - winter 1995. Very patchy burn/ no real value in this situation.

Fuel loading at time of fire 20-30 t/ha.

Comments

Fire was burning south under the influence of a strong northerly wind.

The fire had crowned through Comp. 95 moving at a rate of 400 m/hr approx.

It was spotting into Comp. 94; however the SW wind was starting to influence the area.

When burning on the SW wind, the flame height in these fuels was 5m av. and very hot.

PHOTO - Site No.3

Planted 1957	1st thinning	1980	250 spha
	2nd thinning	6/87	100 spha

Last burnt - winter 1994

Fuel loading at time of fire 12-20 t/ha.

Comments

Fire was burning under the influence of the SW wind.

The fire behaviour was intense and there were isolated pockets of crown fire.

Direct attack was not an option and at this stage we were often retreating in front of the fire while establishing a parallel attack with machines and water.


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PHOTO - Site No.4

Planted 1955	1st thinning	12/80	250 spha
	2nd thinning	6/87	100 spha

Last burnt - 1991/92

Fuel loading at time of fire 12-20 t/ha.

Comments

As the photos show, the fire behaviour was intense with flame heights up to 30m but an average of 15m.

Once again there was some crown fire adjacent to Euro Road. Fire front was approx. 250m wide.

Direct attack was attempted but failed as fire rolled over us at 400-500 m/hr.

PHOTO - Site No.5

Planted 1955 Unthinned 2.1 m x 2.1 m

Last burnt - winter 1995

Comments

Although burnt in 1995 there was a needlebed fuel at approximately 6-8 t/ha.

Once the fire entered this area it was difficult to contain because of restricted access.

The flame height was 3 m av. and moved at about 300 m/hr.

PHOTO - Sites No.6 & No.7

Planted 1952	1st thinning	6/72	250 spha
	2nd thinning	12/82	100 spha
	3rd thinning	12/91	75 spha

Last burnt - winter 1995.

Fuel loading at time of fire 6 t/ha.

Comments

As can be seen in these photos, the trees were not killed by the fire.

The scorch height, if accepted at 5-7 times flame height, indicates once more that av. flame height was 3-4 m.

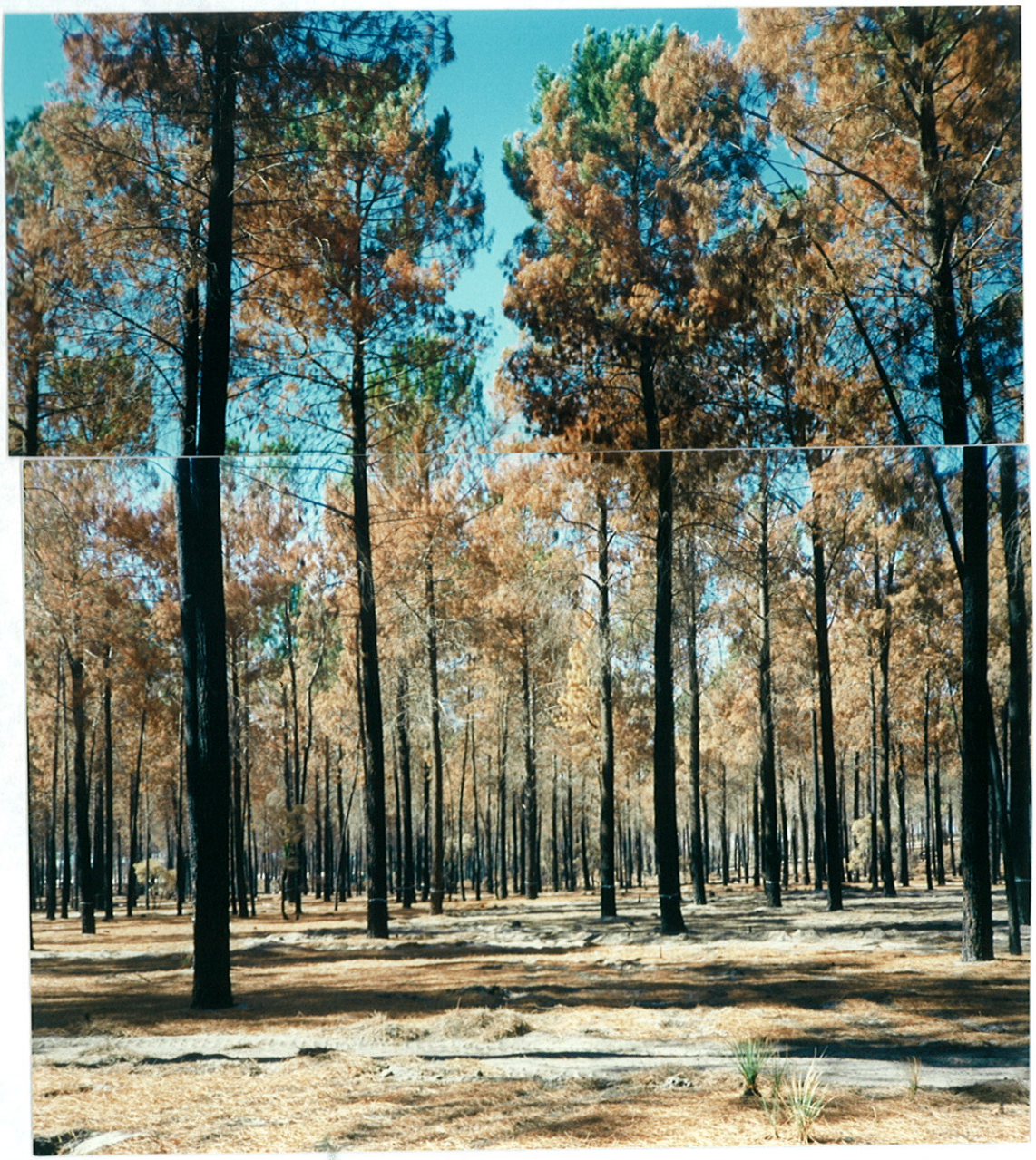


PHOTO - Site No.8

Banksia - 6 yo (Swamp Area)

Fuel loading at time of fire - 10 t/ha.

Comments

Fire hopped over Dugite Road out of Nursery area, and into swamp.

It was travelling at about 600-700 m/hr through this area.


8

PHOTO - Site No.9

The end result of such a fire is evident in these photos.

Post fire logging creates a mat of Red Tops 30 t/ha + over a large area creating a potential fire risk in the worst possible fuels.

CALM*fire* REPORT

A/DIRECTOR REGIONAL SERVICES

P28 SUNDAY 7 JANUARY 1996

A debrief of fire P28 was conducted on Tuesday 9 January 1996. Those attending were Alan Briggs, John McKenzie, Greg Napier, Mike Cantelo, Clayton Sanders, Brian Inglis, Bruce Harvey and Drew Haswell.

The fire was reported at 06.30 hours in Compartment 97 (Gnangara Plantation) and started from a deliberately lit stolen vehicle. Three heavy duties and the Case FEL were immediately despatched and a further unit was sent when Controller Brian Inglis arrived at the fire at 07.00 hours. At that stage the fire was three hectares and was quickly contained by a mineral earth break and declared safe by 08.30 hours.

At 08.50 hours (28.6°C) overnight sleepers began to appear and quickly develop outside established firebreaks. The Case FEL continued to contain these outbreaks but overheated at 09.45 hours and could be no longer used for the duration of the fire. Greg Napier assumed the role of Controller. A replacement contract FEL was immediately engaged and arrived by 12.00 hours. In addition to CALM Perth's then 5 heavy duties and 3 fast attacks Swan Shire had 3 fast attacks at the incident. Shortly after 12.00 hours more resources were requested and an officer and heavy duty despatched from Mundaring District. Two more FELs were ordered and arrived at 14.31 hours and 15.20 hours. Two D7's were ordered and arrived at 15.20 hours. The Fire and Rescue Service (FRS) were in attendance by 13.00 hours at which time 2 more officers and heavy duties were sent from Mundaring and the Communications Van from Kelmscott.

Sectorisation of P28 was determined and resourced by 12.30 hours. At 13.25 hours the Incident Control structure was in place with Shire and FRS representatives in the multi-agency control structure. The Incident Control Team comprised John McKenzie (Controller), Alan Briggs (Planning), Greg Napier (Operations) and Glen Tunstead, Swan Shire (Logistics). The Team was supported by Divisional Commanders Clayton Sanders, Brian Inglis and Alan Higgins (FRS). The State Emergency Service undertook the provision of all meals. The Swan Communications Van was used at the Control Point with the CALM Communications Van used later in fire suppression. The CALM LFO caravan arrived late at the fire from Dwellingup because a contract towing truck needed to be hired, it broke down on route and missed the turn-off to the control point.

During the morning fire control proved very difficult due to changes in headfire direction caused by wind shifts from the NE to the NW and the rapid development of sleepers into serious fires. By 13.00 hours vector winds had been replaced with the more predictable sea-breeze thus allowing fire suppression strategies to direct the fire towards fuel reduced areas outside the plantation. The headfire was eventually secured at 17.45 hours in one year old banksia woodland.

Final fire size was 202 hectares of which 128 hectares occurred in predominantly P52 (44 years old) P pinaster plantation. Much of the burnt plantation comprised unthinned stands of marginal site quality which will be salvaged for MDF chipwood. The remaining thinned stands contain S4 quality sawlogs and these areas will be roaded and salvaged as soon as possible. Timber harvesting will require on-going fire management for the remainder of the fire season as tree crowns progressively dry out. The remaining 74 hectares of native bushland comprised banksia woodland and melaleuca swamps the latter burning very fiercely. E globulus and dieback resistant E marginata seed orchards were also damaged in the fire.

Discussion

The failure of the Case FEL to meet prescribed fire suppression standards was the fundamental reason for P28's development, severity, cost of suppression and loss of plantation resources. I have attached other examples where the Case FEL was used this summer and failed to undertake routine clearing and fire suppression tasks.

Perth District consider the machine inadequate because it overheats, has poor clearance and accumulates fire hazards on the exhaust and turbocharger. Engineering Services advise that differential clearance is the same as the Cat 930s but that the departure angle behind the rear wheels is lower. While the top ventilation panels have been a source of contamination in the engine compartment these have been covered and replaced with side panels to improve the blowing of ash and debris free air through the radiator. I have therefore concluded that the principal problem is overheating and that the Perth (unlike the identical Harvey machine) appears to have a defective cooling system.

Case are now addressing the problem and have cleaned out the cooling system and are moving the fan closer to the radiator. When modified the machine will return to Perth District at no cost for testing over the next 2 weeks. Should it further fail under operational conditions a larger cooling system will be installed. During these periods Perth District will have a back-up FEL on standbye for plantation fire suppression.

It was argued that regional suppression resources requested after 09.45 hours were not brought in earlier enough relative to the fire's detection at 06.30 hours. I have discounted this as a major contributory cause because (i) the fire was suppressed at 08.30 hours and (ii) resourced (ie. 4 heavy duties, FEL) at levels sufficient to suppress a 3 hectare plantation fire. They were however insufficient when fire behaviour escalated after 09.00 hours and the Case FEL became unserviceable shortly afterwards. This made early fire suppression reliant on the Perth's 5 heavy duties and 3 fast attacks until the arrival of alternative resources from Swan Brigades (12.00 hours) the FRS (13.00 hours), Mundaring District (15.00 hours) and contract machines (12.00-15.00 hours).

Again it was argued that the appraisal of overnight sleeper fires should have been made earlier. These are very difficult to detect until they become active. The tried and proven method used by Perth District suppression crews is to continue surrounding the initial firebreak with 50 metre concentric firelines until sleepers emerge and can be readily suppressed with fast attacks. Again this strategy failed because the Case FEL could not continue with this work after 09.45 hours. Without access the 4 heavy duties present were inadequate to suppress all rapidly developing sleeper fires.

A contributory cause in P28's severity was the inability of suppression crews to access unthinned pinaster stands for more direct attack. While this is not a significant concern in Gnangara large areas and cells of unthinned stands exist at Pinjar. Strategic fire protection in these areas presently involves prescribed burning, fire break and other fuel management strategies. There is also a need to integrate them with timber harvesting so as to optimise the distribution of thinned plantation cells for effective fire suppression that is complementary to the existing strategic protection system.

The Incident Control System proved effective in its management of the fire suppression effort. The only issue of note was the provision of food by the SES which amounted to hamburgers for all meals. The provision of CALM standard meals requires discussion and agreement with the SES and other local providers. While it is recognised that Perth District have well established arrangements for meals this should include the use of CALM's catering facility particularly at multiple shift fires.

RECOMMENDATIONS

1. That the Case Front End Loader be trialed for two weeks at Perth District after cooling system improvements are made by the manufacturer.

2. That should the Case Front End Loader continue to have cooling problems Engineering Services install a larger or more efficient cooling system.

3. That during the Case Front End Loader trials Engineering Services pay for all depreciation and running charges.

4. That during the trials Perth District hire an alternative front end loader for plantation fire standbye and suppression.

5. That the Plantations Business Group continue planning integrated timber harvesting with CALM*fire* to ensure optimum break-up of unthinned stands that meet fire suppression standards and objectives.

6. That CALM maximise the use of the CALM Communications Van at all fires.

7. That research appraise fire damage to E globulus and E marginata seed orchard.

8. That Swan Region evaluate and implement improved access to the LFO caravan.

9. That Swan Region confirm with food providers the type and standard of meals for firefighters and include the use of the CALM catering facility at long running fires.

Drew Haswell

Drew Haswell
A/MANAGER
CALM*fire*
17 January 1996

Distribution

A/Manager Swan Region
Manager Perth District
Manager Plantations Business Group
Manager Engineering Services
Director Science and Information

PERTH DISTRICT CASE 621B FRONT END LOADER

Nisa Road fire break maintenance during daylight hours engine cooling system and transmission overheated.

Centreway Road control burn/firebreak construction evening operation engine cooling system and transmission overheated.

6.12.95 P15 fire suppression evening operation at 21.00 hours engine cooling system and transmission overheated.

Meadowlands Estate firebreak construction in daylight hours engine cooling system and transmission overheated.

7.1.96 P28 daylight hours fire suppression machine overheated and could not perform fire suppression task. This proved to be one of the major contributing factors to the failure of initial fire suppression.

REVISED 10/1/96

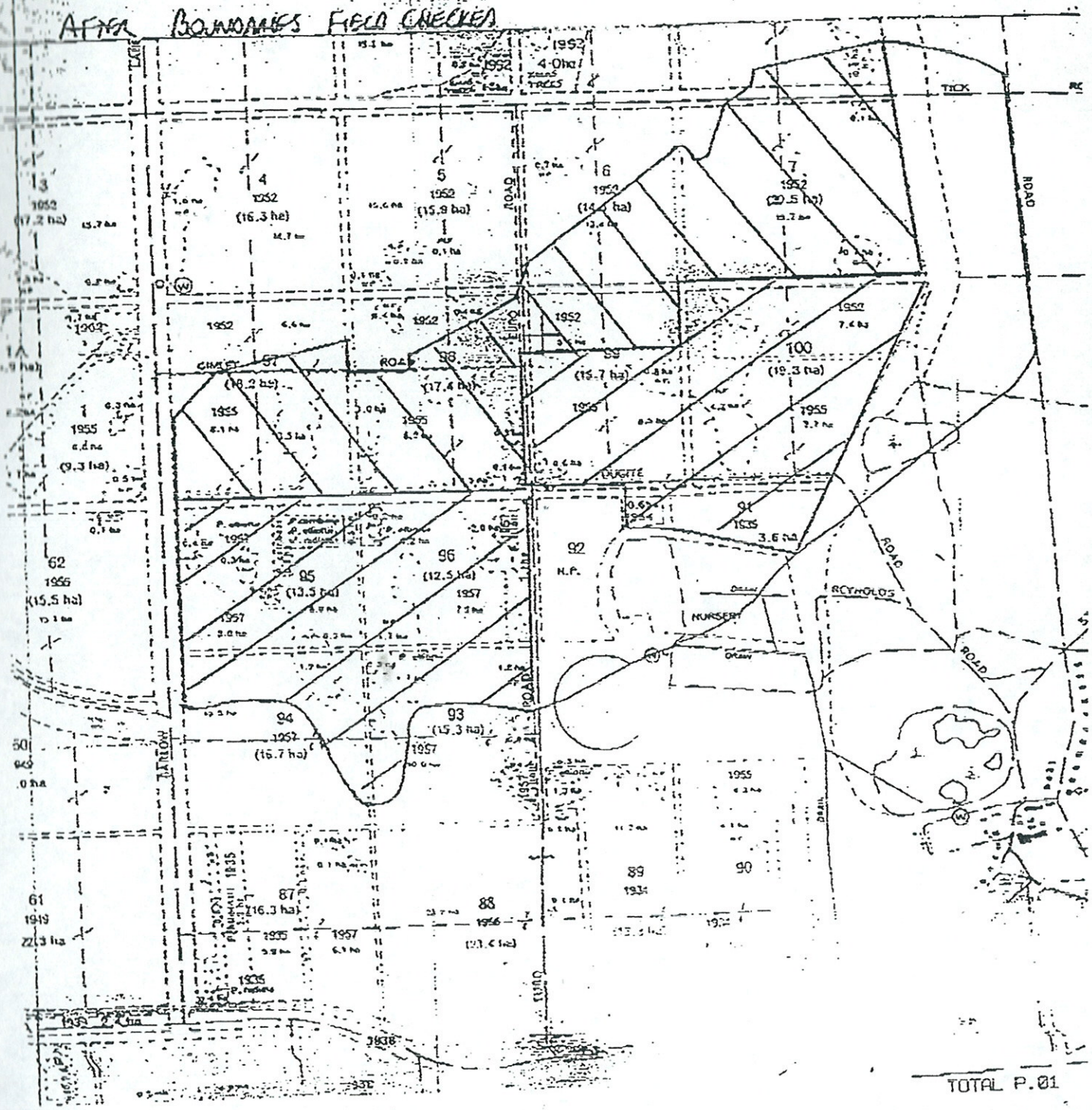
FIRE 28

TOTAL PINE AREA BURNT (NET) = 107.45 HA

TOTAL SAWLOG 50.5 HA

TOTAL CHIP 56.95 HA.

AFTER BOUNDARIES FIELD CHECKED



TOTAL P.01