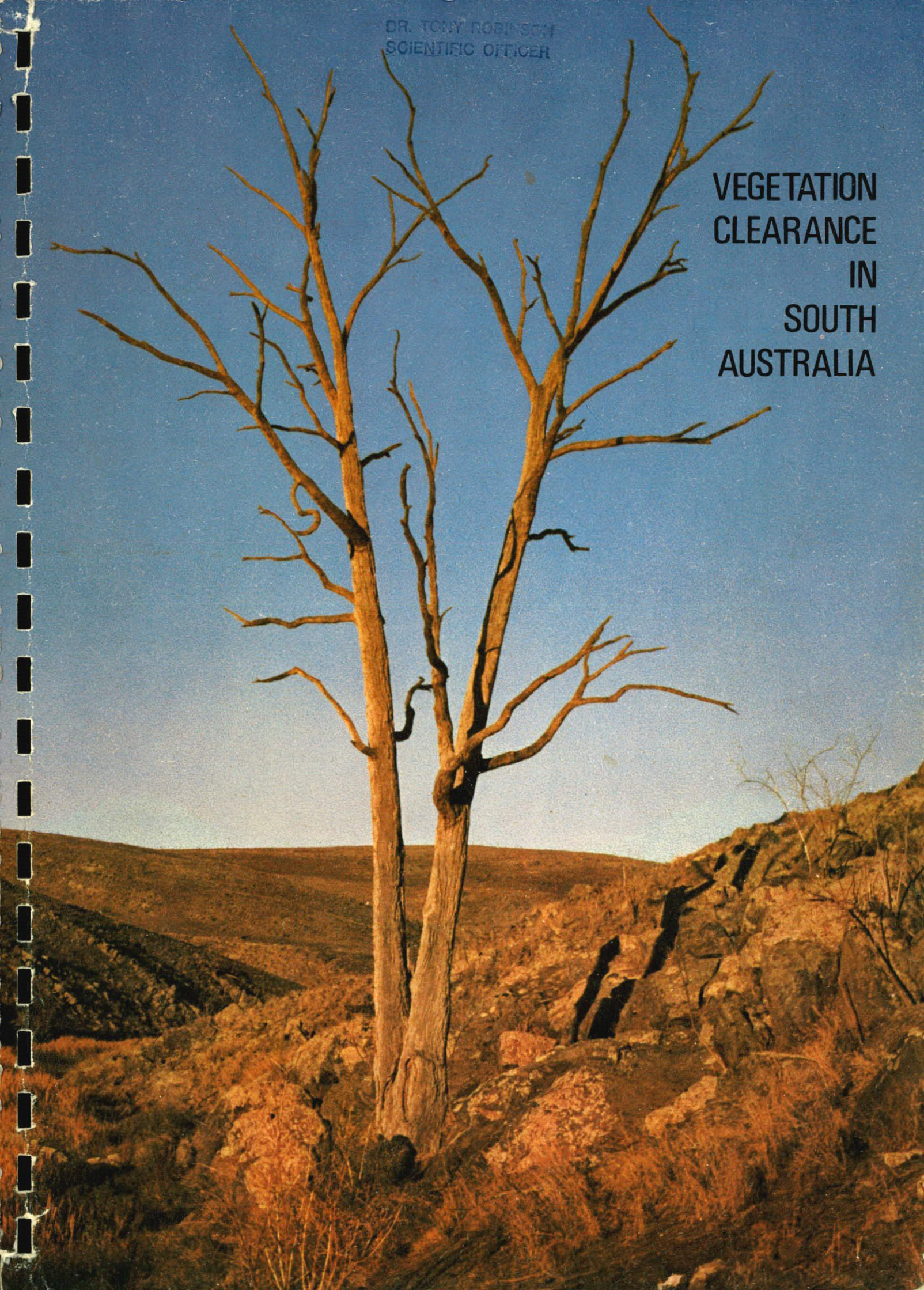


# VEGETATION CLEARANCE IN SOUTH AUSTRALIA

# VEGETATION CLEARANCE IN SOUTH AUSTRALIA

Report
of the
Interdepartmental
Committee
on
Vegetation
Clearance

October 1976

This report has been released by the Minister for the Environment in the hope that it will generate wide public discussion and comment.

Written submissions dealing with the report and matters raised by it are welcome and should be addressed to:

The Permanent Head,
Department for the Environment,
Box 667,
ADELAIDE, S.A. 5000

Submissions should reach the above no later than 31st August, 1977.

# THE INTERDEPARTMENTAL COMMITTEE ON VEGETATION CLEARANCE IN SOUTH AUSTRALIA

*Chairman*

Mr Colin R.Harris, M.A., Dip.Ed., Dip.T., Environmental Officer, Environment Division, Department for the Environment.

*Members*

Mr J.A.Beare, B.Ag.Sc., Chief Soils Officer, Soil Conservation Branch, Department of Agriculture.

Mr N.B.Lewis, B.Sc., Dip.For.(Canb.) Dip.For.(Oxon.), F.I.F.A., Chief, Forest Management Division, Woods and Forest Department (replacing as from 29 January 1975 Mr V.M.Healy, B.Sc., Dip.For.(Canb.), Assistant Conservator, Woods and Forests Department). While absent overseas in 1976 Mr Lewis was represented by Mr D.R.Douglas, B.Sc., Dip.For.(Canb.), Dip.For.(Oxon.), F.I.F.A., Assistant Chief, Forest Management Division, Woods and Forests Department.

Mr G.P.Roe, B.Ag.Sc., R.D.A., A.C.I.V., Assistant Director of Lands, Department of Lands.

*Secretary*

Mr C.K.Toohey (until 29 January 1975).
Mr T.D.Frewin (until 28 May 1975).
Mr A.T.H.Dendy, B.App.Sc. (Ecol.), N.C.A., (from 28 May 1975)

CONTENTS

# THE INTERDEPARTMENTAL COMMITTEE ON VEGETATION CLEARANCE IN SOUTH AUSTRALIA

## TERMS OF REFERENCE

CHAPTER 2



CHAPTER 3

# TERMS OF REFERENCE

On 15 July 1974, Cabinet approved the formation of an Inter-departmental Committee on Vegetation Clearance with terms of reference as follows:

*The Committee on Vegetation Clearance will inquire into and report on the following aspects of vegetation clearance in South Australia:*

1. *The extent of vegetation clearance, with particular emphasis on post World War II developments and likely future trends.*
2. *The factors influencing vegetation clearance; economic conditions, Government rural policy and incentives, technological developments in resource extraction and/or utilization, existing legislative and administrative controls of vegetation clearance, and any other factors considered relevant by the Committee.*
3. *The principles of sound land use management as they relate to the clearance of native vegetation.*
4. *The controls necessary to ensure that any future vegetation clearance is in accordance with principles of sound land use management.*
5. *The means whereby retention of appropriate areas of natural vegetation may be encouraged.*
6. *Any other aspects of vegetation clearance considered by the Committee to be relevant to their inquiry.*

## SUMMARY


1. (2.25, 2.4) (2.10, 2.13) A record of the present state of the clearance of natural vegetation in South Australia has been compiled (Figure 2.1). It is noteworthy that the older settled regions of the State have been almost totally cleared of natural vegetation. Elsewhere very large areas have been cleared under post World War II land development schemes.

2. (3.32) The upsurge of vegetation clearance since World War II resulted from a complex interaction between the physical environment and a variety of economic factors, Government policies, and technological developments in land utilization and management.

3. (2.29, 3.24-3.29, 3.33) There has been a reduction in the rate of land clearance in recent years, but the Committee believes that a future demand for increased rural production may result in moves to clear and develop land presently uncleared in the existing agricultural regions.

4. (3.34) Those areas of land still uncleared in the existing agricultural regions are already subject to a variety of competing land-use claims and therefore are a resource of increasing importance.

5. (4.11) Because of the increasing importance of the declining areas of uncleared land, the Committee considers it most important that vegetation clearance in the future should require more justification than now is required by statute.

6. (4.10,4.12) In assessing the justification for further land clearance, the Committee believes that the uncleared land itself, adjacent cleared lands, and the uses to which both are to be put, must all be considered.

7. (5.24) The effective long term control of vegetation clearance should thus comprise part of overall land use plans. To implement such plans would require the constitution of a carefully balanced and competent 'land use authority'. While the Committee believes that such an authority should be formed as a long term answer to the problem, it considers it vital that a means to limit further clearing should be initiated in the immediate short term. Measures are proposed to achieve this aim.

8. (4.10) (6.18) Conservation of vegetation on private lands is seen as an essential complement to the parks and reserves administered by Government. Financial and non-financial incentives are seen as possible ways of contributing to such conservation.

9. (6.19,6.20) The Committee has examined a number of incentive schemes aimed at easing the pressures to clear vegetation, and has also reviewed a legal agreement which may prove suitable to ensure that a chosen form of incentive is not subjected to abuse for personal financial gain.

The costs of alternative forms of incentive have not been evaluated because of time limitations and complexity. The Committee believes, however, that an investigation of these is important and necessary.

10. (7.1-7.9) Vegetation clearance for other than agricultural purposes, while sometimes of specific interest and sometimes of considerable environmental impact, has not been subjected to detailed examination by the Committee, but comments are made with respect to afforestation with exotic pines, mining and quarrying, and clearance for public works.

(7.10-7.13) The importance of the protection of roadside vegetation is acknowledged by the Committee and suggestions are made regarding the future of the Roadside Vegetation Committee.

11. (7.14-7.19) The Committee, finally, points to the importance of ensuring that areas of native vegetation reserved or retained on private lands for conservation purposes are ensured longevity by implementing appropriate measures for the regeneration of species. It is recommended that a proposed Advisory Committee on Vegetation Clearance advise on the implementation of extension assistance for the management of uncleared areas of native vegetation.

# RECOMMENDATIONS

The Committee recommends:

1. (2.30.1) *That the map (Figure 2.1 herein) showing the present extent of vegetation clearance throughout the southern agricultural regions of the State be made available to the public.*

2. (4.18.1) *That all land carrying native vegetation which is proposed for clearance should be assessed for its significance and relevance to a variety of possible uses or needs.*

3. (4.18.2) *That, following assessment, lands recommended to remain uncleared should be proposed for those single or multiple uses for which they are most suited, and which are appropriate to community needs.*

4. (4.18.3) *That uncleared lands which have been assessed and approved for clearance should be developed in accordance with recognised and proven land management techniques.*

5. (5.26) *That to ensure future vegetation clearance is in accordance with principles of sound land use and land management, land use planning through a land use authority should be implemented.*

6. (5.27) *That as there is an urgent need to restrain the rate of land clearance, and as the establishment of a land use authority would necessarily take some considerable time, an interim or short term measure operable within existing statutes and existing administrative frameworks be established immediately, with the aim of achieving a reasonable degree of the restraint sought.*

7. (5.28) *That establishment and administration of the interim measure be entrusted to the Director, Department for the Environment, and that he be assisted by an Advisory Committee on Vegetation Clearance.*

8. (5.29) *That in establishing and administering the interim measure, attention be given to:*

(5.29.1) 8.1 *The need to establish a close local liaison with rural interests.*

(5.29.2) 8.2 *The need to establish an efficient administrative system.*

9. (5.30) *That the interim measure be monitored for its effectiveness and, if circumstances warrant, it be reviewed three years after the date of implementation.*

10. (6.20.1) *That immediate attention be given to determining reasonable and fair incentives to encourage landholders to retain appropriate areas of native vegetation in an uncleared state, with initial attention being directed towards those variations of State and Local Government rates and taxes which appear most appropriate.*

11. (6.20.2) *That all possible incentive schemes be costed and evaluated against their likely effectiveness.*

12. (6.20.3) *That the Crown Solicitor, using the proposed Heritage Agreement as a guide, be asked to draft a model agreement which would both permit the retention of natural vegetation on private lands in perpetuity and also ensure that a chosen form of incentive is not subject to abuse.*

13. (7.20.1) *That where a landholder has approved plans to retain and conserve appropriate areas of native vegetation, extension assistance should be made available to the landholder to advise on the protection, regeneration and other management aspects relevant to the area.*

14. (7.20.2) *That the proposed Advisory Committee on Vegetation Clearance advise the Director, Department for the Environment, on implementation of extension assistance for the management of uncleared areas of native vegetation.*

# CHAPTER 1

# INTRODUCTION

## *Vegetation Clearance - An Historical Perspective*

1.1. The establishment of permanent European settlement in South Australia in 1836 marked the beginning of a period of profound change. Aboriginal man, present in the environment for upwards of 30 000 years, had, unquestionably, modified the flora and fauna to some extent, but by and large the ecosystems displayed a certain stability in 1836. It was inevitable that the displacement of a hunting and gathering economy by the trade and commerce patterns of what was then the world's most technologically-advanced nation would mean the complete upheaval of an environment, and 140 years after the founding of South Australia a new equilibrium has yet to be reached. Changes, rapid and far-reaching, are still occurring, and probably none have been more spectacular than the continuing clearance of natural vegetation and its replacement over vast areas of the southern agricultural regions by crops and pastures.

1.2. It is in no way surprising that such change, involving as it does the almost complete removal of natural ecosystems and their replacement by introduced and artificially-sustained ones, should have attracted a great deal of attention and comment over the years, but there is little doubt that for most of the State's history the comment has been laudatory, clearance of the natural vegetation being seen as an expression of progress and a necessary precursor to increased agricultural production (Reference 1).

1.3. It is true, of course, that there has been some interest in the conservation of wildlife and natural resources for many years. J.Ednie Brown, the State's first Conservator of Forests, and G.W.Goyder, Surveyor General from 1861 to 1894, were, for example, active in the field of forest reservation and management in the late nineteenth century. At a time when unrestrained agricultural expansion had widespread Government and public support their outspoken warnings and pleas introduced a much-needed note of caution to the State's utilization of its natural resources. Soon after, the Field Naturalists Section of the Royal Society of South Australia became involved in a series of long campaigns leading up to the creation of national parks

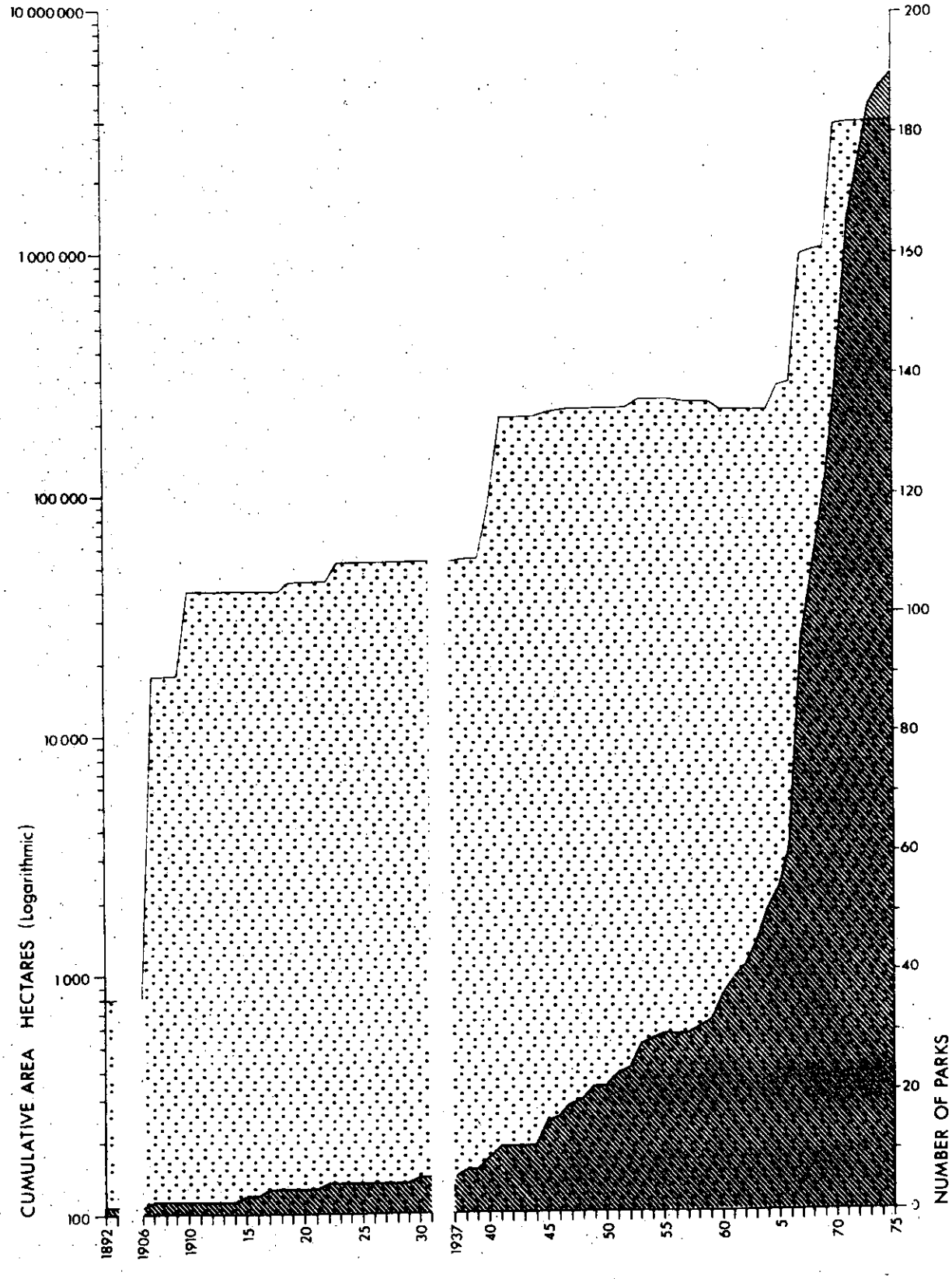
and reserves at Belair (1891), Flinders Chase (1919) and Monarto South (1938). In all cases the parks and reserves proposed were seen as a prime means of off-setting land clearance by providing for habitat conservation, but the time taken to secure them (Belair, 14 years; Flinders Chase, 27 years; Monarto South, 3 years) is indicative of the tardy official and public support then available for vegetation protection. Even the setting aside of large areas of mallee scrub as reserves throughout the 1930s, 1940s, and 1950s expressed not so much an official belief that the scrub was worth protecting as an official belief that the land was useless for agriculture. As a reflection of widely held attitudes, however, probably none was more eloquent than the renaming of a portion of the Upper South East in 1950: as uncleared mallee-heath it was known to all as the 'The Ninety-mile Desert' - as cleared land being developed for improved pastures it became 'The Coonalpyn Downs' (Ref.2).

*Changing Attitudes - An Early Attempt to Control Clearance*

1.4. However, notwithstanding the Desert to Downs conversion, attitudes did change, albeit slowly and for a variety of complex reasons, and by the early 1960s there was widespread support for an ambitious programme of land acquisition for national park purposes. A spectacular increase in the number and area of parks followed and by the early 1970s many of the key areas threatened by land clearance had been secured (see Figure 1.1). A change in emphasis then followed with attention focusing on the many areas of natural vegetation *outside* of the parks and reserves system. Many of these, while small and fragmented by clearance, were considered to be of aesthetic and/or conservation merit and worthy of protection from further clearance. Impetus for moves to provide such protection came with publication of the *Report of the Committee on Environment in South Australia* and formation of the (then) Department of Environment and Conservation in 1972, and in 1972-73 the State Planning Authority, through proposed Environment Preservation Regulations for Kangaroo Island, put forward a plan to protect the Island's natural vegetation by planning controls rather than direct acquisition (Ref.3).

INCREASE IN NATIONAL PARKS

Fig 1.1




SOURCE : S.A. DEPT. of LANDS and DEPT. for the ENVIRONMENT (National Parks and Wildlife Division)

*Formation of the Interdepartmental Committee*

1.5. In the face of adverse criticism from farmers on the Island and their grower organisations on the mainland the plan was set aside, but moves for at least a careful review of vegetation clearance on a State-wide basis continued, and after background work by the Environment Division of the Department for the Environment, formation of the Interdepartmental Committee on Vegetation Clearance was, as noted previously, approved by State Cabinet on 15 July 1974 (Ref.4).

*Conduct of the Committee's Work*

1.6. The Committee has met on seven occasions between November 1974 and December 1975. Because of the sensitivity of the issue, following on from the Kangaroo Island Environment Preservation Regulations controversy, it was decided not to invite public submissions and comment during the working stages of the Committee's operations. Nonetheless, the Committee can see merit in obtaining comment from interested parties before steps are taken to implement any of the measures recommended in this Report (a point further discussed in 5.16 and 5.19).

1.7. Through its discussion and preparation of background papers, the Committee has carefully considered the relevant issues and principles involved in each Term of Reference, and agreement has been reached on all matters of substance.

*Acknowledgments*

1.8. The Committee wishes to place on record its appreciation of the administrative assistance provided by the respective Secretaries, particularly Mr A.T.H. Dendy, and the cartographic assistance provided by Mr V.Potezny (Drafting Officer, Department for the Environment).

*References*

1. For typical accounts of 'wasteland scrubs' being 'reclaimed' and converted to 'productive crops and pastures' see RICHARDSON,A.E.V. 1936: 'Agricultural and pastoral progress' pp.134-62 in FENNER, C., (Ed.) *The Centenary History of South Australia* Royal Geographical Society Australasia (S.A.Branch Inc.), Adelaide; DONALD, C.M., 1958: 'The pastures of South Australia' and HERRIOT, R.I., 1958: 'Land use in South Australia' pp. 149-55 and 169-78 respectively in BEST, R.J., *Introducing South Australia,* ANZAAS, Adelaide.

2. Department of Lands Annual Report, 1949/50 *South Aust. Parl.Papers*, 1950, No.10, p.54.

3. The Department of Environment and Conservation, later re-named Department for the Environment, was created on 28 February 1972, and the *Report of the Committee on Environment in South Australia* was published (Govt.Printer, Adelaide) in May 1972.

4. Details of the Environment Preservation Regulations are in files SPA 50/10/2030, SPA 50/10/2030 Part 1, SPA 362/72 Part 1. File DEC 3029/74 contains relevant information on formation of the Interdepartmental Committee on Vegetation Clearance.

# CHAPTER 2

## THE EXTENT OF CLEARANCE

*The extent of vegetation clearance, with particular emphasis on post World War II developments and likely future trends* (Term of Reference 1)

2.1 The present extent of vegetation clearance in the southern agricultural regions of South Australia is indicated in Figure 2.1, which has been compiled from the most recent aerial photography available. It will be noted from the insert that while many of the photographs are as recent as 1974 and 1975, some date from the late 1960s. Therefore, while representing the most recent compilation of vegetation clearance currently available, the map undoubtedly shows more vegetation than actually exists: it is known that clearance in such regions as the West Coast, Upper South East, and Kangaroo Island throughout the early and mid 1970s has involved many thousands of hectares.

2.2 Notwithstanding this qualification, the map is considered by the Committee to be a reliable *indication* of the present extent of clearance, and being the first attempt to show clearance on a State-wide basis it is likely to prove of interest and value for some time to come.

2.3 A striking feature of the map is the variability of clearance. At one extreme such regions as Yorke Peninsula and the Lower South East have very few areas of vegetation remaining, while at the other, such regions as Kangaroo Island and the West Coast have substantial uncleared areas. Such regional variability makes generalizing at the State level difficult and the Committee has, therefore, considered clearance on a regional basis.

### *The Extent of Clearance*

*South East (Upper and Lower inclusive)*

2.4 At the close of World War II clearance in the South East was of limited extent, the bulk of the region being used in unimproved form for relatively low intensity pastoralism. For a variety of reasons (outlined in the discussion of Term of Reference 2) this situation

changed dramatically in the post-war years and over the last three decades hundreds of thousands of hectares have been cleared and sown down to pastures. Precise figures for the total area cleared are difficult to compute, but the combined State and Commonwealth War Service Land Settlement scheme resulted in the clearance of over 31 000 ha and the Australian Mutual Provident Society (A.M.P.) scheme cleared at least 91 000 ha Private development has probably at least doubled these figures, suggesting that in excess of 350 000 ha have been cleared since World War II (Ref.1). Successive stages in clearance of the Tintinara-Wirrega area of the Upper South East are shown in Figure 2.2; the changes revealed are probably typical of those throughout much of the South East in the post-war years.

2.5 The present clearance patterns, indicated in Figure 2.1, show clearly that uncleared areas over much of the Lower South East are now small and scattered. Much of the remaining vegetation occupies the narrow crests of old consolidated dunes, giving a characteristic linear appearance to the clearance pattern, an appearance reinforced by the presence of narrow strips of coastal vegetation. By contrast, and in spite of the extensive clearance for pasture development referred to above, some large areas of uncleared vegetation remain in the Upper South East. In Counties Cardwell and Buccleuch scattered clearing has fragmented the uncleared areas, but in County Chandos an extensive area, consisting of unallotted crown lands and three large conservation parks, remains as the largest single block of uncleared vegetation within the southern agricultural regions of the State. Table 2.1 give a statistical summary of cleared and uncleared areas.

2.6 Many of the few remaining uncleared areas in the Lower South East are held as either forest reserves or reserves under the National Parks and Wildlife Act, 1972-74, and little further clearance is likely. The Upper South East, on the other hand, with relatively large blocks of uncleared land, has some potential for further clearance. The extent of such clearance will depend on a variety of controlling factors, an aspect further discussed in 3.24 - 3.29. It may be noted at this point, however, that the capability of the

VEGETATION CLEARANCE, UPPER SOUTH EAST

Fig. 2.2

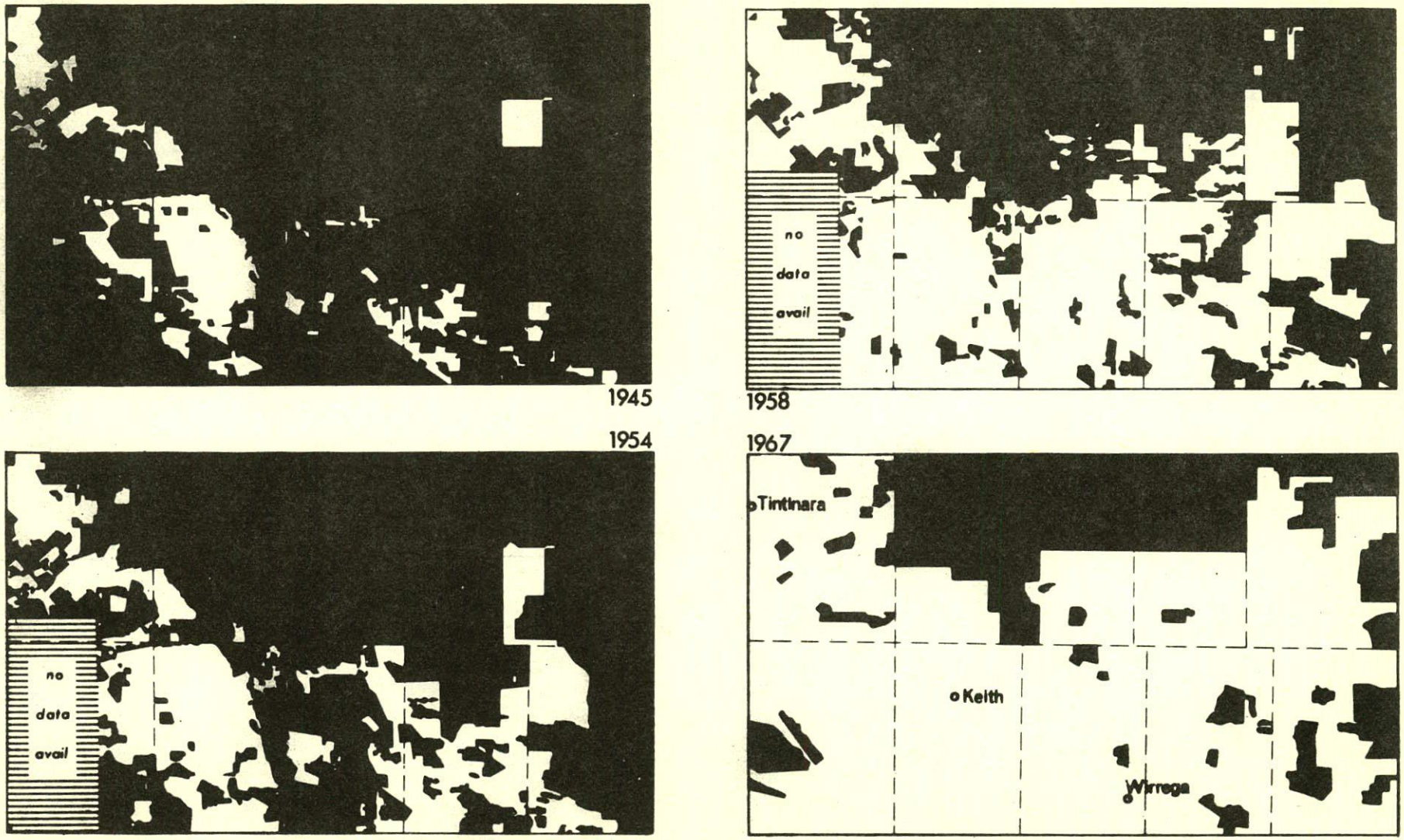


TABLE 2.1 SOUTH AUSTRALIA - CLEARED AND UNCLEARED LAND, SOUTHERN AGRICULTURAL REGIONS

(1976)

| REGION & COUNTY | TOTAL AREA | AREA CLEARED | | AREA UNCLEARED | |
|---|---|---|---|---|---|
| | ha | ha | % | ha | % |
| LOWER SOUTH EAST | | | | | |
| Grey | 529 395 | 505 514 | 95.48 | 23 881 | 4.52 |
| Robe | 508 157 | 458 643 | 90.26 | 49 514 | 9.74 |
| REGIONAL SUMMARY | 1 037 552 | 964 157 | 92.92 | 73 395 | 7.08 |
| UPPER SOUTH EAST | | | | | |
| Pt. Buccleuch (Hds. Lewis, Carcuma, Livingstone, Coneybeer, Kirkpatrick, Strawbridge) | 199 365 × | 143 948 | 72.20 | 55 417 | 27.80 |
| Buckingham | 465 500 | 358 276 | 76.97 | 107 224 | 23.03 |
| Cardwell | 434 822 × | 323 900 | 74.49 | 110 922 | 25.51 |
| Pt. Chandos (Hds. Allenby, Day, Fisk, Quirke, South out of Hundreds) | 266 470 × | 42 006 | 15.77 | 224 464 | 84.23 |
| Macdonnell | 492 488 | 450 970 | 91.57 | 41 518 | 8.43 |
| Pt. Russell (Hds. Coolinong, Malcolm, Bonney, Baker, Jeffries) | 190 515 × | 183 266 | 96.20 | 7 249 | 3.80 |
| REGIONAL SUMMARY | 2 049 160 | 1 502 366 | 73.32 | 546 794 | 26.68 |
| MURRAY MALLEE & PLAINS | | | | | |
| Albert | 563 324 | 498 311 | 88.56 | 65 013 | 11.54 |
| Alfred | 370 823 | 344 795 | 92.98 | 26 028 | 7.01 |
| Pt. Buccleuch (Hd. Bowhill, Vincent, Wilson, McPherson, Hooper, Marmon-Jabuk, Molineux, Sherlock, Roby, Peake, Price) | 416 599 × | 395 072 | 94.83 | 21 527 | 5.17 |
| Pt. Chandos (Hds. Auld, Billiatt, Kingsford, Peebinga, Bews, Cotton, Parilla, Pinnaroo) | 398 663 × | 292 012 | 73.25 | 106 651 | 26.75 |
| Eyre | 338 513 | 211 163 | 62.38 | 127 350 | 37.62 |
| Hamley (Irrigation Areas) | 95 000 | 34 632 | 36.46 | 60 368 | 63.54 |

Corrected figs

TABLE 2.1 (CONT.)

| REGION & COUNTY | TOTAL AREA | AREA CLEARED | | AREA UNCLEARED | |
|---|---|---|---|---|---|
| | ha | ha | % | ha | % |
| Pt. Russell (Hds. Young-husband, Burdett, Ettrick, Seymour) | 135 197 | 124 991 | 92.46 | 10 206 | 7.54 |
| Sturt | 344 080 | 335 755 | 97.59 | 8 325 | 2.41 |
| Pt. Young (Hds. Parcoola, Pooginook, Markaranka, Stuart) | 124 838 | 28 851 | 23.12 | 95 987 | 76.88 |
| REGIONAL SUMMARY | 2 787 037 | 2 265 582 | 81.28 | 521 455 | 18.72 |
| KANGAROO ISLAND | | | | | |
| Carnarvon | 405 274 | 229 309 | 56.68 | 175 965 | 43.42 |
| REGIONAL SUMMARY | 405 274 | 229 309 | 56.68 | 175 965 | 43.42 |
| MT. LOFTY RANGES & ADELAIDE PLAINS | | | | | |
| Adelaide | 295 517 | 267 950 | 90.67 | 27 567 | 9.32 |
| Gawler | 237 604 | 228 031 | 95.97 | 9 573 | 4.03 |
| Hindmarsh | 265 474 | 253 290 | 95.42 | 12 184 | 4.58 |
| Light | 216 669 | 212 724 | 98.18 | 3 945 | 1.82 |
| REGIONAL SUMMARY | 1 015 264 | 961 995 | 94.75 | 53 269 | 5.25 |
| MID & UPPER NORTH | | | | | |
| Pt. Blachford (Hd. Wonoka) | 39 109 | 9 664 | 24.71 | 29 445 | 75.29 |
| Pt. Burra (Hds. Hallett, Mongolata, Baldina, Bright, King, Lindley, Kingston, Kooringa, Apoinga, Bundey, Maude) | 313 260 | 258 929 | 82.65 | 54 331 | 17.35 |
| Dalhousie | 318 569 | 236 832 | 74.35 | 81 737 | 25.65 |
| Frome | 390 571 | 324 718 | 83.14 | 65 853 | 16.86 |
| Pt. Granville (Hds. Wirreanda, Yanyarrie, Eurilpa, Uroonda, Yednalue) | 125 615 | 64 610 | 51.43 | 61 005 | 48.57 |

TABLE 2.1 (CONT.)

| REGION & COUNTY | TOTAL AREA | AREA CLEARED | | AREA UNCLEARED | |
|---|---|---|---|---|---|
| | ha | ha | % | ha | % |
| Pt. Hanson (Hds. Arkaba, Adams, Warcowie, Moralana) | 117 197 | 34 913 | 29.79 | 82 284 | 70.21 |
| Pt. Herbert (Hd. Coglin) | 31 986 | 3 888 | 12.16 | 28 098 | 87.84 |
| Pt. Kimberley (Hds. Wonna, Terowie, Gumbowie, Parnaroo) | 127 428 | 67 977 | 53.35 | 59 451 | 46.65 |
| Pt. Newcastle (Hds. Cudla Mudla, Kanyaka, Moockra, Boolcunda, Yarrah, Pichi Richi, Crozier, Wyacca, Palmer) | 279 977 | 184 949 | 66.06 | 95 028 | 33.94 |
| Stanley | 407 665 | 400 101 | 98.15 | 7 564 | 1.85 |
| Victoria | 370 628 | 339 120 | 91.50 | 31 508 | 8.50 |
| REGIONAL SUMMARY | 2 522 005 | 1 925 701 | 76.35 | 596 304 | 23.65 |
| YORKE PENINSULA | | | | | |
| Daly | 429 422 | 420 890 | 98.01 | 8 532 | 1.99 |
| Fergusson | 477 783 | 412 480 | 86.33 | 65 303 | 13.67 |
| REGIONAL SUMMARY | 907 205 | 833 370 | 91.86 | 73 835 | 8.14 |
| EYRE PENINSULA | | | | | |
| Pt. Buxton (Hds. Kelly, Yalanda, Barna, O'Connor, Moseley, Buckleboo, Caralue, Panitya, Solomon, Wilcherry, Cortlinye, Pinkawillinie, Cunyarie) | 416 699 | 237 175 | 56.92 | 179 524 | 43.08 |
| Pt. Bosanquet (Hd. Pildappa) | 25 900 | 11 350 | 43.82 | 14.550 | 56.18 |
| Pt. Dufferin (Hds. Pureba, Hague, Nunnyah, Carawa, Petina, Haslam, Perlubie, Wallala, Walpuppie, Koolgera, Yantanabie) | 310 928 | 179 717 | 57.81 | 131 211 | 42.19 |
| Flinders | 482 387 | 304 888 | 63.20 | 177 499 | 36.80 |
| Pt. Hopetoun (Hds. Miller, Wookata, Sturdee, Caldwell, Russell) | 183 437 | 47 196 | 25.72 | 136 241 | 74.28 |
| Jervois | 994 515 | 700 025 | 70.38 | 294 490 | 29.62 |

TABLE 2.1

| REGION & COUNTY | TOTAL AREA | AREA CLEARED | | AREA UNCLEARED | |
|---|---|---|---|---|---|
| | ha | ha | % | ha | % |
| Pt. Kintore (Hds. Cohen, Burgoyne, Bagster, Kevin, Keith, Nash, Magarey, Giles) | 207 977 | 99 964 | 48.06 | 108 013 | 51.94 |
| Le Hunte | 462 216 | 322 633 | 69.81 | 139 583 | 30.19 |
| Musgrave | 629 412 | 351 356 | 55.83 | 278 056 | 44.17 |
| Robinson | 699 951 | 467 916 | 66.85 | 232 035 | 33.15 |
| Pt. Way (Hds. Catt, O'Loughlin, Horn, Bartlett, Bonython, Wandana, Chillundie, Guthrie, Blacker, Goode, Wallanippie, Pethick, Moule) | 380 082 | 253 962 | 66.82 | 126 120 | 33.18 |
| REGIONAL SUMMARY | 4 793 504 | 2 976 182 | 62.09 | 1 817 322 | 37.91 |
| SOUTH AUSTRALIAN SUMMARY | 15 517 001 | 11 658 662 | 75.13 | 3 858 339 | 24.87 |

The Upper South East - 'with relatively large blocks of uncleared land (it) has some potential for further clearance' - unallotted and uncleared crown lands South out of Hundreds (above); logged and burnt scrub Hd.Livingstone Co.Buccleuch(below).

uncleared lands for pasture development is probably low. Non-wetting sands, high dunes liable to drift when cleared, and rainfall which is marginal for the successful establishment of some key pasture plants, are all likely to limit further development (Ref.2).

*Murray Mallee and Murray Plains*

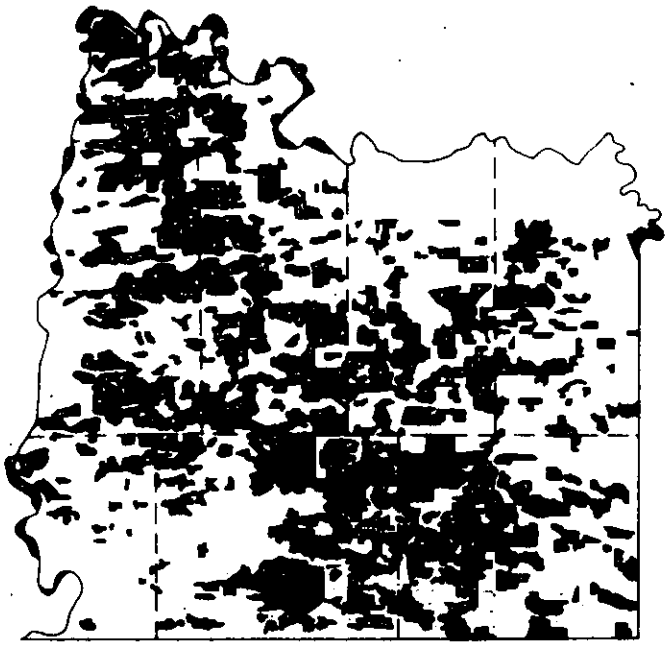
2.7 Large areas of the Murray Mallee, including the Parrakie-Lameroo-Pinnaroo district and much of County Alfred, were extensively cleared immediately before and after World War 1, and they have, therefore, changed little since World War 11. By contrast, stony ground in Counties Albert and Eyre was cleared in the 1950s and 1960s, as were areas of deep infertile sands in the northern portions of County Chandos (the Karte-Peebinga district). Clearance patterns for County Albert in 1945 and 1976 are shown in Figure 2.3, from which it will be noted that the sandy country of the east was largely cleared by 1945, whereas recent clearance over the stony western areas is evident.

2.8 Clearance is now almost complete over much of County Alfred and the central portions of Counties Buccleuch and Chandos. Scattered patches of uncleared land remain in County Albert, while to the west of the River Murray substantial tracts remain in County Eyre. A further large area of uncleared land, represented by Billiatt Conservation Park and adjacent crown lands, remains in northern County Chandos. North of the River Murray irrigated horticulture and viticulture, and some cereal cropping in favourable years, have extended clearance to the north, but in general the uncleared pastoral lands either adjoin or are within 10-20 km of the River. Table 2.1 gives a statistical summary of cleared and uncleared areas.

2.9 Much of the Murray Mallee is marginal for cereal growing, being characterised by low and erratic rainfall. On the drier limits of the region contraction rather than expansion can be expected and little further clearance is likely. Further clearance of the higher rainfall deep sand country in the south of the region is probable, albeit on a limited scale (erosion hazard is high) and generally as an adjunct to existing developed properties. The availability and refinement of stone pickers and crushers is likely to result in

VEGETATION CLEARANCE, COUNTY ALBERT

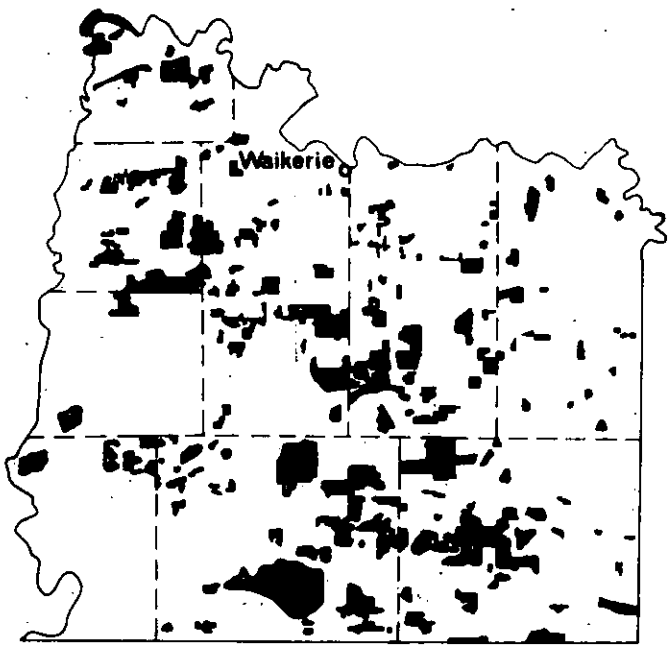
Fig. 2.3



1945

Cleared

Uncleared




1972

Cleared

Uncleared

Scale: 1:1000000 approx.

The Murray Mallee - clearance continues - contractors' plant Hd.Peebinga Co.Chandos (above); logged scrub Hd.Waikerie Co.Albert(below).

continued pressure for clearance of stony country in the west of the Murray Mallee (Ref.3).

*Kangaroo Island*

2.10 With only minor exceptions clearance on Kangaroo Island at the close of World War 11 was restricted to the Dudley Peninsula and the Kingscote-Cygnet River districts. By 1948, however, development work under the War Service Land Settlement scheme had begun over the lateritised central plateau, and on closure of the scheme in 1959 over 53 000 ha in the central and southern portions of the Island had been cleared (Ref.4). Private development both before and after 1959 has added greatly to this figure and clearance is continuing. Successive stages in clearance of the Island are shown in Figure 2.4.

2.11 The present clearance position on the Island is shown in Figure 2.1 from which it will be appreciated that while the Government and private schemes referred to above have cleared substantial areas, the western and southern districts especially retain some large tracts of uncleared land. Many of these are set aside as reserves under the National Parks and Wildlife Act, 1972-74, the largest being Flinders Chase National Park (59 003 ha). Table 2.1 gives a statistical summary of cleared and uncleared areas.

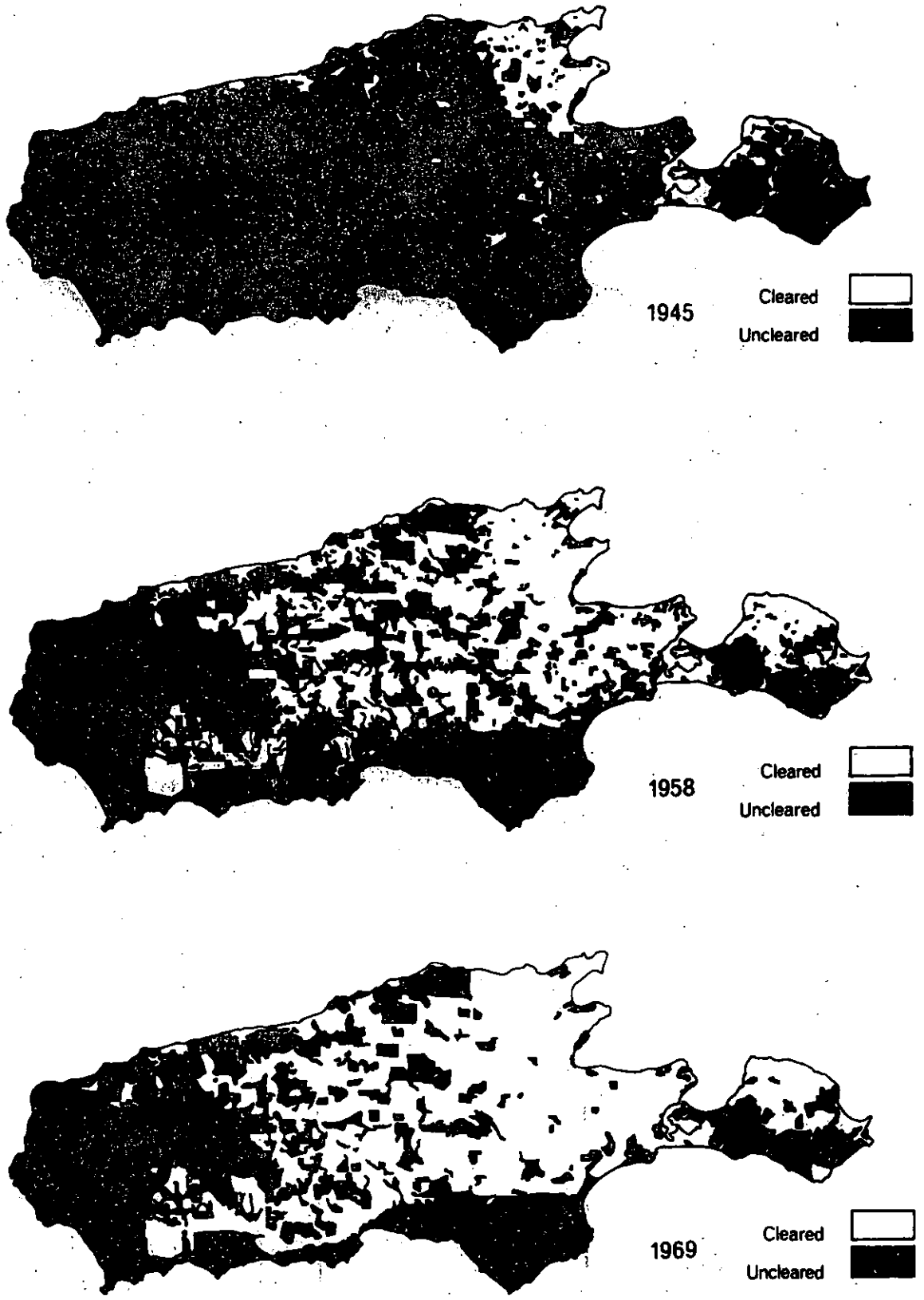
2.12 In spite of the fact that the better quality lands have now been allotted and largely developed for improved pastures, further clearance is likely on the Island. It is unlikely that such clearance will take the form of substantial new schemes; rather, clearance on individual properties can be expected as part of routine development plans, particularly over the more recently opened-up lands of the north and north west portions of the Island (Ref.5).

*Mt.Lofty Ranges and Adelaide Plains*

2.13 Clearance of the Adelaide Plains was virtually complete by the early twentieth century and few changes since World War 11 are evident. By contrast, clearance throughout the Mt Lofty Ranges has been extensive, particularly on the Hindmarsh Tiers and Fleurieu Peninsula of County Hindmarsh. Large areas of mallee scrub along the south-eastern foothills of the Ranges have also been cleared over the last three decades. These developments are illustrated in Figure 2.5, which shows clearance patterns for the region in 1945 and 1976.

VEGETATION CLEARANCE, KANGAROO ISLAND

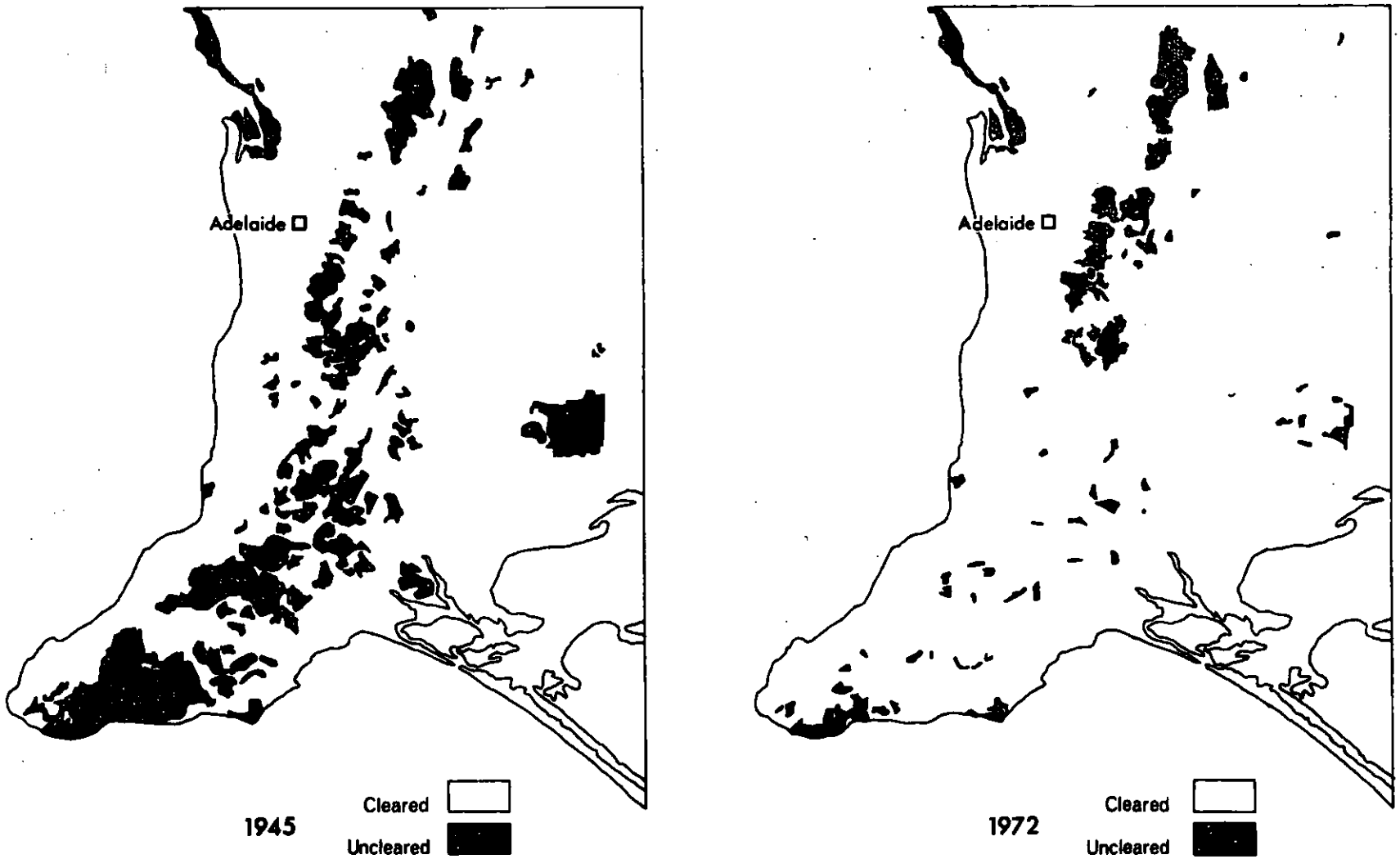
Fig. 2.4




Scale: 1:1 000 000 approx.

VEGETATION CLEARANCE, MOUNT LOFTY RANGES

Fig. 2.5




Scale: 1:1 000 000 approx.

2.14 As would be expected, clearance over the small holdings of the Mt Lofty Ranges has produced a fragmented and complex pattern. Uncleared areas outside of the parks and reserves system are invariably small and widely scattered,as indicated in Figure 2.1, the only concentrations of any note being on the Fleurieu Peninsula to the south, the Mt Bold and Forest Range-Norton Summit district in the central portion of the Ranges, and the Kersbrook-Williamstown area to the north. Mangrove swamps provide a coastal fringe to the otherwise almost totally cleared Adelaide Plains. Table 2.1 gives a statistical summary of cleared and uncleared areas.

2.15 Outside of the parks and reserves system almost all remaining uncleared vegetation is restricted to steep valleys and hill-sides (slopes usually greater than 15%). The thin soils and potential erosion hazard of these areas suggest a relatively low capability for further clearance and agricultural development (Ref.6) but the Committee expects that sub economic holdings in some areas, and the importation of business capital into other areas, will generate pressures for further clearance of what little native vegetation now remains.

*Mid and Upper North*

2.16 Because of its good soils, gentle topography, and proximity to Adelaide virtually all of the region was settled and developed for cereal growing and grazing within fifty years of the founding of South Australia. By 1945 the only remaining patches of uncleared vegetation of any extent were confined to the crests and upper slopes of the north-south trending ranges characteristic of the region.

2.17 With only minor exceptions (some clearance in the Clare-Watervale Hills and the southern Flinders Ranges near Crystal Brook) the ridge-top vegetation referred to above remains to the present, giving a characteristic linear pattern similar to that of the Lower South East (Fig. 2.1). The only concentration of any note occurs over the southern Flinders Ranges, and forest reserves and Mt Remarkable National Park (8243 ha) account for much of this area. Table 2.1 gives a statistical summary of clearance.

2.18 Virtually all arable land has long been cleared and only minor clearance over some of the hills and ranges is likely in the future.

*Yorke Peninsula*

2.19 For the so-called leg of the Peninsula the remarks made in 2.16 above could be applied virtually unchanged. Clearance was all but complete long before 1945. The foot of the Peninsula, on the other hand, had been cleared in only a patchy way by 1945 and post-war development by both Government and private interests has greatly extended the original clearance.

2.20 The almost total clearance of the leg of the Peninsula is confirmed in Figure 2.1. The foot of the Peninsula retains some large uncleared areas, included amongst which are the Innes National Park (6112 ha) and Warrenben Conservation Park (4061 ha). Table 2.1 gives a statistical summary of clearance.

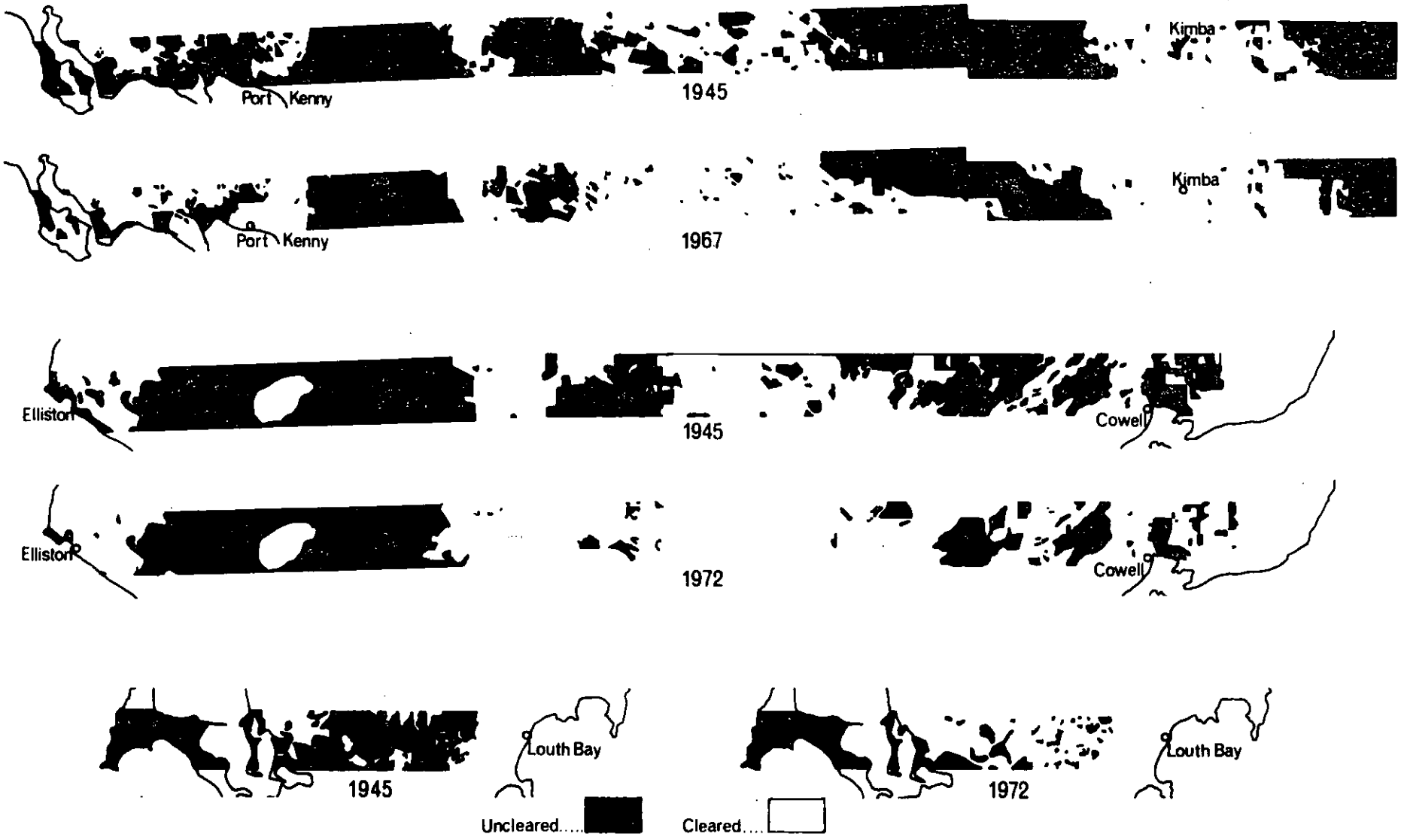
2.21 The foot of the Peninsula would appear to have some potential for further clearance, but extensive areas of sheet calcrete and deep coastal sands (which are particularly infertile and liable to drift when cleared) contribute to what is probably a low capability for further development. Virtually no clearance is expected elsewhere on the Peninsula.

*Eyre Peninsula (districts west of Spencer Gulf)*

2.22 Although settlement and clearance were well established by 1945, much of Eyre Peninsula and the West Coast has been the scene of extensive post-war clearance and development. Much of the clearance has represented intensification of agriculture in such established farming districts as the Koppio Hills, Streaky Bay, Cowell, Cleve, Darke Peak, and the Wudinna-Poochera area, but large tracts of new land in the Kimba, Buckleboo, Kyancutta and Lock districts have also been involved. With such steady development of the better quality agricultural lands clearance has recently extended to the fringes of the extensive stony (sheet calcrete) areas of Counties Musgrave and Robinson. Selected transects across the Peninsula shown in Figure 2.6, provide some illustration of these changes since World War 11.

VEGETATION CLEARANCE, PORTIONS OF EYRE PENINSULA

Fig. 2.6




Scale: 1:1000000 approx.

2.23 The inhibiting effect of sheet calcrete on clearance is shown clearly by the extensive areas of uncleared vegetation remaining in Counties Musgrave, Robinson, and the southern portion of Flinders (Figure 2.1). Deep infertile sands have, likewise, inhibited clearance of portions of Counties Buxton and Jervois, and three large areas of uncleared vegetation on these sands are represented by the Hambidge (37 839 ha), Hincks (66 240 ha) and Pinkawillinie (17 718 ha) conservation parks. Elsewhere on the Peninsula clearance has been extensive: only scattered pockets of uncleared vegetation remain on the Koppio Hills north of Pt Lincoln, and the fertile soils of the established farming districts referred to in 2.22 have been almost totally cleared. On the Far West Coast clearance is patchy, reaching its maximum extent in districts adjacent to the Eyre Highway and the Ceduna-Penong railway. To the south, areas of uncleared vegetation occupy large coastal sand masses, while to the north decreasing rainfall produces a gradual fall-off in agricultural activity and an increase in uncleared areas until the southern margins of the pastoral country are reached (Ref.7). Table 2.1 provies a statistical summary of this clearance.

2.24 There is little doubt that the most favourable agricultural districts on Eyre Peninsula and the West Coast have already been largely cleared and developed. Exploitation of new areas on any scale is, therefore, unlikely. However, it can be predicted with some certainty that limited clearance will continue, particularly over the stony country and the Far West Coast. The extent and pace of this clearance will depend on future cost and price trends for rural commodities (3.24-3.29).

*Summary*

2.25 To facilitate its consideration of Term of Reference 1, the Committee has compiled Figure 2.1, showing the present extent of vegetation clearance over the southern agricultural regions of South Australia. Marked regional variation is evident from the map, such older settled regions as Yorke Peninsula, the Mid and Upper North, and the Adelaide Plains being almost totally cleared, whereas such recently developed regions as the Upper South East, Kangaroo Island, the West Coast and portions of Eyre Peninsula still retain large areas of uncleared vegetation.

2.26 On the availability of uncleared land alone, therefore, little further clearance is likely over much of Yorke Peninsula, portions of the Murray Mallee and Murray Plains, the Mid and Upper North and the Adelaide Plains. However, while any further clearance in these regions would be of very limited extent this does not imply that it would be unimportant. Indeed, the small relic patches remaining today are often the only examples of the original vegetation cover and any proposals to clear them would warrant close scrutiny.

2.27 The extent of future clearance over the remainder of the agricultural regions of the State will depend on likely trends and developments in a variety of influencing factors, and these are considered more fully in 3.24 - 3.29 below.

*Conclusions and Recommendations*

2.28 The Committee has noted that the older settled regions of the State have been almost totally cleared of natural vegetation. Elsewhere very large areas have been cleared under post World War 11 land development schemes.

2.29 Notwithstanding the above, the Committee has concluded that, depending on a number of controlling factors, there will be pressure for continued clearance of vegetation in at least some regions of the State.

2.30 To provide an objective record of the present situation the Committee can see merit in making Figure 2.1 available to interested members of the public, and accordingly recommends:

*2.30.1 That the map (Figure 2.1 herein) showing the present extent of vegetation clearance throughout the southern agricultural regions of the State be made available to the public.*

*References*

1. The Commitee has encountered difficulties in obtaining data on the extent of clearance in the years immediately following World War 11. Publication in the *South Australian Statistical Register* of annual clearance figures for each hundred ceased in 1941, and the Committee has had to resort to specific information published for land development operations, and to a limited coverage of aerial photographs. Successive annual reports of the Department of Lands (printed as *South Aust.Parl.Paper* No.10) provide a statistical summary of areas logged, ploughed, sown to pasture, and top dressed under the War Service and Crown Lands Development schemes.

2. A combined Department of Lands and Department of Agriculture report on crown lands in County Chandos proposed for subdivision and allotment highlighted such difficulties (D.L.2534/66).

3. POTTER, J.S., WETHERBY, K.D., CHITTLEBOROUGH, D.J., 1973: *A description of the land in Counties Albert, Alfred, and portions of County Eyre, South Australia* Soil Conservn.Branch, LD1, (Dept. Agriculture South Aust.).

4. Department of Lands Annual Reports - see notes in Ref.1 above.

5. Although figures are not available, it is apparent that much of the impetus for continued clearance on Kangaroo Island is coming from mainland professional and business interests who have invested capital in development blocks (S.P.A. 50/10/2030).

6. HARTLEY, R.E.R., 1973: The Preservation of native vegetation for soil conservation purposes. Unpub. report from Soil Conservation Branch, Dept. Agriculture (South Aust).

7. HOLDEN, K.J., 1970: Agriculture in South Australia: Upper Eyre Peninsula Dept. Agriculture (South Aust.) Ext. Bull. 11.70. Also BICKNELL, K.C., 1970: New Land development on Eyre Peninsula *J.Agric.(South Aust.)* v.73, pp 142-6.

# CHAPTER 3

## FACTORS INFLUENCING CLEARANCE

*The factors influencing vegetation clearance: economic conditions, Government rural policy and incentives, technological developments in resource extraction and/or utilization, existing legislative and administrative controls of vegetation clearance, and any other factors considered relevant by the Committee* (Term of Reference 2)

3.1 The extent of clearance outlined in Term of Reference 1 is the outcome of a complex interaction between the physical environment and a variety of social, economic and technological factors. The Committee has identified a number of those factors it considers to have been of key importance in determining the extent and pace of clearance in South Australia following World War II and, since at least some can be expected to exert a continuing influence on future clearance, a brief consideration of them appears to be warranted.

### *Economic Factors*

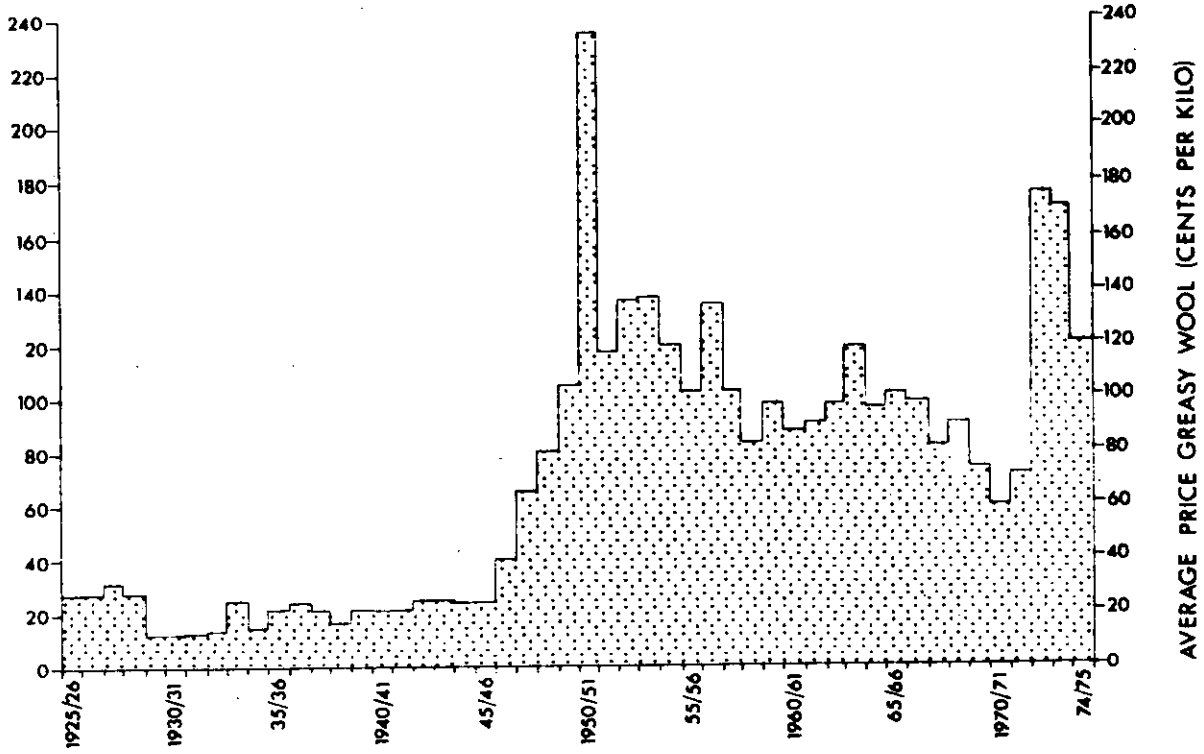
3.2 The profitability of Australian agriculture, oriented as it is towards export trade, has always been closely linked with price fluctuations on the international market, and few commodities have illustrated this more clearly than wheat and wool.

3.3 In the years preceding World War II both industries were characterised by low and erratic returns, and the instability of wheat in particular led directly to Commonwealth and State Government commitment to a wheat stabilization scheme in 1948. Wool prices remained unfixed, but the demand generated by post War reconstruction in Western countries (see Fig. 3.1) in combination with stablized wheat prices (Fig. 3.2) contributed to a land development boom throughout much of the cereal country of the Murray Mallee, Eyre Peninsula, and the West Coast. The inevitable result was the extensive clearance outlined in 2.7 and 2.22 above (Ref.1).

3.4 Clearance on the West Coast in particular continued into the early 1960s, but by the 1963-64 season the cost/price ratio for farm production had begun a steady down-turn (Fig 3.3) reflecting a slackening in demand for wool from the traditional textile

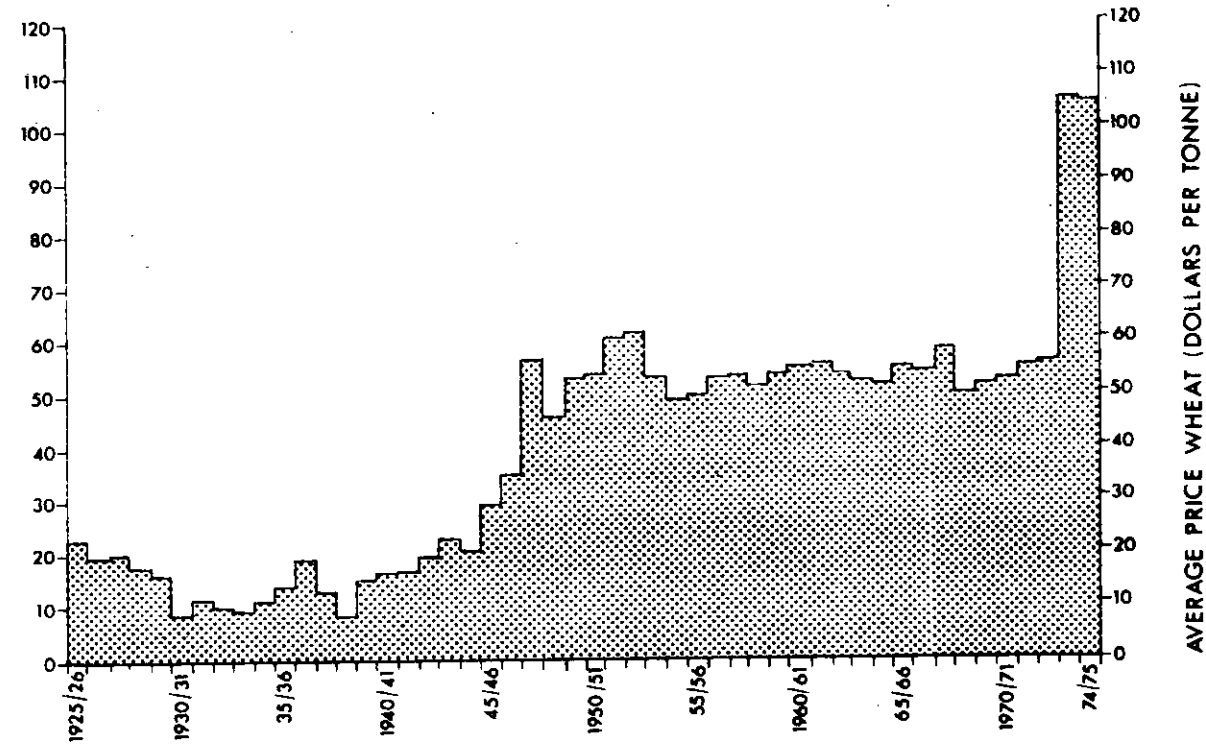
WOOL PRICES, 1925 - 1975

Fig. 3.1




WHEAT PRICES, 1925 - 1975

Fig. 3.2




SOURCE: S.A. STATISTICAL REGISTER

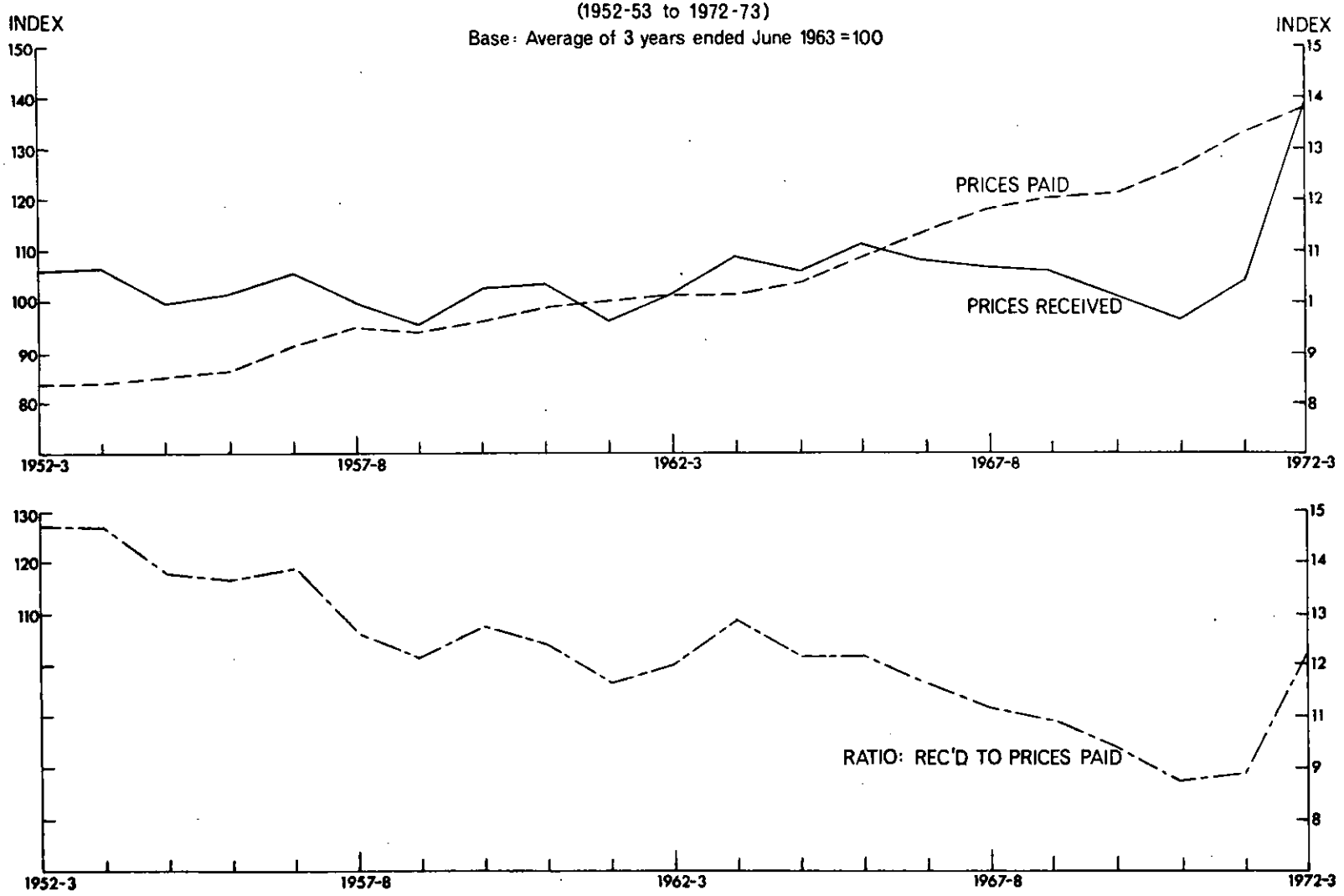
ALL VALUES REPRESENT SOUTH AUSTRALIAN AVERAGE PRICES

Fig. 3.3

INDEXES OF PRICES PAID AND RECEIVED BY FARMERS AND RATIO OF PRICES RECEIVED TO PRICES PAID

(1952-53 to 1972-73)

Base: Average of 3 years ended June 1963 = 100




SOURCE: BUREAU OF AGRICULTURAL ECONOMICS

markets of the United States, Britain, France and West Germany. The decline in wool prices produced, in turn, a compensatory increase in wheat production, but the inevitable glut which followed led to the introduction of market delivery quotas, beginning with the 1969-70 harvest (Ref.2).

3.5 The imposition of wheat quotas, spiralling production costs, and continuing low wool returns produced talk of a rural depression in the early 1970s and much of the post war impetus for land clearance had clearly gone. Development schemes for uncleared scrublands were shelved, and the decline in the number of notices of intent to clear (Fig. 3.4) reflected the overall slackening in activity (Ref.3). More recently, the lifting of wheat quotas has undoubtedly contributed to renewed clearance in some areas of the wheat producing regions, but such clearance is relatively minor in extent.

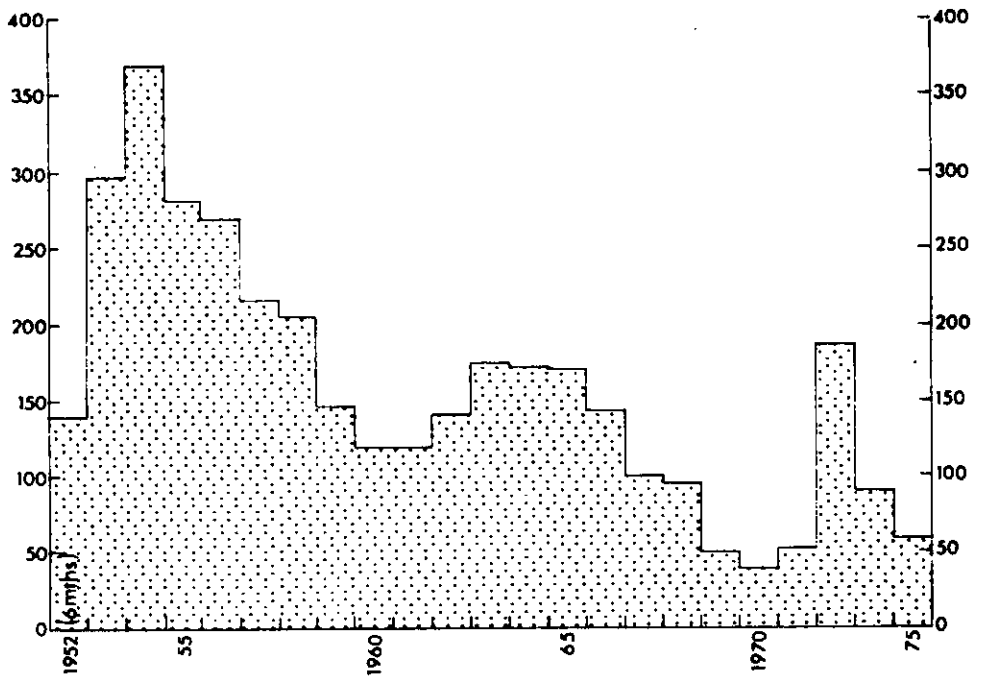
*Technological Developments*

3.6 Outside of the cereal producing regions the bulk of the clearance since World War II has been on the trace element deficient areas of the South East, Kangaroo Island, the southern Mt Lofty Ranges, and portions of Eyre and Yorke Peninsulas (see 2.4, 2.10, 2.13, and 2.19 above). In all of these regions the soils are notably deficient in inorganic micronutrients, the so-called trace elements, and until research work confirmed these deficiencies in the late 1930s and early 1940s the land remained uncleared and almost unused. When on-going research established the relative ease with which the deficiencies could be corrected it became clear that clearance and pasture development would be possible over very wide areas. The importance of the discovery is difficult to overrate for, in combination with the various other factors discussed here, it contributed directly to much of the massive land clearance and development outlined in Term of Reference 1(Ref.4).

3.7 Closely associated with the above research was detailed experimentation with pasture cultivars believed to be suitable for establishment on trace element deficient lands. The research led to the selection of a number of suitable strains and the sowing down of newly cleared trace deficient areas to mixed leguminous and grass pastures became an integral part of the development programmes for

NOTICES OF INTENT TO CLEAR SCRUB

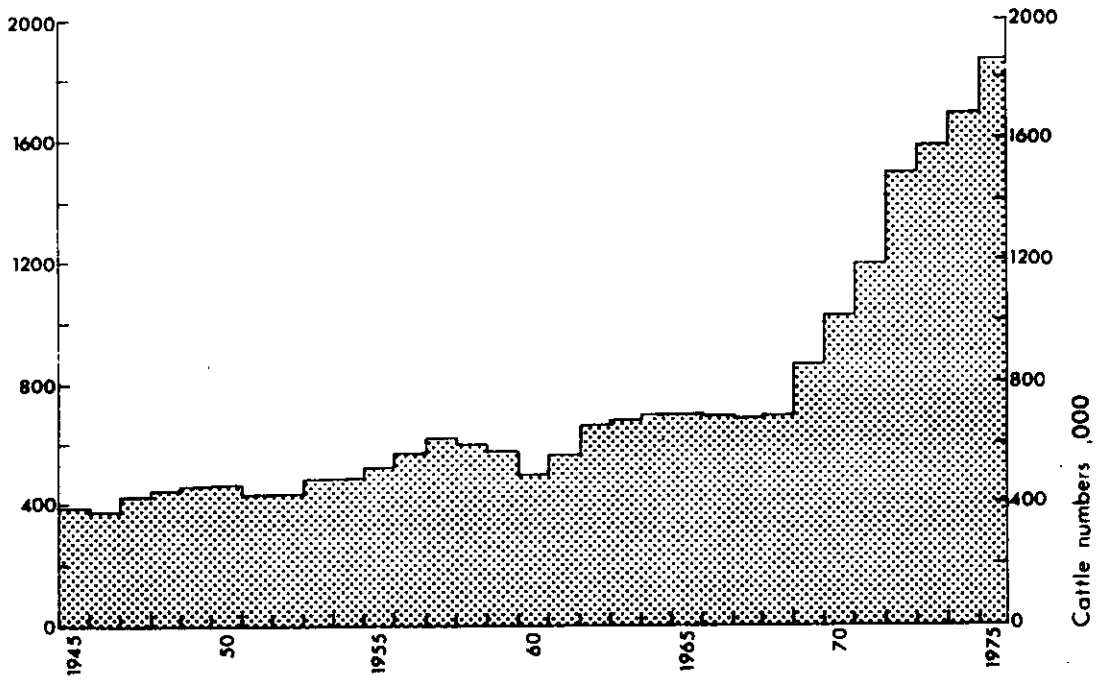
Fig. 3.4




SOURCE: S.A. DEPT. of AGRICULTURE and FISHERIES

CATTLE NUMBERS SINCE W.W. II

Fig. 3.4a




SOURCE: S.A. STATISTICAL REGISTER

much of the South East, Kangaroo Island, south-central Eyre Peninsula and the southern Mt Lofty Ranges (Ref.5).

3.8 Even given the above research findings, large scale economic development of the trace element deficient country would have been impossible without technical innovations in the machinery available for clearance and cultivation. World War II proved productive in this respect, producing rapid development and refinement of such heavy machinery as the crawler-tracked bulldozers so eminently suited for cheap and rapid scrub clearance. Whereas horse or bullock-drawn rollers could clear up to 16 ha of low scrub per day, a pair of powerful bulldozers dragging a heavy chain could clear well above that amount per hour. At the same time heavy disc ploughs became widely available, combining with the bulldozers to provide a land utilization technology suited to cheap and rapid vegetation clearance.

*The Government Role - Policies and Incentives*

3.9 Clearly, favourable economic conditions and important scientific and technological advances in land utilization and management have been of key importance in stimulating and maintaining the massive post World War II clearance, but the supportive role of Government in providing favourable policies and incentives must not be underrated.

3.10 Since World War II numerous policy statements outlining a strongly supportive and protective role have come from both Commonwealth and State Governments, and the policies have found practical expression through a wide variety of legislative and administrative measures, the most important of which, from the vegetation clearance aspect, have been the War Service Land Settlement schemes, and the various taxation concessions and incentives provided under the Commonwealth Income Tax Assessment Act.

*War Service Land Settlement*

3.11 Following World War II many returned servicemen expressed an interest in farming, and land development schemes for this form of repatriation were established on the trace element deficient lands of the South East, Kangaroo Island, and south-central Eyre Peninsula. A State Government Crown Lands Development Act, 1943 (establishing the right of the Minister of Lands to clear and improve crown lands before allotment) was followed in 1945 by the Commonwealth/State Government's War Service

Post-war land development - 'heavy disc ploughs became widely available,combining with the bulldozers to provide a land utilization technology suited to cheap and rapid vegetation clearance' - Hd.Macgillivray Co. Carnarvon, 1954(above); Hd.Duncan Co.Carnarvon, 1951 (below). *Photos courtesy E.D.Carter*

Lands Settlement Agreement Act, the provisions of which allowed for the Commonwealth Government to finance the development of areas considered suitable for the settlement of ex-servicemen, with the State Government responsible for the local operation and general administration of the scheme. It was from the 1945 Act that most of the development stemmed, the Crown Lands Development Act being used mainly for areas deemed by the Commonwealth to be unsuitable for inclusion in the joint scheme (Fig. 3.5).

3.12 By the late 1940s the State Government's Land Development Executive was actively involved in the supervision of scrub clearance, sowing of pastures, and provision of buildings, water supply, and fencing necessary before the land could be allotted to selected applicants. Post-war shortages of materials and labour resulted in the supply of farms being outpaced by demand, and when the Australian Mutual Provident Society (A.M.P.) approached the South Australian Government with a proposal to undertake land development along similar lines to that already under way it met with ready approval. The Land Settlement (Development Leases) Act, 1949 enabled the A.M.P. to acquire large areas in the Upper South East, and the result was land development on a massive scale (Ref.6).

*Concessions and incentives - the Income Tax Act*

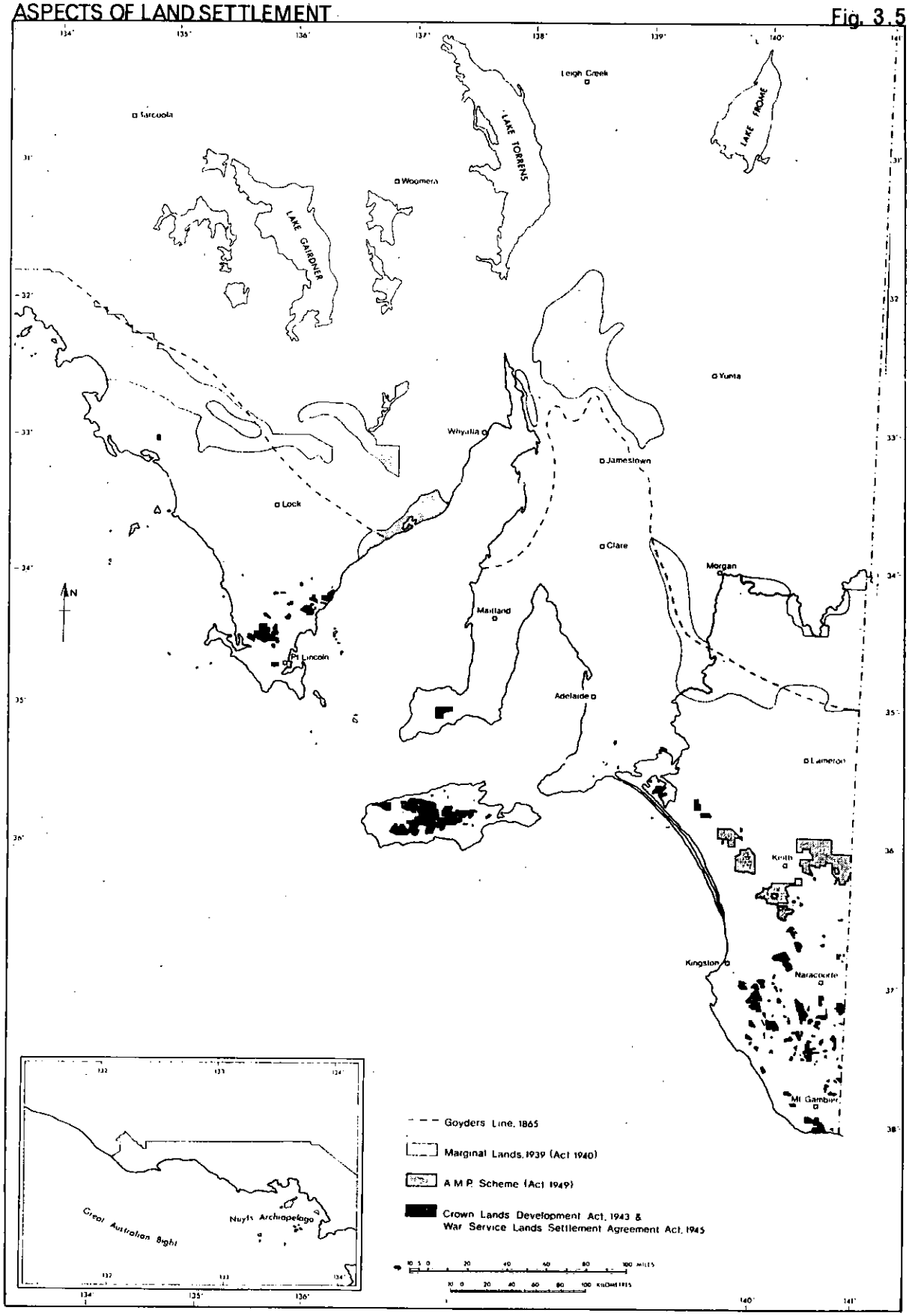
3.13 Until an Amending Act (165 of 1973) curtailed some incentives, a wide variety of concessions were available to farmers under the provisions of the Income Tax Assessment Act. Some of the concessions included five year income averaging, the unlimited carry forward of losses, the provision of machinery investment allowances, and special (five year) depreciation rates for items of plant and some structural improvements.

3.14 The most important for vegetation clearance, however, was section 75(1)(b) allowing a full deduction in the year incurred for expenditure on "the destruction and removal of timber, scrub or undergrowth indigenous to the land."

3.15 While received favourably by rural interests such concessions attracted criticism from a variety of quarters. Section 75(1)(b), in particular, was criticised vigorously by those interested in the conservation of natural vegetation, especially when wheat and wool encountered marketing difficulties in the 1960s and early 1970s and much of the justification for continued clearing appeared to have gone.

# ASPECTS OF LAND SETTLEMENT

Fig. 3.5



The criticism eventually led to a review by the Bureau of Agricultural Economics, and shortly afterwards the Commonwealth Government passed the previously mentioned Amending Act (165/1973)significantly curtailing many of the concessions outlined in 3.13 above. Of special interest was the amendment to Section 75(1)(b) allowing clearance expenditure (and certain other development costs) to be deducted only over a period of ten years (10% per annum) (Ref.7).

3.16 The curtailment of concessions undoubtedly made short term speculation in land development less attractive than in previous years, but it has coincided with poor returns for wool and beef and it is difficult to decide whether the present reduced rate of clearance (Fig. 3.4) is due primarily to the cut back in taxation concessions or to the present marketing difficulties in the rural industry.

*The Government Role - Controls and Disincentives*

3.17 Commonwealth and State Government support for land clearance and development notwithstanding, it is relevant to examine briefly those controls and/or disincentives which have either operated or been attempted over the past few years.

*The Crown Lands Act, 1929-74 and the Pastoral Act, 1939-60*

3.18 Land tenure leases issued by the Department of Lands have traditionally contained various provisions relating to vegetation clearance. For example, relatively little clearance has been allowed on the short-term annual licences and the terminating-tenure miscellaneous leases. Additionally, no green timber may be cut from pastoral leases without Ministerial approval and, in practice, very little clearance has been permitted. On the other hand, perpetual leases and agreements with covenant to purchase (which occupy almost 55% of the total agricultural lands of the State, the balance being chiefly freehold over which no Department of Lands controls operate) include a requirement to clear and maintain for cultivation or grazing a specified area(generally the bulk of the lease) within ten years of allotment. Penalties exist for non-compliance with these clearance conditions but a realistic view is taken and the conditions may be waived. In any allocated area, 2% must be set apart and reserved for the growth of timber and, additionally, areas of natural scrub may be reserved from clearance for soil erosion control purposes.

*Soil Conservation Act, 1939-60*

3.19 The Soil Conservation Act, 1939-60, administered by the Soil Conservation Branch of the Department of Agriculture, provides(through Section 12a) for three months notice of intent to clear to be given to the Soil Conservator. Exemption of notification is provided for the cutting of trees for firewood, posts, or timber; the burning of standing scrub; and the clearing of land for fire breaks,afforestation and the construction of public works and roads. Section 13 provides for the Minister of Agriculture to place limitations on any clearance if he is of the opinion that such limitations are desirable for the prevention of soil erosion.

3.20 In practice, the provisions of the Act mean that the Soil Conservation Branch of the Department of Agriculture is notified of most agricultural clearance programmes, and through its field and head office staff it carries out a scrutiny for possible soil erosion hazard over the area proposed for clearance. Any hazardous areas (typically very steep slopes or sandy rises and dunes) are marked on aerial photographs and reserved from clearance. In recent years policing the Act has been problematical; clearance without notification has taken place, and some areas reserved because of soil erosion hazard have been cleared. An Amendment to the Act currently under consideration would raise the penalty for non-compliance with clearance restrictions and could curtail illegal clearance.

*Planning and Development Act, 1966-75*

3.21 At present the only powers held by the Department for the Environment for control of vegetation clearance on a macro or State-wide basis are those existing under the Planning and Development Act, 1966-75. Part IV, 36(4)(i) of the Act provides that for authorized planning areas planning regulations may be drawn up for 'the conservation, preservation or enhancement of the natural beauty..... of any routes or localities of scenic beauty or value'. Further, Part IV 36(4)(k) provides that in authorized planning areas the State Planning Authority may 'prohibit the cutting down, topping, lopping, or destruction of trees except with the consent of the Authority'. In September 1972

the State Planning Office drafted Environmental Protection Planning Regulations for the Kangaroo Island Planning Area, and Part III of the provisions proposed that, without the written consent of the Authority or a Ranger, there would be no cutting, lopping, or destruction of trees above 120 cm in height (exceptions were to be trees in dead or dangerous condition, fencing timber, fuel for domestic heating, or any trees required to be removed by an obligation inherent under any other Act or which may have been required in conditions of emergency to prevent the spread of bushfires).

3.22 The proposed Regulations provoked a strong reaction from rural interests, and between October 1972 and February 1973 a total of 91 formal objections were lodged with the State Planning Authority. Additionally, sustained opposition came from the rural press throughout early 1973. Criticism of the proposed Regulations focused mainly on their possible effects in slowing down new land development and removing land management decisions from the farmers (many of the objectors arguing that the State Planning Authority had no rural expertise in its membership and would not understand the problems of the primary producer). Unstated in most cases but no doubt an important factor was a widespread feeling on the Island that isolation and attendant transport costs and difficulties were already a strain on farmers. Mainland control of vegetation clearance was, to many, a final frustration. Work on the Regulations ceased and there is no indication of any early moves to reintroduce them to Kangaroo Island or any other Planning Area. (Ref.8).

3.23 Tree preservation regulations have been considered for the City Councils of Burnside and Campbelltown but these are directed towards the protection of individual trees in urban areas and are not significant controls on a State-wide basis.

*A Look to the Future - Projected Clearance*

3.24 It will be appreciated from the above discussion that vegetation clearance in South Australia since World War II has been influenced by a variety of economic factors, Government policies, and technological developments in land utilization and management. Given the complexity of the interaction between these factors and the difficulty (if not impossibility) of accurately predicting the future needs and demands of society, any attempts to foresee future vegetation clearance patterns will be fraught with uncertainty.

3.25 Nonetheless, it was made clear in Term of Reference 1 that the extensively cleared nature of the older agricultural regions of the State makes it possible to state with certainty that these areas at least will experience little further clearance. Elsewhere, it was pointed out, the agricultural regions of the State have some potential for further clearance.

*Economic trends*

3.26 In its attempts to predict the likelihood and extent of such clearance the Committee has concentrated on likely trends in rural production and, after some discussion, has concluded that for the foreseeable future there will be a continuing demand for increased production. Recent predictions of a near static population for Australia by the turn of the next century and the vagaries of world supply and demand make it impossible to be dogmatic about such a prediction: present world demand for wool and beef is low and likely to remain so for some time, while the future of the cereal market will depend to a large extent on the unpredictable demand (and ability to pay) for cereals from the under-developed nations. However, Australia exports 60% of its rural production and, regardless of the uncertain prospects for individual commodities, the realities of diplomacy and geopolitics in a world characterised by an ever-widening gap between developed and under-developed nations suggest to the Committee that there will be considerable international pressure for Australia to remain a major food exporter (Ref.9).

*Technological developments*

3.27 The above conclusion notwithstanding, the Committee finds it hard to envisage scientific and technological developments producing any future agricultural expansion on a scale comparable to that in the years following World War II. Economic desalinization of water supplies for arid lands irrigation (even if the products were salable) appears a remote possibility, and there is no foreseeable likelihood of the development of pasture plants suitable for intensifying production in the arid and semi-arid regions. Additionally (and in spite of the development of drought-resistant cereals) the post-war trend in cereal growing areas has been a continuing contraction away from the climatically-marginal areas.

3.28 Improved machinery, higher-yielding crop strains, and refinements in land management will undoubtedly lead to increased production on existing cleared lands in the agricultural regions, but this will not be without some economic and environmental problems; high energy and cost inputs in such forms as increased fertilizer and pesticide applications are required, and the possibility of substantial pollution of surface and sub-surface water supplies increases with increasing intensity of land usage(Ref.10).

3.29 In other words, the Committee doubts the likelihood of extensive clearance outside of existing agricultural regions, but foresees some intensification of production on existing cleared lands. Such intensification will have limits, however, and this suggests continuing pressure to bring new lands into production by further clearance within the recognised agricultural regions. However, even this is unlikely to be on a large scale for it should be clear from Term of Reference 1 that there is now relatively little land remaining uncleared that would be considered suitable for cropping or pasture development. Additionally, what little uncleared land remains will be subject to competing demands from non-rural uses, a point discussed further in 3.31 below.

*The Government role - future attitudes*

3.30 Given its importance as a foreign exchange earner, agriculture will almost certainly continue to attract considerable State and Commonwealth Government encouragement and support.

3.31 At the same time, however, the increased community support for environment protection, the overall affluence and high personal mobility of people (leading to an increasingly high usage of rural areas by urban dwellers) and the acquisition of substantial rural areas for such non-rural uses as national parks, open space reserves, field study centres, commuter living, and youth camps all point to increased competition for the use of uncleared areas (Ref.11). The pressure on Governments to allocate or divert uncleared lands to these non-rural needs and demands is unlikely to be ignored. Indeed the setting up of this Committee is an acknowledgment that traditional attitudes to vegetation clearance are in need of review, and the Committee is convinced that if land-use conflicts centred on what is a finite and constantly-declining resource are to be resolved or avoided, future Governments will need to adopt sound principles for the use and management of uncleared vegetation. It is this matter to which the Committee turns its attention in Term of Reference 3.

*Summary and Conclusions*

3.32 The Committee has endeavoured to show that the upsurge in vegetation clearance in South Australia since World War II has resulted from a complex interaction between the physical environment and a variety of economic factors, Government policies, and technological developments in land utilization and management. The availability of heavy machinery, the discovery and correction of trace element deficiencies, the provision of development and production incentives, the repatriation of ex-servicemen, and generally high returns for grain and livestock have all interacted, along with other factors, to produce a post-war land development boom.

3.33 In recent years the pace of clearance and development has slowed and in the older settled regions little further clearance is likely. However, in the more recently settled regions some development could continue, given favourable economic and social conditions, and the Committee has concluded that a future demand for increased rural production will be met, in part, by moves to further clear and develop land within existing agricultural regions.

3.34 Such clearance will, however, present many problems; uncleared areas on existing agricultural lands are small and constantly declining, and those that remain will be subject to a variety of competing land-use claims. The Committee is convinced, therefore, that, if land-use conflicts centred on vegetation clearance are to be avoided or resolved, principles of sound land-use and land management as they relate to the clearance of native vegetation will be essential.

*References*

1. The boom was commented on in Department of Lands Annual Reports: see, for example, the Report for 1950/51 *(South Aust.Parl.Papers* No.10 p.17).

2. ANONYMOUS, 1974: *Rural policy in Australia: report to the Prime Minister by a working group.* Aust.Govt.Pub.Service, Canberra.

3. The Department of Lands, for example, shelved plans to release 20 000 ha of unallotted crown lands in County Chandos (D.L. 2534/66, D.L.3574/67).

4. See WILLIAMS, M., 1974: *The making of the South Australian Landscape: a study in the historical geography of Australia,* Academic Press,London, and references therein.

5. DONALD, C.M., 1958: 'The pastures of South Australia' pp. 149-55 in BEST, R.J., (Ed.) *Introducing South Australia,* ANZAAS, Adelaide.

6. Detailed reports of the Government (and to a lesser extent A.M.P.) schemes may be found in the Department of Lands Annual Reports for the years following World War II.

7. Bureau of Agricultural Economics, 1973: *Primary Industry Tax Concessions: their use by taxpayers with multiple sources of income,* Aust.Govt.Pub. Service, Canberra.

8. See references cited in Chapter 1 dealing with this controversy.

9. A similar view is presented in BORRIE, W.D., (Ed) 1975: *Population and Australia: a demographic analysis and projection,* Aust.Govt.Pub.Service, Canberra, 18.01 - 18.93.

10. For a more detailed discussion of the problems see GROSSON, P.R., 1975: 'Environmental considerations in expanding agricultural production', *Journal Soil & Water Conservation* V.30,(1), 23-28.

11. The report cited in Ref.2 above also discusses this growing competition for rural lands (9.56 - 9.62).

# CHAPTER 4

## LAND USE AND LAND MANAGEMENT PRINCIPLES

*The principles of sound land use management as they relate to the clearance of native vegetation* (Term of Reference 3)

4.1 In considering this Term of Reference the Committee has chosen to interpret 'sound land use management' as a compound term embracing the separate concepts of sound land use and sound land management.

4.1.1 Sound *land use*, the Committee considers, is the sound or wise allocation or diversion of land to a particular use or uses.

4.1.2 Sound *land management*, the Committee considers, is the assemblage of management methods or approaches necessary to ensure that as far as practicable, and consistent with sustained productivity, land allocated to a particular use or uses provides that use optimally or maximally.

### *Sound Land Use*

4.2 Given the above working definition of sound land use, the Committee has proceeded to a consideration of how it relates to the clearance of native vegetation, and the discussion in 4.3 - 4.11 below may be regarded as background to the general principles enunciated in 4.12.

*Land use as it relates to vegetation clearance*

4.3 With just over 80% of the State receiving an annual average rainfall of less than 250 mm, South Australia is the driest State in the driest continent of the World. The significance of this from the vegetation point of view is, of course, that South Australia has very few areas of forested or heavily-timbered country that compare in any way with the extensive forested tracts of the Eastern States and Western Australia. Those small southern regions of the State which do experience annual average rainfalls in excess of 250 mm have, as pointed out previously, been the scene of intensive agricultural development, and substantial inroads have been made into what little higher rainfall vegetation the State once supported.

4.4 Term of Reference 1 has indicated very clearly the extent of this clearance at the macro scale, entire vegetation communities having been replaced over large areas by those introduced and artificially-maintained by European man. It is worth reiterating at this point that the Committee's work on Term of Reference 1 has shown clearly that few substantial areas of uncleared vegetation remain on the privately-held agricultural lands of the State.

4.5 At the micro scale some indication of the impact of clearing and grazing on the individual plant species may be gauged from recently published data which indicates that out of 2380 indigenous species of plants recorded from South Australia some 947 (or 39.8%) may now be regarded as rare or endangered (Ref.1).

4.6 Clearly, agricultural clearance has had a profound effect on the native vegetation of the southern agricultural regions of South Australia. In the context of European settlement such clearance has been both inevitable and desirable: it would have been impossible to settle the State and do otherwise. Indeed vegetation has, understandably, been seen by many as an impediment to land development, and advertisements describing uncleared holdings as 'development blocks' with 'attractive investment opportunities' are still characteristic of the rural press.

4.7 However, in spite of the persistence of these traditional attitudes, times are changing and the Committee has noted with interest that even in rural areas there is widespread support for the rational conservation of remnant areas of native vegetation. The support is certainly not universal and opposition can still be expected, but there does appear to be an increasing acceptance of the need to conserve native vegetation judiciously in a variety of situations and for a variety of community needs (Ref.2).

*Approaches to vegetation conservation*

4.8 Notwithstanding the Soil Conservation Act 1939-60 and its powers to prevent clearance of scrub on private lands, the traditional approach to vegetation conservation in South Australia (as indeed it has been in most Western countries) has been to purchase the fee simple of the subject area. Thus, for many years forest reserves have been purchased, reservoir reserves have been purchased and more recently national parks have been purchased. Acceptance of the need to purchase areas for national park purposes has hinged on their potential contribution to the dual community needs of recreation and conservation and, as pointed out in the Introduction, the 1960s and 1970s have seen a marked expansion of the park system in South Australia (Ref.3).

4.9 It might reasonably be expected that such large scale acquisition of land throughout the State at considerable community expense would have secured for all time a representative selection of the State's vegetation. In fact, such is not the case. The figures quoted in 4.5 above indicate clearly that the status of many species is precarious: additionally, the same study has recorded that of the 127 vegetation alliances recorded in the State some 40 are not conserved at all, and 11 are poorly conserved; only two are considered to have an excellent conservation status. Bearing in mind that the better quality agricultural lands have long been almost totally cleared, leaving only the poorer lands for park purposes, such under-representation is not really surprising. More importantly, however, it is becoming increasingly clear that, however ambitious, any attempt to conserve vegetation over discrete areas by acquisition of the fee simple will always have severe limitations and difficulties. On economic grounds alone there are obvious limits to the extent to which Government funds can be committed to the acquisition and management of national parks, but on ecological grounds also, there must be doubt about the long term stability of relatively small island-like parks and reserves separated by essentially denatured areas. It has recently been suggested, for example, that if the species dynamics of islands are any guide, it is likely that a park or reserve occupying 10% of a given biogeographical unit is not likely to retain in the long term more than 50% of its species - and given that most of our parks and reserves are well below the 10% figure used - the implications are clear (Ref.4).

4.10 It must not be construed from the above, however, that the value of the State's parks system is in doubt. South Australia has many fine parks fulfilling important community needs, and acquisition and management of further areas must continue in the future. However, the Committee does see quite clearly that more and more attention will have to be given to the conservation of native vegetation outside of the park system. It is certainly naive and impractical to believe that we could or should attempt to preserve *all* species, but the Committee is convinced that the retention of areas of native vegetation on private land is an essential complement to the parks system (Ref.5). Quite apart from their contribution to species preservation, areas of

native vegetation have a utilitarian value (shade and shelter belts, fencing and firewood timber, and soil erosion control, to mention only some aspects), and an important role in providing landscape diversity - diversity which gives at once both visual attractiveness and ecological stability (Ref.6). Perhaps though it is the potential usefulness of native vegetation which warrants most attention. It is impossible to predict in advance what species of plants and animals may be useful to man: modern pharmacology is already extracting valuable alkaloids from plants once considered useless, and the argument for maximising our retention of potentially useful genetic material is compelling (Ref.7). Equally, it is impossible to predict in advance what priorities will be allocated to various forms of land use by future communities; the recent pressure for environmental protection is indicative of how rapidly priorities might change.

4.11 This suggests to the Committee that there is much to be said for keeping open as many options for future land use as possible, and a corollary to this is that we should avoid activities which preclude or foreclose future options for use of the land. Vegetation clearance, by its very nature, does tend to be a one-way erosion of a valuable resource, and the continuing loss of this resource, since we now have so little of it remaining, is not something to be undertaken lightly.

*Land use principles relating to vegetation clearance*

4.12 At the same time, the Committee reiterates its previously expressed view (3.33 above) that future clearance, albeit on a limited scale, is inevitable in some of the more recently developed regions of the State. Given this view, and given the above discussion on the need for caution and maximum flexibility in our approach to vegetation clearance, the Committee considers that as a community we must, in our land use planning, look very carefully at what vegetation is left, weigh up its capability for sometimes-conflicting needs and demands, and allocate it accordingly for a variety of community uses. In short, the Committee is commending for attention its considered view that land *proposed* for clearance should be assessed for its overall significance and relevance to a variety of community needs, and in particular the Committee is putting forward what it considers to be two fundamentally

Contrasting landscapes - 'areas of native vegetation have.....an important role in providing landscape diversity-diversity which gives at once both visual attractiveness and ecological stability' - an attractive blend of cleared and uncleared land in the Hd.Richards Co.Cardwell(above) contrasts with a totally cleared landscape in the Hd.Neville Co. Cardwell(below).

important principles of land use as they relate to vegetation clearance:

4.12.1 Uncleared land suitable for single or, wherever possible, multiple use should be allocated for a variety of community needs.

4.12.2 Uncleared land should be allocated only for uses for which it is reasonably likely to be suitable.

*Sound Land-Management*

4.13 Given the working definition of sound land-management in 4.1.2 above, the Committee has proceeded to a consideration of how it relates to the clearance of native vegetation, and the discussion in 4.14 - 4.15 below may be regarded as background to the general principles enunciated in 4.16 below.

*Land management as it relates to vegetation clearance*

4.14 The principles outlined in 4.12.1 and 4.12.2 are of key importance but an essential follow up to sound allocation of uncleared land is sound land management. The Committee believes that sound land-management as it relates to vegetation clearance involves managing land clearance and development programmes in such a way that there is no local or regional loss of land capability or productivity. In other words, clearing should be carried out in such a way that the capability of land (whether it be the subject land or any other land) for its allocated purpose or purposes remains unimpaired.

4.15 The Committee considers, for example, that it is counter-productive to approve land for clearance on the one hand and then to allow a carelessly planned or poorly-executed clearance and development programme to produce a local soil erosion problem. In the early years of agricultural development in the State there were many examples of land allocated for development being mismanaged, and problems of wind and water erosion were particularly severe in the Murray Mallee and the Mid and Upper North. Since World War II the position has greatly improved, and recognised and proven land-management techniques have been developed for all agricultural regions of the State. Much of the improvement can be attributed to the vigorous extension and supervisory work carried out by the Department of Agriculture and the Department

of Lands. Such work has been complemented and strengthened by legislative controls, particularly the Soil Conservation Act, 1939-60. More recently, the Waterworks Act, 1932-74, and the Water Resources Act, 1976, have introduced some degree of control over land-management practices which may have a bearing on the quality of surface and sub-surface water supplies.

*Land management principles relating to vegetation clearance*

4.16 In short, the Committee considers that there is now widespread understanding and acceptance of the need for land management to avoid either local or regional impairment of land capability or productivity. Existing statutes and extension work by the responsible Departments confirm the impression that the situation is in hand, and the Committee is content, therefore, to make the general observation that uncleared land *approved* for clearance should be developed in accordance with recognised and proven land-management techniques. Two principles of land-management as it relates to vegetation clearance follow from this observation, and both appear to be widely accepted.

4.16.1 Clearing of land should be carried out in such a way as to maintain unimpaired the capability of that land for its allocated purpose(s).

4.16.2 Clearing of land should be carried out in such a way as to maintain unimpaired the capability of adjacent or other land for its allocated purpose(s).

*Summary, Conclusions and Recommendations*

4.17 Uncleared vegetation is a finite and constantly-declining resource which will continue to be required for a variety of community needs, and it seems clear to the Committee that principles of sound land use and sound land management should be applied to the State's remaining uncleared vegetation.

4.18 The Committee recommends, therefore:

4.18.1 *That all land carrying natural vegetation which is proposed for clearance should be assessed for its significance and relevance to a variety of possible uses or needs.*

4.18.2 *That, following assessment, lands recommended to remain uncleared should be proposed for those single or multiple uses for which they are most suited, and which are appropriate to community needs.*

4.18.3 *That uncleared lands which have been assessed and approved for clearance should be developed in accordance with recognised and proven land-management techniques.*

*References*

1. SPECHT, R.L., ROE E., and BOUGHTON, V.H., 1974: 'Conservation of major plant communities in Australia and Papua New Guinea'. *Aust. Journal, Botany, Supplementary Series* No.7

2. As a typical example of changing rural attitudes see SAMUEL C., 'It's time for planting, not clearing'. *The Chronicle*. 20 Aug.71

3. For useful discussions of the role traditionally assigned to parks and reserves see COSTIN, A.B., 1971: 'Vegetation', and DAY, M.F., 1971, 'The Role of national parks and reserves in conservation' pp. 104-127 and 190-213 respectively in COSTIN, A.B., and FRITH, H.J., 1971: *Conservation*. Pelican Books.

4. SLATYER, R.O., 1975: 'Ecological reserves: size,structure and management' pp. 22-38 in FENNER, F., 1975: *A National System of Ecological Reserves in Australia*. Aust.Academy of Science Report No.19.

5. FRANKEL, O.H., 1975: 'Conservation in perpetuity: ecological and biosphere reserves', pp. 7-10 in FENNER (4.above).

6. An interesting work dealing with the value to the community of trees is HOLLIDAY, I.G., 1970: *Trees in Land Use Planning: the planning process with regard to the significance and preservation of trees particularly in South Australia*. Unpublished thesis, School of Architecture and Building, South Australian Institute of Technology.

7. SPECHT, R.L., 1975: 'The Report and its recommendations' pp.11-16 in FENNER, 1975 (Ref.4 above).

# CHAPTER 5

## VEGETATION CLEARANCE CONTROLS

*"The controls necessary to ensure that any future vegetation clearance is in accordance with principles of sound land-use management"* (Term of Reference 4)

### *Controls - a Long Term Answer*

*The Proposals*

5.1 A conclusion which follows from principle 4.12.1 is that if a satisfactory balance is to be struck in the allocation of uncleared land for a variety of complex and often conflicting community needs, careful land-use planning will be essential.

5.2 A conclusion which follows from principle 4.12.2 is that assessment of uncleared land for its capability to provide for these community needs will be essential.

5.3 Taking the above conclusions further, it would appear that a land use authority is necessary, such an authority being responsible for the compilation of a land resource inventory, the assessment of land capability, and the implementation of land use decisions made according to suitable criteria (Ref.1).

*Discussion*

5.4 The need for such an authority has, of course, been recognised for some time. In 1944, for example, the Rural Reconstruction Committee recommended that each State in Australia establish a Land Utilization Council with responsibility for the co-ordination of land use, and in 1946 a Royal Commission into forest grazing in Victoria recommended the establishment of a land utilization body with authority over land users and land usage in the State. Partly as a result of these recommendations a Land Utilization Advisory Council was set up in Victoria in 1950, this body continuing to function until 1970 when, as a result of the Little Desert controversy, it was replaced by a Land Conservation Council operating under a Land Conservation Act,1970. In most other States a variety of planning authorities have been set up over the years to promote and co-ordinate regional and town planning, but few have a role analogous to that outlined in 5.3 above.

5.5 In South Australia there is no body comparable to that proposed in 5.3, and land-use decisions have traditionally been made by nominally

single-interest resource Departments and authorities. Recent efforts by the Department for the Environment, particularly through the Planning and Development Act, 1966-75, to co-ordinate and direct land use planning have failed to prevent a number of land use conflicts from pre-occupying segments of the community. As examples the Committee has noted such conflicts as the Hambidge Conservation Park resumption controversy; the dispute over proposals to release unoccupied crown lands in County Chandos; the conflicts over coastal development and sand mining at Aldinga, Normanville, and Nepean Bay; and the opposition to proposed environment preservation regulations on Kangaroo Island. The important point to emerge from all such conflicts is that they have resulted primarily from, at best, inadequate land use planning and, at worst, no land use planning.

5.6 The Committee has noted that moves are being made to correct these deficiencies. The 1972 *Report of the Committee on Environment in South Australia* recommended the preparation of a 'comprehensive inventory of land resources ..... to form the basis of future planning of the use of land' and the Commonwealth Government-supported ecological survey presently being undertaken by the South Australian Museum represents progress towards compilation of such an inventory which, in itself, is the first step towards an integrated approach to land-use planning and management as outlined in 5.3 above.

5.7 However, the way ahead is by no means clear: the issues are complex, control of vegetation clearance is but one aspect of the total land use problem and, in all, critically-assessing the often conflicting needs and demands placed by the community on a finite and often locally-limited land resource would be a difficult and time-consuming task.

5.8 Meanwhile, in spite of a rural recession, vegetation clearance is proceeding, scrutinised for soil erosion hazard by the notice of intent mechanism under the provisions of Section 12a of the Soil Conservation Act 1939-60, but otherwise unchecked. In other words, although principles 4.16.1 and 4.16.2 are being applied in so far as they relate to soil erosion control, principles 4.12.1 and 4.12.2 are not

being applied. The logical long-term answer must be an appropriate land use authority established and supported by statute, but given the problems of implementation a short term control is considered necessary.

*Controls - A Short-Term Answer*

5.9 In considering short term controls the Committee discussed briefly the possibility of a virtual ban on all clearance, pending formation of the land use authority referred to above. Such a ban would, at least in theory, provide the time necessary to set up the authority in such a way that it could, as one of its tasks, dispassionately assess remaining uncleared areas.

5.10 However, it took relatively little discussion for the Committee to decide against such a ban. Members agreed that it would be a negative and repressive approach which would require continual surveillance, and the inevitable controversy which would attend its introduction could well be divisive and counterproductive, serving only to further polarise the existing rift between rural and urban communities. The Kangaroo Island controversy previously discussed (3.21, 3.22) and interstate and overseas experience strongly support the Committee's conclusion, and it appears that, however ill-founded in law, there is still widespread acceptance in rural communities of the concept of inviolable property 'rights', one of the commonly-perceived 'rights' being that of vegetation clearance. In short, the Committee concluded that, at the present time, even a short term ban on clearance would be unworkable and unacceptable (Ref.2).

5.11 Having come to such a conclusion the Committee then turned its attention to an alternative approach, one based on co-operation rather than coercion, and it is this approach which is outlined below.

*The proposals*

5.12 All applications for land clearance should be scrutinised by the Department for the Environment. Following scrutiny three options would be open to the Department.

5.12.1 Land of little environmental significance: the Department for the Environment would indicate that, subject to principles 4.16.1 and 4.16.2 being met, it had no further interest in the proposed clearance. However, the Department would draw attention to any

incentives available for the maintenance of habitat on private lands (Term of Reference 5).

5.12.2 Land of environmental significance or interest, but not considered to merit acquisition by the State: the Department for the Environment would indicate approval subject to principles 4.16.1 and 4.16.2, but in addition it would open up both written and personal liaison with the applicant to acquaint him with the environmental significance or interest of his land. Additionally, the Department would draw attention to any incentives available for the maintenance of habitat on private land (Term of Reference 5). *The intention would not be to control or intimidate the landowner but rather to seek his personal co-operation in working out a clearance plan which could, by judicious retention of belts or stands of native vegetation, retain much of the original interest and value of the land.*

5.12.3 Land of outstanding environmental significance, required for the State's parks and reserves system: after careful consideration, and only with Ministerial approval, the Department for the Environment would indicate its interest in the land and open up negotiations for purchase with the owner of the subject land (Ref.3).

5.13 The proposals as outlined in 5.12 above are not expected to conflict with existing contractual requirements to clear vegetation. As pointed out in 3.18 it is possible to waive the obligation under the Crown Lands Act, 1929-74 to clear and maintain for cultivation or grazing a specified area of a perpetual lease or agreement with covenant to purchase. Any landholder who comes to an agreement with the Department for the Environment to retain vegetation previously nominated for clearance may, therefore, apply to the Minister of Lands to have the clearance condition of his lease or agreement waived in favour of retaining the area uncleared.

5.14 In formulating the approach outlined in 5.12 the Committee was aware that Environmental Impact Statement (EIS) legislation proposed by the Department for the Environment could, at least in theory, provide blanket controls over vegetation clearance and obviate the need for any alternative approach. The Committee believes, however, that at this stage the application of EIS controls to vegetation clearance would be opposed by rural interests and would be very difficult to

Approaches to vegetation clearance-'judicious retention of belts or stands of native vegetation (can) retain much of the original interest and value of the land' - a mosaic of cleared and uncleared land in the Hd.Warrenben Co.Fergusson(above) contrasts with a landscape almost totally cleared in the Hd.Clinton Co.Daly(below).

enforce (see 5.10 for earlier comment). While some primary producers (particularly those with professional or business connections) would undoubtedly have the expertise and/or finance to comply with the assessment mechanisms embodied in the proposed EIS legislation, a great many farmers would not be able to cope with the situation adequately. The Committee therefore considers that, at this stage, vegetation clearance scrutinised through the procedures outlined in 5.12 above should be deemed to have complied with any EIS controls which may be introduced. The only qualification placed on this is that if the proposed Advisory Committee on Vegetation Clearance (5.21) considers that a clearance programme is of such magnitude or importance that it cannot be adequately handled by the measures outlined in 5.12, then it should be able to recommend to the Director, Department for the Environment, that it be subject to EIS procedures. It is envisaged that such a recommendation would be a last and rarely used resort.

*Discussion*

5.15 The Committee is convinced that, as a short term or interim measure, the above approach is necessary and desirable. It is in every way anachronistic to have, in 1976, wide-spread vegetation clearance proceeding without scrutiny by a Department for the Environment, and the proposed measures could achieve some success in correcting an unsatisfactory situation.

5.16 However, the Committee is also well aware that if liaison is not established with rural interests before its implementation, the interim measure could provoke a hostile reaction. While not an all embracing control like the environment preservation regulations proposed for Kangaroo Island, it could be seen by some to be yet another Government attempt to regulate and control their lives, and feelings could, accordingly, run high. Aggravating the matter of course is the present depressed state of the rural economy: many farmers are angry and resentful at what they see as a failure by Government to provide ready and positive assistance. At best the proposed controls of vegetation clearance would be seen by some as a hindrance, at worst they would be seen by others as a Government-inspired attempt to capitalise

on their present economic problems.

5.17 Nonetheless, having noted that such opposition could arise, the Committee considers that if the liaison mentioned above is established successfully, and careful attention is paid to any comments or criticisms, much of the expected opposition could be forestalled or minimised.

5.18 An important point to bear in mind when considering introduction of the interim measure is that the farmers should not be inconvenienced or delayed by administrative procedures. The Committee considers that this end can best be achieved by close co-operation and liaison between the Department of Agriculture and Fisheries and the Department for the Environment. Under Section 12a of the Soil Conservation Act farmers are required to give, in writing, three months notice of intent to clear, and it would be a simple administrative matter for the Department of Agriculture and Fisheries to forward copies of these notices to the Department for the Environment. Such a procedure, along with joint inspections by the two Departments whenever possible, would mean that the farmer need fill out no more forms than presently required, and the statutory three month period of notification would remain the same (although it should be noted that Department for the Environment involvement may in some cases prevent the Department of Agriculture giving approval in less than the statutory three month period, a common practice at present). Simple those these measures may sound, they will be of considerable importance in determining the overall acceptability of the interim measure to the rural community: farmers already consider themselves overburdened with what they regard as unnecessary and repetitive bureaucratic procedures.

5.19 Even more important than administrative efficiency however, will be the need for the Department for the Environment to develop a realistic and understanding approach in its dealings with the rural community. Only well-evaluated and demonstrably well-founded proposals should be put to farmers and, wherever possible, regional staff capable of establishing a rapport with local farmers should be used by the Department. Other Departments have demonstrated clearly over many years that regional staff can do much to foster essential goodwill and co-operation at the local level, and the matter warrants careful attention.

5.20 The Committee does not expect success to come quickly or easily, but given a concerted and enlightened approach by the Department for the Environment the problems are not considered to be insurmountable. In many respects the task is analogous to that faced by the Department of Agriculture in combating soil erosion in the 1930s and 1940s, and that Department's fine extension work offers a ready model for the Department for the Environment to emulate (Ref.4)

5.21 A realistic and carefully-handled liaison with rural interests, efficient administration, and some regionalization will all assist the Department for the Environment in meeting the challenge. Additionally, however, there is much to be said for establishing an Advisory Committee to assist the Department in its scrutiny of vegetation clearance. Representation of the Committee should include relevant Government Departments and rural interests and, while it should not be involved in executive decision-making and day to day administration, the Committee could be expected to play an important role in providing advice and guidelines for the Department. Such a Committee would, in addition to the sound practical advice provided, do much to allay present rural fears and suspicion of the Department for the Environment.

5.22 It should be clear from the above discussion that, while the Committee does not consider that effective implementation of its proposals will be easy, it does consider that, pending formation of a land use authority, they will provide a measure of short term restraint on clearance. To establish the validity of this judgment a careful monitoring programme by the Department for the Environment would appear to be essential.

5.23 It has been pointed out above (5.8, 5.15, 5.22) that the Department for the Environment's scrutiny of vegetation clearance is intended to be an interim or short term measure pending the introduction of long term controls by a land use authority. Bearing in mind the inherent difficulties in constituting such an authority, however, the interim measure may be in operation for some time, and the Committee considers that in addition to the monitoring proposed in 5.22 (indeed, as an outcome of it) the proposed Advisory Committee

should conduct a review of the effectiveness of the interim measure if it is still in operation three years from the date of implementation. Three years may appear to be an arbitrary time; however, taking into consideration the point made in 5.20 that its acceptance will take some time, but bearing in mind the relatively little vegetation left over wide areas of the State and the pace of clearance elsewhere, three years would appear to be a reasonable time span. The precise details of the review will clearly be a matter to be decided at the time, but this Committee considers that they should be sufficiently broad to allow for recommendations leading to a different approach to vegetation clearance, if the measures proposed in this Report are shown to have been ineffective.

*Summary*

5.24 In summary, the Committee has concluded that effective long term control of vegetation clearance should rest with careful land use planning based on assessment of the capability of the land to meet a variety of complex and often conflicting community needs and demands. To translate such a conclusion into practice will, however, be time consuming, and an interim or short term measure is considered necessary.

5.25 It is expected that this interim measure will exercise some degree of restraint on vegetation clearance, but a monitoring programme to gauge its effectiveness should be implemented. If after three years a land use authority has not been established, and the measure is to continue, it should be carefully reviewed and modified, if necessary.

*Conclusions and Recommendations*

The Committee recommends:

5.26 *That to ensure future vegetation clearance is in accordance with principles of sound land-use and land management, land-use planning through a land-use authority should be implemented.*

5.27 *That as there is an urgent need to restrain the rate of land clearance, and as the establishment of a land use authority would necessarily take some considerable time, an interim or short term measure operable within existing statutes and existing administrative frameworks be established immediately, with the aim of achieving a reasonable degree of the restraint sought.*

5.28 *That establishment and administration of the interim measure be entrusted to the Director, Department for the Environment, and that he be assisted by an Advisory Committee on Vegetation Clearance.*

5.29 *That in establishing and administering the interim measure, attention be given to:*

5.29.1 *The need to establish a close local liaison with rural interests*

5.29.2 *The need to establish an efficient administrative system.*

5.30 *That the measure be monitored for its effectiveness and, if circumstances warrant, it be reviewed three years after the date of implementation.*

*References*

1. Sections of the following have been found by the Committee to provide a useful guide to recent Australian thinking on land use planning and control, particularly as it relates to rural areas:

ANONYMOUS, 1974: *Rural policy in Australia. Report to the Prime Minister by a Working Group.* Aust.Gov.Pub.Service, Canberra, particularly 9.3 - 9.93 and 9.171 - 9.195.

Australian Advisory Committee on the Environment, 1974: *Land use in Australia*. Report No.4 Aust.Govt.Pub.Service, Canberra.

Australian Forestry Council, 1974: *Forwood. Report of Panel 1, Land use and its Role in the Economy.* Aust.Govt.Pub.Service, Canberra.

2. Important reviews dealing with the Australian and overseas situation include:

MORRIS, S., 1975: 'Owner rights and co-operation' pp.79-82 in Australian Conservation Foundation, 1975: *Landscape Conservation*. ACF, Melbourne.

ROE, CHARLES, E., 1975: *Open Space Lands Preservation Techniques: a literature review of innovative methods.* Council of Planning Librarians, Exchange Bibliography No.896, Illinois.

3. The details of the proposed interim measure were worked out independently by the Committee. Recently, however, the Committee has become aware that some aspects of the measure have previously been

suggested for introduction in South Australia. In particular, two schemes involving Department for the Environment scrutiny of areas proposed for clearance were put forward in 1973 (submission to State Planning Authority by R.C.Caldicott 29/5/73, in S.P.A. 50/10/2030; submission to National Parks and Wildlife Advisory Council by H.J.Eichler and R.T.Lange, 9/3/73). Neither of the proposed schemes appear to have been taken any further than the submission stage.

4. An excellent example of the approach which could be adopted is to be seen in LANDY, T., 1976: ' Pastoral scenery - the beauty of well-managed farmlands', *Victorias Resources*, v.17(4), pp.24-7.

# CHAPTER 6

## INCENTIVES FOR THE RETENTION OF NATURAL VEGETATION

*The means whereby retention of appropriate areas of natural vegetation may be encouraged* (Term of Reference 5).

6.1 Previous discussion in this Report has defined a need to complement the national parks and reserves system by retaining areas of native vegetation on private lands (4.9 - 4.10). Careful land use planning has been proposed as the most satisfactory long term method for achieving this end (5.1 - 5.3), but as a short-term or interim control a scheme based on co-operation between land owners and the Department for the Environment has been outlined (5.12 - 5.23). It has been argued that retention of areas of native vegetation on private land can be sensible land management (4.10), a contention that many land owners would enthusiastically support. Others, however, will be sceptical or disinterested, and others may have a genuine cause for grievance - retention of a particular piece of native vegetation *may* involve them in production loss and/or recurring management costs. To meet such cases the Committee has considered the feasibility of making available various incentives; indeed, as previously pointed out, incentives are considered to be an integral feature of the interim measure proposed by the Committee (5.12.1 - 5.12.3).

6.2 From this consideration the Committee has selected a number of incentives which, either singly or in combination, appear to hold some promise of either off-setting or easing the pressures to clear vegetation, but their novelty, complexity, and uncertain economic costs have prevented the Committee from making firm recommendations for their immediate introduction. Nonetheless, it is considered that their importance warrants further and urgent studies by the Department for the Environment and, as a guide, the Committee includes the following review of what appear to be the more promising incentives.

### *Financial Incentives*

*Relief from rates and taxes*

6.3 Many of the existing State and Commonwealth rates and taxes

operate as a disincentive to retain natural vegetation, and some measure of relief from their provisions would probably encourage land owners to retain natural vegetation.

6.3.1 *Income Tax Assessment Act.* It has been pointed out previously that the Commonwealth Government's Income Tax Assessment Act allows for the cost of *clearing* land to be deducted from taxable income at the rate of 10% per annum (3.15). An amendment to the Act to allow this deduction only for approved clearance proposals (i.e. approved under the proposed controls in this Report) and/or an amendment to allow deductions for costs incurred in *maintaining* uncleared land would seem worthy of further consideration.

6.3.2 *Land Tax.* Land Tax collected by the State Government is based on an assessment of the unimproved value of land which, in turn, is based largely on sales of similar country with similar development potential, excluding the value of improvements (fences, dams, cleared land etc.). Consequently, the value placed on land reflects its development potential, rather than its existing use. The pressures to clear and develop are, therefore, considerable and some relief appears to be needed. At present, land used for primary production receives a statutory exemption of $40 000 but land held for conservation purposes receives no relief (Land Tax Act, 1936-75).

6.3.3 *Local Government Rates.* Local Government Rates are normally assessed on the unimproved (or improved) value of land as assessed for Land Tax purposes and although varying from district to district the highest are those adjacent to urban or suburban areas. The increased capital value of farm lands adjacent to these areas does not benefit the land owner who wishes to remain on the land, indeed the high rates often force premature subdivision and/or clearance. Local Government Rates are generally higher than Land Tax and remissions or exemptions from them may be a more decisive incentive for the retention of vegetation.

6.3.4 *Succession and Gift duties.* These taxes are also based on the valuation of a property, and in some instances the amount owing is sufficiently large to force sale of all or part of a property. Subsequent pressures for land clearance are often inevitable, and some form of concession would seem worthy of examination.

6.3.5 *Water Rates.* The use of unimproved land values to determine water rates payable to the State Government's Engineering and Water Supply Department ceased in 1975 and a flat rate per hectare of ratable area is now applied. Charges are relatively small (17-25 cents per hectare per annum) and as many agricultural areas are not serviced by water and are not, therefore, ratable, concessions or remissions for uncleared land, while still valuable, might not be as important as those incentives discussed in 6.3.1- 6.3.4 above.*

6.4 In general, it seems clear that the various Government rates and taxes could, with amendment and modification, become incentives rather than disincentives for the retention of native vegetation. For ease of amendment initial attention could be directed to State and Local Government measures, and the most important change would be to base valuations on existing use, rather than on the development potential of the land. Currently, only one such incentive of this nature is available: any area declared an open space under the provisions of Section 61 of the Planning and Development Act, 1966-1975 can be rated on existing rather than potential use, but the measure is principally intended to prevent subdivision, and apart from sporting grounds in urban areas (particularly golf courses) it has not been widely used.

*Compensation for potential production loss*

6.5 A direct subsidy to compensate any potential production loss as a result of maintenance of natural vegetation could be considered, but seasonal fluctuations, inflation, and its open-ended nature would almost certainly make it extremely expensive and difficult to administer.

*Land management assistance*

6.6 Direct funding for the management of natural vegetation could assist the land owner who is anxious to retain natural vegetation but does not have sufficient funds and/or expertise to manage it effectively. The

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* Since Section 6.3 was written the State Government has announced two important changes: succession duties payable on property bequeathed by a deceased to his or her spouse, and on properties intended for certain scientific and educational purposes will be waived; and rural land tax will be abolished (September 1976).

assistance offered could be flexible and adaptable to individual requirements but in general it could be offered in the form of either finance, materials, labour, or advice for such management matters as fencing,bushfire control, and regeneration work. The cost of such incentives, while probably high, could be expected to be substantially lower than providing compensation as suggested in 6.5 above.

*Non Financial Incentives*

*Reduction of user 'rights'*

6.7 A land owner, particularly one faced with compulsory Government acquisition, may be prepared to accept as an alternative some reduction of his user or owner 'rights' - the clearance of vegetation, for example. A certain amount of success in using this incentive has been achieved by the State Planning Authority in efforts to restrict clearance of designated open space areas. However, land owners are not legally bound to co-operate and the system does not, as a result, have a great degree of stability against such changing circumstances as an economic up turn or a change in ownership. Nonetheless the likelihood that many people may be prepared to relinquish such user 'rights' as vegetation clearance and accept encumbrances on leases or titles to this effect cannot be disregarded.

*Memorials and sanctuaries*

6.8 Gifts of user rights or even freehold title to the community could be acknowledged by awarding status to the land in the form of a sanctuary or reserve designation with or without the donor's name. While certain minimum standards would need to be laid down, the measure could attract support, especially if the monetary value of the gift was accepted as an income tax deduction. Currently, donations to government are not tax deductable: gifts of land have already been made to the State Government for conservation purposes, while in America a special register is maintained to record donations of land to the National Estate.

*The Need for a Quid Pro Quo - Legal Agreements*

6.9 Few if any of the above measures would be worthwhile without some mechanism for ensuring that they are effective in perpetuity and not subject to abuse. In effect a quid pro quo is required, an insurance for community investment, and for this a binding legal agreement and/or system of penalties would appear necessary.

*Legal agreements*

6.10 An independent legal agreement between two parties is considered by recent workers to offer the best possibilities for protecting community investment in vegetation retention (Ref.1), but the old English common law mechanisms of covenants and easements have many legal complications and difficulties, and their use as instruments of conservation and preservation is open to considerable doubt. Both require dominant and servient properties (that is there must be a 'dominant' property which will benefit by restrictions placed on the adjacent subject or 'servient' property) and the negative nature of covenants, in particular, presents many problems when retention of natural vegetation requires such positive action as fencing and pest control.

6.11 It is possible, of course, to amend existing legislation to overcome some of the difficulties (as has been done in Victoria and Western Australia) but the legal problems are formidable. So much so that a recent study has suggested that convenants and easements should be abandoned in favour of a Heritage Agreement, a new legal agreement that is not constrained by old common law terminology and precedents (Ref.2, see Appendix 1).

6.12 The Heritage Agreement, it is envisaged, would enable a landowner to enter into an agreement with an independent body (typically the Government) to use his land in an agreed way. The agreement would not be varied other than with the consent of both parties, and it would remain as an encumbrance on the land title (obligating any subsequent owners of the land).

6.13 The Committee considers that this proposed legal agreement could prove an effective quid pro quo mechanism and that a scrutiny of it by the Crown Solicitor is warranted.

*Penalties*

6.14 The above comments on retention of vegetation in perpetuity notwithstanding, it is possible to envisage circumstances under which a person may wish to void an agreement similar to that outlined in 6.12 above. Unless approved by the Government (in which case any back taxes or other penalties could be waived) such a voiding of the agreement should be accompanied by penalties equal to or greater than any financial advantages to be gained by clearance and/or development of the uncleared

land in question. Inadequate penaltics have resulted in the failure of many incentive schemes attempted in overseas countries, North America and Great Britain in particular.

*The Cost of Incentives*

6.15 It should be clear from the above discussion that community cost is involved in many of the incentives reviewed by the Committee. Even if finance is not required for direct subsidies or is not lost to revenue through differential rating, there will be costs involved in such administrative details as legal fees, surveying, and other protective works.

6.16 Before any Government can be expected to commit itself to the provision of incentives it will be necessary to determine what the magnitude of costs will be, and who should bear them. Local Government, for example, relies heavily on local rates and taxes for its continued operation, and while there may be some community savings if incentives dampen the rate of subdivision in rural or semi rural areas (reducing the need for such expensive services as sealed roads, rubbish collections, water and sewage, and electricity) there would appear to be justification for equalizing or compensating grants from Government sources.

6.17 It has been beyond the scope of this Committee to undertake a costing of the incentives, but in view of their importance in the overall framework of vegetation controls proposed in this Report, a financial and legal study of their likely costs appears to be a matter of considerable urgency.

*Summary, Conclusions and Recommendations*

6.18 Conservation of vegetation on private lands is seen as an essential complement to the parks and reserves system administered by Government, and financial and non-financial incentives are expected to make an important contribution to such conservation.

6.19 The Committee has selected and reviewed briefly a number of incentives which appear to hold some promise of easing the pressures to clear vegetation, and it has also reviewed briefly a form of legal agreement which might prove suitable for ensuring that any incentives selected are not subject to abuse.

6.20 At the same time, the complexity and uncertain costs of the incentives and accompanying legal agreement have prevented the Committee from making firm recommendations for their immediate introduction, and it is therefore recommended:

6.20.1 *That immediate attention be given to determining reasonable and fair incentives to encourage landholders to retain appropriate areas of native vegetation in an uncleared state, with initial attention being directed towards those variations of State and Local Government rates and taxes which appear most appropriate.*

6.20.2 *That all possible incentive schemes be costed and evaluated against their likely effectiveness.*

6.20.3 *That the Crown Solicitor, using the proposed Heritage Agreement as a guide, be asked to draft a model agreement which would both permit the retention of natural vegetation on private lands in perpetuity and also ensure that a chosen form of incentive is not subject to abuse.*

*References*

1. The National Estate Committee of Inquiry, 1974: *Report of the National Estate,* Aust.Govt.Pub.Service, Canberra, 3.356-3.358.

2. JAMES, P.C., 1975: 'Heritage agreements: an alternative to covenants and easements' pp. 94-98 in Australian Conservation Foundation, *Landscape Conservation. Rural landscape conservation with particular reference to the rural-urban fringe.* ACF, Melbourne.

# CHAPTER 7

## OTHER ASPECTS OF VEGETATION CLEARANCE

*Any other aspects of vegetation clearance considered by the Committee to be relevant to their inquiry.* (Term of Reference 6).

*Clearance For Other Than Agricultural Purposes*

7.1 The Committee has concentrated its attention in this Report on broad-acre clearance of vegetation for agricultural purposes. Since agricultural development has been the main stimulus for clearance in the past, and will continue to be in the future, this attention has been quite deliberate. At the same time the Committee is aware that clearance, on a more limited scale, has been carried out for many other purposes, and some of the more important of these are discussed briefly below.

*Clearance for afforestation*

7.2 South Australia, as noted in 4.5 above, has very few heavily timbered areas at all comparable with those of the other States of Australia and it has, as a result, established extensive pine plantations in the Lower South East, Mt Lofty Ranges, and southern Flinders Ranges.

7.3 Until the mid 1920s relatively little natural vegetation was cleared for this afforestation programme, but from 1924 to the mid 1930s the Development and Migration Commission made available low interest finance, and the ensuing development work saw large areas of native vegetation replaced by pines.

7.4 A further stimulus was provided in 1965 by a Commonwealth Government commitment to fund additional plantations, and much of the remaining native vegetation in forest reserves which was not being deliberately reserved for recreation and scientific purposes was cleared for pines.

7.5 Approximately 25 000 ha of native forest and woodland, 20% of forest reserve area, remain uncleared, and these are protected and managed in accordance with State Forest policy. No further native vegetation (unless substantially denatured) either on existing forest lands or on new lands to be purchased will be cleared for pine planting.

*Clearance for mining and quarrying*

7.6 To date, the extraction of minerals and construction materials throughout the State has involved relatively little clearance of vegetation. Visually, of course, the open-cut removal of material from scenically attractive areas can create an impact out of all proportion to the relatively small area involved, as may be seen clearly by the quarries in the Hills Face Zone of the Mt Lofty Ranges east of Adelaide. Additionally, there is always the possibility of future mineral finds leading to open cut operations on a scale common overseas but not yet witnessed in South Australia.

7.7 However, the Committee has noted that a close liaison has been established between the mining and quarrying companies and the Departments of Mines, and Environment, and such co-operation, supported by environmental impact statement legislation proposed by the State Government, should ensure that in any future mining and quarrying operations adequate attention is given to vegetation protection and/or regeneration.

*Clearance for public works*

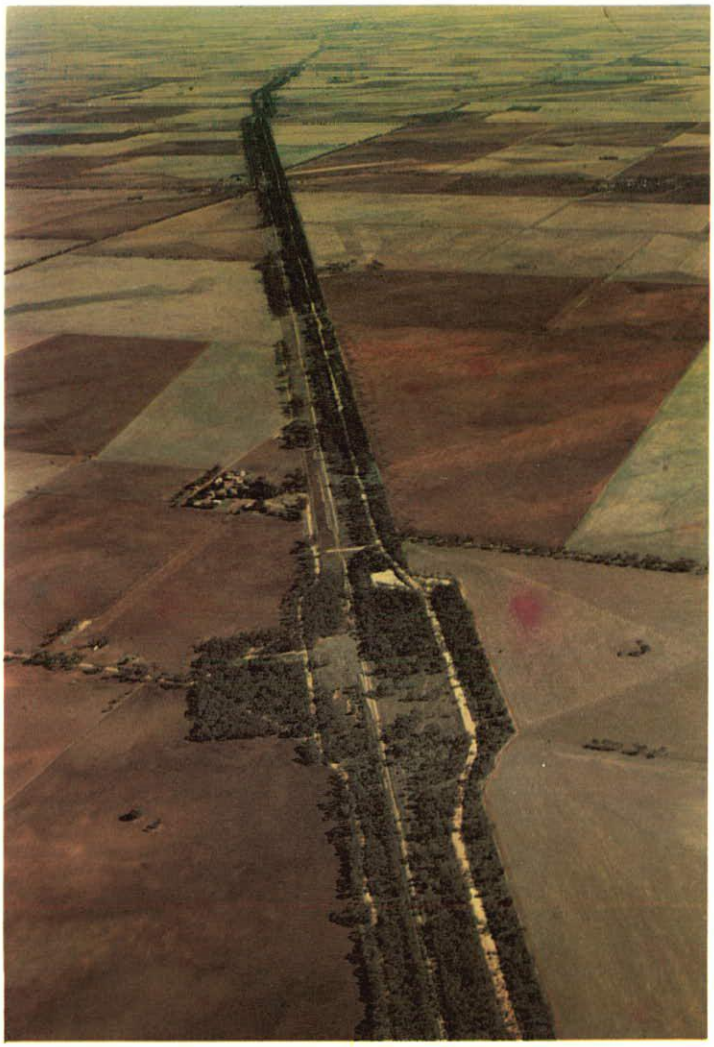
7.8 A variety of public works- drainage schemes, reservoirs, power lines and buildings, to mention only a few - can have a considerable local impact on vegetation, especially if the proposed works impinge on isolated or relic stands of native vegetation.

7.9 However, the Committee is satisfied that environmental impact statement legislation (already in operation for Commonwealth Government works, and proposed for State Government works) will ensure that careful consideration is given to vegetation protection in future.

*Roadside Vegetation*

7.10 The general conclusion in 7.9 notwithstanding, the protection of roadside vegetation, particularly from such public works as road widening and the installation of cables and power lines, warrants special attention.

7.11 Given that in many areas it is the only remnant of the original cover, roadside vegetation is of considerable importance. Its aesthetic appeal and botanic interest are widely appreciated, but less well known is its value as habitat for small native animals, particularly migratory



Roadside vegetation - 'in many areas it is the only remnant of the original cover...(but)... unnecessary and often illegal clearance is still common and a matter for considerable concern' - Hd.Kulpara Co.Daly(above); Hd.Wallis Co.Robinson (below).

birds. For many years a special Roadside Vegetation Committee has operated in an advisory capacity to the Government - originally as a sub-committee of the Flora and Fauna Advisory Committee and responsible to the Minister of Agriculture, but since 1973 as a Committee in its own right responsible to the Minister for the Environment.

7.12 The Roadside Vegetation Committee has carried out much valuable work over the years, but it would probably be the first body to acknowledge that unnecessary and often illegal clearance of roadside vegetation is still common and a matter for considerable concern.

7.13 This Committee (that is, the Vegetation Clearance Committee) considers the matter is sufficiently important to warrant a careful review by the Department for the Environment. It may well prove desirable, for example, to assimilate the present functions of the Roadside Vegetation Committee into the Vegetation Clearance Advisory Committee recommended in 5.28 above.

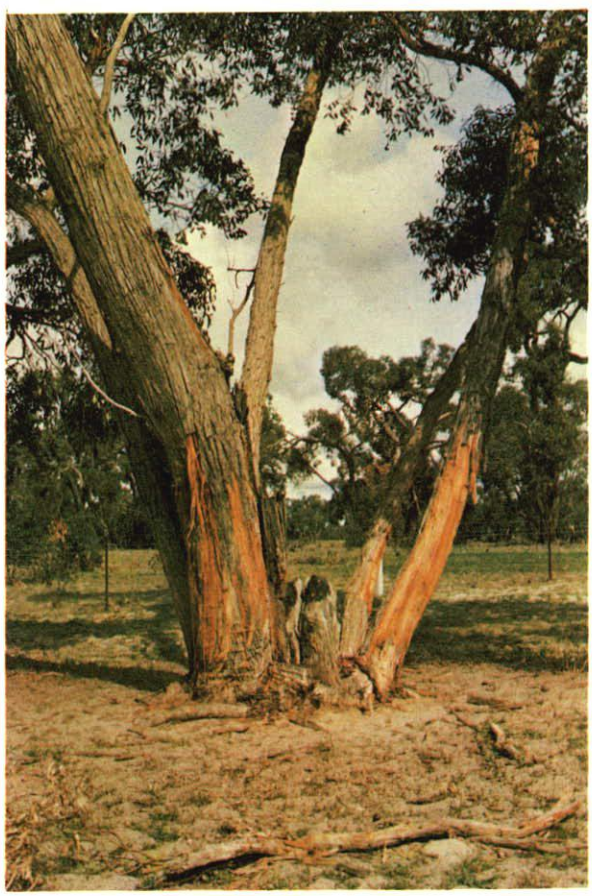
*Management Problems - The Long-Term Future of Uncleared Vegetation*

7.14 A major stumbling block in any long-term efforts to retain areas of native vegetation on our farming lands is presented by the inability of most native vegetation to regenerate freely under what would be regarded as normal grazing pressure by introduced livestock - sheep and cattle in particular.

7.15 The problem is insidious , and its long-term implications are appreciated by relatively few people. Many travellers, for example, will note with approval the large trees and timber belts scattered throughout our southern pastures, but few will note that the trees are almost invariably either mature or over-aged. Regeneration may be occurring freely on adjacent road reserves, but in the stocked paddocks it is almost entirely absent. If no remedial action is taken the inevitable outcome will be the total loss of the trees and timber which give such scenically-attractive areas as the Mt Lofty Ranges much of their special appeal and charm.

7.16 Although there has been some discussion of the problem over the years, there has been no practical or economically acceptable solution proposed and this is a matter of considerable concern to the Committee.

The problem of non-regeneration -'in stocked paddocks ....the trees are almost invariably either mature or over-aged' - Hd.Binnum Co.Macdonnell(above). In high rainfall areas their extinction is hastened by beef cattle ringbarking individual trees - Hd.Geegeela Co.Macdonnell(below).



7.17 Non-regeneration is undoubtedly the most serious management problem, but if native vegetation scattered throughout our agricultural lands is to retain its value other management problems will have to be faced. Pest and weed invasion of small stands of scrub and timber can, for example, be a major problem in many areas, and fire suppression and prevention can, likewise, be expensive and difficult for individual landholders.

7.18 If introduced, many of the incentives discussed in 6.3-6.8 of this Report could alleviate some of the expense involved in the management of remnant areas of native vegetation, but financial assistance without advice on management practices will be of little long-term use; extension assistance appears to be essential.

7.19 It is difficult to overrate the importance of this long term management of remaining uncleared areas. Expense will be involved and problems will arise, but restraining the present rate of clearance, the prime concern of this Report, will be of little long-term consequence if the problems are not met in some way.

*Recommendations*

7.20 The Committee recommends, therefore:

7.20.1 *That where a landholder has approved plans to retain and conserve appropriate areas of native vegetation, extension assistance should be made available to the landholder to advise on the protection, regeneration and other management aspects relevant to the area.*

7.20.2 *That the proposed Advisory Committee on Vegetation Clearance advise the Director, Department for the Environment, on implementation of extension assistance for the management of uncleared areas of native vegetation.*

APPENDIX I

DRAFT ACT

1. This Act may be cited as the Heritage Agreements Act.

2. In this Act unless inconsistent with the context or subject matter -

*'Heritage Agreement' shall mean an agreement between an owner of a property and a Designated Body.*

*'Designated Body' shall mean a body designated by the Minister as being entitled to enter into a Heritage Agreement and to be the holder of such agreement.*

*'Designated Property' shall mean a property which is the subject of any Heritage Agreement.*

3. (i) An owner of any land may enter into a Heritage Agreement with a Designated Body which will bind the owner of the land, his heirs, successors and assignees as to the development or use of the land or any part thereof or the preservation, maintenance or care of any building or element thereon.

(ii) Without limiting the generality of sub-section (i) hereof a Heritage Agreement may impose both negative and positive duties upon the owner of the property and may be limited or unlimited in time and may deal with any matter or matters which the owner and the Designated Body may agree upon.

(iii) A Heritage Agreement may be released only by the Designated Body specified in the original agreement or any body to which the benefit of the Heritage Agreement may have been assigned.

4. A Heritage Agreement is an interest in land and the document creating such an agreement shall be deemed to be a dealing in land and may be enforced by an action at law or by injunction or other proceeding in Equity.

5. (i) A Heritage Agreement shall be registered by the Registrar-General either pursuant to the provisions of the Real Property Act or the provisions of the Conveyancing Act whichever is appropriate in the particular case.

(ii) The Registrar-General shall not be liable to nor shall he have the right to query, examine or enquire into the content or form of a Heritage Agreement provided always that a Designated Body and the registered owner of the property at the date of the Heritage Agreement are parties to it.

6. Notwithstanding any term of the Heritage Agreement to the contrary and from time to time but always upon reasonable notice the Designated Body shall have the right to enter into and upon the Designated Property to inspect the same for the purpose of ensuring that the terms and conditions of the Heritage Agreement are being complied with by the owners of the Designated Property.

7. (i) If in the opinion of the Designated Body the Heritage Agreement is not being complied with the Designated Body may serve a notice on the owner thereof requesting certain work to be done or certain actions to be restrained as the case may be.

(ii) Failure to comply with the terms of such a notice for a period of seven (7) days shall entitle the Designated Body or its servants, agents, contractors or workmen to enter upon the property for the purposes of carrying out or preventing such work as is necessary to comply with the notice referred to in sub-section (i) hereof.

(iii) If the owner of a Designated Property upon which notice has been served pursuant to subsection (ii) hereof fails to pay the Designated Body for the cost incurred by it through taking action under subsection (ii) hereof then the Designated Body may ( .... take appropriate action to recover such costs....)

8. (i) Where any Governmental or Public Department or Authority (whether Australia, State or local) wishes to take action in respect to or enforce the provision of any Act, regulation or by-law which would in any way affect a property the subject of a Heritage Agreement it shall first furnish a report to the Designated Body concerned with the particular Designated Property.

(ii) Upon such a report being furnished to the Designated Body that body shall, if it wishes to oppose the action proposed in the report, within a reasonable time furnish to the Minister responsible for the administration of this Act its opinion on the proposed action.

(iii) The Minister responsible for the administration of this Act shall be the final authority as to whether the action proposed should or should not proceed.

(iv) Without prejudice to the application of subsection (ii) hereof no Governmental or Public Department or Authority shall serve such a notice upon the Designated Body unless that Department or Authority is satisfied

that there is no feasible and prudent alternative consistent with any relevant laws to the taking of that action and that all measures that can reasonably be taken to minimize the adverse effect will be taken.

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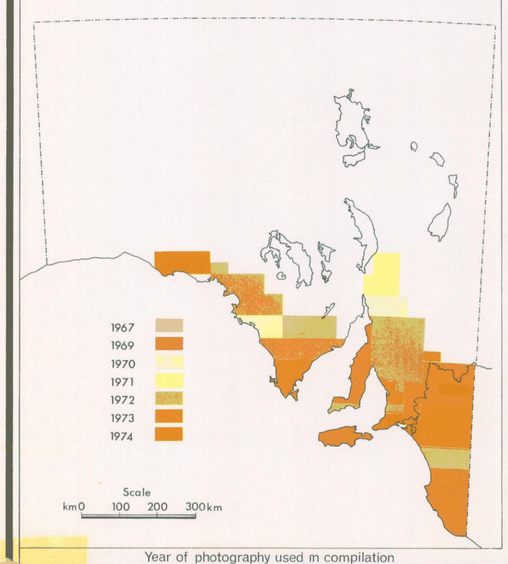
# VEGETATION CLEARANCE

## SOUTH AUSTRALIA




Year of photography used m compilation

LEGEND

- Uncleared Agricultural Land
- Cleared Agricultural Land
- Pastoral Lands
- Crown Lands
- National Parks and Wildlife Act Reserves
- Northern Boundary Agricultural Lands (Marginal Lands Act, 1940)

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Kilometres 20 0 20 40 60 80 100 Kilometres

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