NATIONAL RAINFOREST CONSERVATION PROGRAM

NEW SOUTH WALES

SCHEDULE OF PROJECTS 1987/88

PLANNING & MANAGEMENT	ESTIMATED EXPENDITURE (87-88) $
1. Management plan - Big Scrub remnants	30,000
2. Management Plan - Barrington Tops NP	35,000
3. Rehabilitation of Big Scrub remnants	50,000
4. Rehabilitation of Seal Rocks rainforest, Myall Lakes NP	32,500
5. Rehabilitation of Brunswick Heads NR	40,000
6. Vine eradication, Coocumbac NR	30,000
7. Rehabilitation of Arakoon SRA	30,000
8. Rehabilitation of Shark Island rainforest	20,000
9. Rehabilitation of Mungo Brush rainforest, Myall Lakes NP	30,000
10. Rehabilitation of rainforest, Royal NP	60,000
11. Rehabilitation of littoral rainforest, various sites	60,000
12. Weed eradication, Stotts Island NR	20,000
13. Weed eradication, Limeburners Creek NR	10,000

14. Rehabilitation of Robertson NR	5,000
15. Rehabilitation of Comerong Island NR	12,000
16. Rehabilitation of Hacking River rainforests Garawarra SRA	100,000
17. Road closures and rehabilitation, Border Ras NP	20,000
18. Road closures and rehabilitation, Nightcap NP	20,000
	604,500

VISITOR FACILITIES

19. Minnamurra Falls walking track, Budderoo NP	60,000
20. Forbes River walking track, Werrikimbe NP	30,000
21. Resource survey and development, Strickland SF	35,000
22. Interpretive and visitor facilities, various SF	150,000
23. Redevelopment of walking tracks, Barrington Tops NP	40,000
24. Williams River pedestrian bridge, Barrington Tops NP	10,000
25. Walking track, Woko NP	30,000
26. Sheepstation Creek walking track, Border Ras. NP	60,000
27. Terania Creek walking track, Nightcap NP	50,000
28. Mt Nardi facilities, Nightcap NP	70,000

29. Lady Carrington Drive track, Royal NP	60,000
30. Summit restoration and track rehabilitation, Mt Warning	85,000
31. Walking track and facilities, Boorgana NR	35,000
32. Interpretive walking track, Iluka NR	40,000
33. Track rehabilitation, New England NP	35,000
34. Walking tracks and visitor facilities, Mt Hyland NR	15,000
35. Burgh track, Garawarra SRA	50,000
36. Walking track and interpretive facilities, Murramarang NP	10,000
	865,000

TOURISM STUDIES

37. New England - Dorrigo regional tourism study	20,000

RESEARCH AND SURVEY

38. Conservation planning for rare and endangered rainforest plants and animals	30,000
39. Tweed volcano region, biological survey	40,000
40. Biological survey of Woko NP and Camels Humps NR	20,000
41. Investigation of population decline in rainforest pigeons	25,000
42. Fauna survey, dry rainforest	10,000
43. Biological survey of Focal Peak	15,000

44. Use of remnant rainforest patches by flying foxes	50,000
45. Fire management study, Oxley Wild Rivers NP	30,000
	220,000

PUBLIC INFORMATION AND INTERPRETATION

46. Rainforest ecology centre, Sea Acres NR	375,000
47. Minnamurra rainforest centre, Budderoo NP	250,000
48. Rainforest interpretive centre, Dorrigo NP	150,000
49. Rainforest information centre, Rumbalara Reserve	195,000
50. Outdoor intepretive panels	30,000
51. Rainforest resource inventory book	20,000
52. Multipurpose rainforest video	40,000
53. Rainforest display	
i) mobile component	
ii) Lismore Heritage Centre component	45,000
54. Revised NSW-NRCP pamphlet	2,000
	1,107,000

ACQUISITION

55. Acquisition of privately owned rainforested lands for inclusion in national parks and reserves	800,000

TOTAL	3,616,500

NP - National Park
NR - Nature Reserve
SRA - State Recreation Area
SF - State Forest

Analysis of Funding Priorities National Rainforest Conservation Program

NSW Schedule of Projects with NSW N.P.W.S.

1986/87 Program

	$	T$	%
Planning + Man^{nt}	140,000		5.28
Visitor Facilities	235,000	235,000	8.88.
Tourism. Studies	10,000	10,000	.38
Research + Survey	20,000		.76
Public Info + Interp^{n}	640,000	640,000	24.2
Rainforest Acquisition	1,600,000		60.5
Totals	2,645,000	885,000	100·00
		33.4%	

1987/88 Program

	$	T$	%
Planning + Man^{nt}	604,500		16.7
Visitor Facilities	865,000	865,000	23.9
Tourism Studies	20,000	20,000	.55
Research + Survey	220,000		6.08
Public Info + Interp^{r}	1,107,000	1,107,000	30.61
Rainforest Acquisition	800,000		22.12.
Totals.	3,616,500	1,992,000	≒ 100·00
		55.08%	

per. J. Corkill 1·12·87

New South Wales Government

Department of Agriculture
REGION I

North Coast Agricultural Institute
Wollongbar 2480

Mr A Specht
Biological Co-ordinator
Planners North Pty Ltd
Ballina Street
LENNOX HEAD NSW 2478

Our reference:
PS:et

Your reference:

Telephone: 240.355.
STD: 066

24th November 1987

Dear Sir

"Big Scrub" Reminant Planning Program
Some thoughts on the Report:
"Big scrub conservation strategy"

It was with great interest, I read the above report, and I attended the seminar on 6th November 1987.

This submission is based on what I feel the discussion paper lacked, and is based on the following headings.

(A) Identification of reminant areas
(B) Economic value of the reminant areas
(C) Major constraints in maintaining the existing reminants:-

(i) Financial constraints for effective management and or regeneration programs.

(ii) Weed infestation and control.

A. Identification of the "Big scrub" reminant

I feel the discussion paper did not really identify the big scrub reminants in a way that gave a true situation analysis of the subject: "The Big Scrub Reminant".

(a) Within the discription in the discussion paper, the eucalypt forests and their association and protection of rainforest reminant areas was not mentioned.

(b) The very valuable corridors of gully and road side reminants were not mentioned, and their importance for plant and animal migration from one reminant area to another.

(c) Wet land and grass land associations within the big scrub area.

(N.B. It may be of interest to mention one other satelite area of rainforest at Tatham (red hill) and associated creeks).

B. Economic value of the big scrub reminants

I was very disappointed, that at the seminar the economic value of the "Big scrub reminants" was unable to be fully discussed.

It seems a pity that whenever conservation issues are talked about, the concept of generating income (except for government handout) is regarded as "bad taste".

However I feel, that if the community is reminded of what products and money has already has come out of the big scrub, and what potential the big scrub has for generating more cash for the community, then the community would be prepared to invest in a project of efficient management of the reminants. The following are a few headings for consideration.

(a) Timber

In no way would I suggest the milling of any reminant areas. However within the reminant areas there are growing valuable cabinet and soft wood timbers. If these timbers were catalogued, selected and grown in commercial plantation, say in the less valuable horticultural land, other locations or even other countries, then the reminants become a valuable cash earning, original gene pool, for a timber plantation industry.

The resulting effect would be management of the reminant to maintain the original seed source, in its original habitat.

One only has to observe the trouble and effort the world forestry industry goes to, in protecting the reminant areas of radiata pine, so as to protect the original gene pool and future pine breeding programs.

(b) Horticulture

(i) Macadamias. One of the fastest growing horticultural crops in the world is the macadamia industry.

The macadamia as you know, originates from SE Queensland and NE NSW. In the near future the macadamia industry will be generating $100 million/year for Australia. The maintenance of the original habitat and gene pool of the macadamia should be of great interest to the macadamia industry. Yet I find it strange that the discussion paper did not look at this aspect for reminant retention.

Again the macadamia industry if approached may be interested in sponsoring the management of a reminant containing original macadamia trees.

(ii) Drugs. From the rainforests two drugs have been found.

(a) Cork wood, from which a drug used in eyes is obtained.

(b) Recently a drug found to be useful against AIDS has been found in the rainforest tree Morton Bay chestnut or black bean.

I'm sure there are other drugs useful to humanity in rainforest plants and the retention and good management of the big scrub reminant is in the interests of various drug companies.

(iii) Fresh fruit. Along with the macadamia industry, a whole range of fresh fruit are available from the big scrub reminant. A number of horticulturists are looking at this subject. I suggest you contact Mr Peter Hardwick at NCAI Wollongbar and he could give you a full rundown on the subject.

(iv) Rainforest nurseries.

A large number of small "rainforest nurseries" have started and who depend on rainforest reminants for seed.

I understand these nurseries are sending plants all over Australia and generating money.

(v) Tourism. This subject was touched on in both the discussion papers and seminar. However I would like to say.

"Hug a tree and be happy".

(c) Major constraints in the management of the "Big scrub reminants"

(i) Financial constraints

This is the biggest problem. However, if the dirty word of money is talked about, along with the valuable economic asset the reminants represents, then I'm sure companies, government and community groups who have a vested interest in maintaining the habitat for the original gene pool of a whole range of products, would finance a program of big scrub reminant management.

(ii) Weeds. The two weeds, camphur and privot represent the major "Nuts and bolts" problem after money. Rainforests the world over, if left alone, look after themselves. However, the two woody weeds mentioned, are looking after themselves in areas of reminant big scrub, to the detriment of rainforest regeneration.

I bring these points to your notice.

I would ask to be kept on the mail list in regards to any other seminars or discussions about management of the Big Scrub reminants.

Yours faithfully

P. Stace

PETER STACE
Trees on farms co-ordinator
NSW Department of Agriculture
North Coast Agricultural Institute
Wollongbar 2480

COMMENTS ON BIG SCRUB REMNANTS DISCUSSION PAPER

The recently released Big Scrub Remnants Conservation Strategy Discussion Paper is an appalling document which does not address many of the most important factors influencing the conservation of these remnants.
This document, contracted to Planners North, and sub-contracted to the Northern Rivers College of Advanced Education Centre for Coastal Management has been attempted by persons with no expertise in rainforest biology.
As such, The Big Scrub Environment Centre wishes to make the following critisisms and suggestions:

*that public input is required into the next stages of the preparation of a Conservation Strategy and a Plan of Management

*that the National Parks and Wildlife Service use its own highly skilled and qualified staff to prepare documents such as this, and do not contract out to consultants not appropriately skilled.

*that a member of the Lismore District Advisory Committee with appropriate expertise in the field of management of rainforest reserves be represented on the Steering Committee, which, at this stage, has no experts in this field.

*that a tender should not be accepted purely because it is the lowest - factors such as appropriate expertise should be a major factor in selecting a tender. The consultants involved in this document, Planners North, have no expertise in this field. It is therefore recommended that consultants with appropriate experience be engaged to draft the document.

We understand that the National Parks and Wildlife Service is not satisfied with the standard of the document released and has directed Planners North to redraft the paper. With this factor in mind, we therefore recommend that the services of Planners North should be discontinued and the contract readvertised.

Specific critisisms of the Discussion Paper are as follows:

*prioritising conservation value of remnants where all remnants should be given equal conservation status

*no specific references to mammals and reptiles as specified in brief

*existing published and unpublished papers were not used in the document.

*scant regard to the vegetation associations - assumptions of conservation priority and status were made entirely on species diversity

*no reference to regional biogeographical influences

*major conflicting objectives in remnant status e.g. Boatharbour Nature reserve is designated a prime conservation site and a major tourist attraction

*overly strong emphasis on tourism in the remnants which would seriously compromise their long-term viability

*no detailed analysis of threats to the remnants

*a significant amount of the basic methodology used in the paper was incorrect, resulting in an incorrect conservation priority and status

*over-emphasis on computer models based on inadequate data

*Terms of Reference were far too narrowly interpreted resulting in glaring inadequacies in the paper, including the omission of important remnants

*no identification of the importance of peripheral landuse to the conservation of the remnants as specified in the brief

*no identification of existing controls on landuse (e.g. soil conservation restrictions, water catchment protection etc)

Many other critisisms of this paper have been brought to our attention by concerned professionals highly skilled and experienced in this field. It is due to this concern and outrage at the grose inadequacies of the paper that we call for the re-tendering of the contract.

It is of the utmost importance to ensure the conservation of the Big Scrub Remnants that a Plan of Management of the highest quality is completed.

(Big Scrub Environment Centre, 28 Nov, 1987)

J.B. Robinson,
C/-NCAI
WOLLONGBAR. 2480
Ph.240217
11th November 1987.

Secretary,
National Parks Association.

Critique of Big Scrub Conservation Strategy

Introduction

This critique has been written with the purpose of providing an additional perspective on elements of the Big Scrub Conservation Strategy. Criticism of the discussion paper is not intended to question the ability or integrity of the authors.

My discussion is concerned with my major area of interest, vegetation dynamics.

Discussion

Section 3.2 Vegetation Representation and Diversity

Criticism 1. At least one common plant community of the red soil plateau has been ommitted from the discussion. Melaleuca dominated forest occupied significant areas of the plateau which had impeded drainage. Remnants of this forest type exist at Rous, Alstonville, near Richmond Hill and east of Alstonville at Leadbeater's Lane. This plant community warrants investigation, and does not appear to be conserved in any of the major remnants.

Criticism 2. Discussing the occurrence of rare species in the remnants on the basis of transect data seems questionable. The occurrence of rare species could be more accurately and efficiently described by proofing reports from professional and amateur botanists.

Section 3.4 Physical Limitations

Criticism 1. The opening paragraph is pure conjecture. If the authors are aware of any evidence suggesting that drought years or any increase in solar radiation threatens rainforest survival, it should have been referenced. The drought ending in November 1986 was the most severe in living memory, and would have provided evidence to support drought sensitivity hypothesis. Naturally, rainforests are well buffered against drought, with many species of local rainforests bearing antomical (hairy or scaly leaves, thick waxy cuticles) and physiological (leaf abscission) adaptations to seasonal and long term drought.

Variations in solar radiation may occur with sunspot or solar diameter changes, but the effect of this on the vegetation is very difficult to estimate.

A major factor affecting the water balance of rainforest remnants is exposure, i.e. changes in windspeed and advection. It would have been useful to discuss shelterbelting as a management tool for the physical environment.

Criticism 2. The geographic correlation of rainforest sites with gullies and creeks in fringe sites should not be construed to be a causal relationship. These areas generally have deeper, more fertile soils and are usually fire retardant or fire proof.

Commentators in the past have suggested that differences in soil types can explain the distribution of rainforest in terms of soil fertility alone. A popular theory (proposed by McGarrity, I think) is that fire restricted the distribution of rainforest on the Alphadale clay loam association (adjacent to Brockley) and in the Lismore area. Evidence supporting this theory is the healthy regeneration of rainforest in fire protected areas (e.g. just west of Marom Creek), and the occurrence of pyrophytes on the Alphadale association, notably in the Richmond Hill area.

It is unfortunate that neither of these theories, which have a considerable history of debate and discussion, were omitted, and a new theory proposed.

In a number of areas, observations can be easily made which suggest that moisture is not the major factor affecting rainforest distribution in a number of areas:

1. Between Wollongbar and Alphadale, the rainforest and sclerophyllous communities are separated by Marom Creek. The eucalypt forest is on the high moisture index eastern facing slopes, as well as west facing slopes. The Wollongbar rainforest remnant is on a lower moisture index crest of a hill and west facing slope.

2. The scarp and coastal areas east of the red soil plateau have high moisture indices. At Lennox Head and Broken Head rainforest occupies shallow red soil slopes above Melaleuca and Eucalyptus forests on deep, infertile podsolics and sands. The occurrence of Eucalyptus and Lophostemon species east of Alstonville is very closely tied to the distribution of soils developed from the Brisbane metamorphics.

3. Simple calculations show that rainforests contain more mineral nutrients than is available in sands and many podsolic soils. No rainforest can ever develop on these soils. Phosphorus is likely to be the most limiting nutrient.

Criticism 3. Paragraph 1, p.35. The data used to calculate the moisture indices were not presented. I am interested to know how much water it was assumed that a krasnozem and chocolate soil held. It is not true to say that chocolate soils have a much lower soil water storage capacity than krasnozems. What was the assumed rooting depth of the rainforests?

Criticism 4. A number of technical terms in the water balance calculations and diagrams are either incorrect or confused. Figure 13, for example, is labelled "The effect of Eo on cover" but presents a diagram of pan evaporation. Pan evaporation is usually greater than Eo, often by 20-30%, and sometimes by 50%. Furthermore, Eo is referred to as the potential evaporative loss. That figure is normally annoted Et. Eo exceeds Et by an amount dependent on the minimum resistance to water flow in the soil, plants and boundary layer of the community. For a rainforest Et may be 80-90% of Eo.

Criticism 5. Paragraph 2, p.35. It is suggested that pan evaporation is reduced 40% on a south facing 35° slope. While solar radiation is reduced by approximately this amount, it is only one component of evaporation. In this

area, the energy term of the Penman-Monteith evaporation equation is usually 30-80% of the total evaporation rate. The remainder is a function of windrun, temperature, humidity and canopy resistance.

Criticism 6. Paragraph 2, Page 38. It is stated that the fringes of the krasnozem plateau are sensitive to disturbance of water balance. However, Figure 14 indicates that most of the southern and eastern boundaries of the red soil, and much of the coastal heathland and melaleuca and eucalyptus forest has a 40% "comfort factor" for rainforest. According to the text, these isolines for water balance take into account soil type and slope (p.38).

I suggest that isolines for available phosphorus and and mapping of soil depth and impeded drainage would explain the rainforest distribution in the southern and eastern regions of the study area, where moisture is obviously non limiting for rainforest development.

Conclusion

It seemed unfortunate to me that one particular facet of rainforest dynamics was allowed to dominate the discussion in the paper.

Both the assumption that moisture is a major factor affecting rainforest distribution and dynamics, and the methods used to assess moisture deficits were crude. Monthly timestep water budgets are rarely used in engineering or agriculture. It is more than thirty years since the development of more sophisticated water balance systems. It is also well established that rainforest distribution and dynamics are multifactorial.

I hope that additional information on topics such as fire, nutrients and exposure are included in the conservation strategy for the big scrub remnants.

J.B. Robinson.

c. Dr A. Specht.

New South Wales Government

National Parks and Wildlife Service

NORTHERN REGION

N.S.W. Government Offices
49 Victoria Street
P.O. Box 97
Grafton, N.S.W. 2460

Our reference: AL:DE NR.8E-2

Your reference:

Telephone: 42 0593
STD: 066
Telex: NSWGOGR AA66966

Mr. M. Kaveney,
National Parks Association of N.S.W.,
Far North Coast Branch,
100 Orana Road,
OCEAN SHORES. 2483.

23rd February, 1988.

Dear Sir,

Your undated submission to the Director on planning programs for Big Scrub rainforest remnants has been referred to this office for direct reply.

The detail of the Branch's submission deserves to be commended. The issues raised in response to the Discussion Paper and Workshop conducted by Planners North Pty Ltd. will materially assist in improving conservation and management strategies for the area once occupied by the big scrub.

This reply will primarily be confined to addressing questions raised in relation to management of the National Rainforest Conservation Program and in particular to the sub-program "Management Plan - Big Scrub Remnants". Detailed comments in the Branch's submission relating to the Discussion paper and proceedings of the Workshop will be used to assist the review of the Conservation Strategy currently being undertaken.

The large number of projects involved and a delay in commencement of the National Rainforest Conservation Program resulted in a number of allocations and projects being carried over into 1987/88. This is particularly the case with a number of projects identified in the Branchs submission. The following table summarises expenditure and commitments to date and where appropriate total allocation for programs relating to the Big Scrub area:

No.	Title	Expended or Committed	Allocation
2.	Management Plan - Big Scrub Remnants	$16,000	$60,000
3.	Rehabilitation - Big Scrub Remnants	0	$70,000

No.	Title	Expended or Committed	Allocation
21.	Interpretive Panels (Victoria Park N.R.).	$12,000	$28,000
25.	Acquisition (Hayters Hill East)	$40,000	*

* Total acquisition funds apply to all rainforest areas.

A number of additional initiatives in programs 2 and 3 are expected to start in the near future.

The Branch's interpretation of the direction of expenditure in the National Rainforest Conservation Program should be considered with caution. The primary function of many of the works listed under the heading of "visitor facilities" is to protect rainforest areas from the damaging effects of unregulated visitor use.

Before responding to specific comments on the "Management Plan - Big Scrub Remnants" program some background influencing the development of this program is important. The initial interpretation of this program was confined to only the preparation of plans of management for the established Big Scrub nature reserves. It quickly became apparent to the Service Steering Committee supervising the program that planning for individual remnant areas could not be adequately undertaken in isolation from an understanding of the nature of the former rainforest, the extent and representativeness of all remnant areas and consideration of land use on non remnant areas.

These considerations led to expansion of the program to include preparation of a discussion paper and conservation strategy for the general area formerly occupied by the Big Scrub. The purpose of the strategy was to establish a framework not only for the management of nature reserves but also to guide Service policy towards other remnant areas and to native plant and animal conservation in the area generally.

The expanded approach to the program established additional factors necessary in implementation. These included a need to develop a detailed understanding of local land use and planning mechanisms as well as a sound understanding of rainforest biology. It also established a need for expanded public consultation in the program. The Discussion Paper and workshop were a direct response to the need for wide public consultation and further consultative stages are planned.

Consultancy Brief

Big Scrub definition: There are problems in identifying a precise boundary for the Big Scrub. Holmes 1987 notes that the Big Scrub is a geographical name of imprecise meaning. The boundary determined for the Consultancy brief was a composite definition from various sources. In addition to identifying a boundary the brief required a regional perspective to be undertaken particularly with regard to migratory corridors and adjacent habitats.

Basis for division of major and minor remnants: The division primarily followed assessment and identification of major remnants by Floyd 1977 and additional remnant areas identified by Holmes, 1987.

Terms of Reference: The terms of reference of the contract brief sought to take a regional perspective both in terms of assessment of the value of individual remnants and in the management of non remnant lands. The brief quite clearly identified the purposes and objectives of management of Nature Reserves.

The use of Consultants and the allocation of Tenders: The Contract with Planners North Pty Limited was let by the Director of the New South Wales National Parks and Wildlife Service in accordance with an agreed program with the Commonwealth Government.

The Contract was determined following a selective tendering process supervised by a Steering Committee of four N.S.W. National Parks and Wildlife Service officers. The Steering Committee established a list of eight potential contractors and invited written and verbal presentations on the project brief.

Planners North Pty Limited in the written and verbal response to the brief established both the best understanding of the project and the widest range of relevant expertise within their project team.

Shortcomings of the Discussion Paper:
The Service and the Consultants are aware of deficiencies included in the Discussion paper including those highlighted at the workshop. The Discussion Paper and draft Conservation Strategy are being revised following the workshop and the Branch's comments will be considered. It is intended to release both the revised Discussion Paper and draft Conservation Strategy for further public review.

The Service has no intention of modifying the current contract brief to suit the consultants, as suggested. In accordance with the contract the Consultants are currently reviewing the Discussion Paper and preparing a draft plan of

management for Victoria Park, Davis Scrub and Boatharbour Nature Reserves. The Service has seperately scheduled the preparation of a draft plan of management for Broken Head Nature Reserve for completion by December 1989. Each of these documents will be released for public comment and preliminary discussions have already been held with community groups directly interested in the management of Broken Head Nature Reserve.

Thank you again for your submission and your Branch will be included in further consultative planning programs for North Coast Rainforests.

A. Love,
for Director.

Ellen, for your information

DFC

New South Wales Government

National Parks and Wildlife Service

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AVIFAUNAL SURVEY OF 'BIG SCRUB' REMNANTS

The Service has received a grant of approximately $8,000 from the Australian National Parks and Wildlife Service to carry out a survey of the avifauna of the remnants of the 'Big Scrub' rainforests of the Lismore area. The survey will be part of the Rainforest Fauna Programme, the general objectives of which are to:-

(a) identify and rectify any deficiencies in rainforest conservation in N.S.W. in regard to fauna; and

(b) develop general methods for assessing faunal conservation needs

Background

The 'Big Scrub' was a vast tract of lowland subtropical rainforest that occupied an area of over 75,000 ha bounded by the present day towns of Lismore, Mullumbimby, Byron Bay and Ballina. Between 1860 and 1900 this rainforest was almost entirely cleared for agriculture. Of the original 75,000 ha, less than 350 ha of rainforest now remains, and 196 ha are contained within a single reserve, the Big Scrub Flora Reserve. Other major remnants are Johnston's Scrub Council Reserve (20 ha), Wilson Park Council Reserve (20 ha), Boatharbour Council Reserve (17 ha) Davis Scrub Nature Reserve (13 ha), Booyong Council Reserve (13 ha), Boomerang Falls Flora Reserve (9 ha), Victoria Park Nature Reserve (8 ha), and Hayter's Hill (two areas of 3 ha and 4.5 ha on freehold land). The vegetation of all these major remnants has been surveyed for the Service by Research Scientist A.G. Floyd, who has also surveyed a number of minor remnants (smaller and/or more disturbed).

The Proposed Grant

The Service now wishes to carry out a survey of the avifauna of the 'Big Scrub' remnants. The objectives are to determine:-

(a) which bird species use these remnants and how significant the remnants are, collectively and individually, for the conservation of rain-forest birds in the region;

(b) how the bird communities of each remnant differ from each other, and how they compare with the bird communities of more extensive rainforest tracts;

(c) which geographic and habitat factors are responsible for these differences; and

(d) which species have become extinct in the area since clearing

A copy of the proposed contract brief is attached.

If you wish to undertake the study, please forward a detailed proposal to the Director, marked to the attention of Senior Resources Officer Peter Keane. Any proposal should include the following:-

(a) name(s) and qualifications of person(s) proposing to undertake the survey;

(b) details of timing of the study and presentation of a draft report;

(c) details of costing of the study, either in terms of wages, travel expenses, materials, etc., or as a daily rate to cover all of these.

The inclusion of copies of any relevant work undertaken by the proposed study personnel would also be helpful.

Any submission you may wish to make should reach the Service by 17th May 1984. Any inquiries should be directed to Senior Resources Officer Peter Keane on (02) 237-6535.

Yours faithfully,

for J.F. Whitehouse,
Director.

23 APR 1985

NATIONAL PARKS AND WILDLIFE SERVICE

PROPOSED BRIEF FOR AVIFAUNAL SURVEY OF 'BIG SCRUB' REMNANTS

The Consultant will furnish the following consultancy services:-

(a) survey the available information on the past and present avifauna of the 'Big Scrub', i.e., the area bounded by the towns of Lismore, Mullumbimby, Byron Bay and Ballina, which formerly supported an extensive and almost unbroken tract of lowland subtropical rainforest;

(b) determine which species have become extinct in the 'Big Scrub' area since the clearing of the rainforest in 1860-1900;

(c) carry out a field survey of the avifauna of the remnant rainforests of the 'Big Scrub', particularly those on:-

(i) Victoria Park Nature Reserve,
(ii) Davis Scrub Nature Reserve,
(iii) Big Scrub Flora Reserve,
(iv) Boomerang Falls Flora Reserve,
(v) Johnston's Scrub Council Reserve,
(vi) Wilson Park Council Reserve,
(vii) Boatharbour Council Reserve,
(viii) Booyong Council Reserve,
(ix) Freehold land at Hayter's Hill;

(d) compare the bird communities of each remnant with each other and with the bird communities of more extensive rainforest tracts;

(e) assess the effects on the bird communities of the remnants of geographical factors such as area of rainforest and degree of isolation from other rainforests, and habitat factors such as availability of fleshy fruits and presence of a permanent watercourse;

(f) assess the significance of the 'Big Scrub' remnants, both collectively and individually, for the conservation of rainforest birds in the region;

(g) provide a report detailing the methods and results of (a) to (f) above.

S.O. 1290

Land acquisition

2. acquisition of private Rf. land 1,600,000

Planning and management

2. Big scrub remnant 30,000

3. Rehabilitation of Big Scrub remnant 20 000

5. Rehabilitation of Brunswick Heads Nature Reserve, north east of estuary 40 000

Visitor facilities

7. Rec mountain walking track, Border Range 60000

12 Interpretive and visitor facilities, various State Forest 40000

Research & surveys

15. Conservation planning for rare plants of Tweed Volcano region, near termini 10000

16 Tweed Volcano region flora and fauna survey 10,000

Printed Info & interpretation

22. Littoral rainforest rehabilitation handbook 20000

21. Outdoor interpretative panels, Victoria Park NR & Wennbumbo National Park 30000

23 id guide to NSW Rf trees 30000

DRAFT AGENDA

PEAK CONSERVATION ORGANISATIONS

Officials meeting

NCCNSW TASCT	Item 1:	Forest Industries and Woodchipping
	Item 2:	Rainforest Conservation
	Item 3:	Hazardous Wastes and Chemicals
ACNT CCSA	Item 4:	Finance a) Budget GVCO (Commend Minister) b) Taxation incentives for Conservation fringe benefits tax (Restoration of places on the Register of the National Estate) tax deductibility
	Item 5:	Habitat Protection for Endangered Species
IUCN ECOFUND		a) Legislation b) International treaty
IUCN	Item 6:	Marine and Estuarine Protected Areas
	Item 7:	Kakadu National Park
ANT NTEC		a) Stage III b) Management Plan Update
NCCNSW	Item 8:	Murray/Darling - Update by Minister
ECOFUND	Item 9:	Environmental Representation at Antarctic Mineral Regime negotiations
ECOFUND	Item 10:	Wildlife Protection Act
ECOFUND	Item 11:	World Bank
WORLD WILDLIFE AUST/IUCN	Item 12:	Implementation of National Conservation Strategy
NCCNSW	Item 13:	Jervis Bay: Need for a Senate Enquiry

National Parks Association of N.S.W.
Far North Coast Branch,
c/- Mr. M. Kaveney,
100 Orana Rd.,
Ocean Shores. 2483.

Dear Sir,

Under the National Rainforest Conservation Program, the Commonwealth Government had committed in June 1986 to providing $22.5 m for rainforest conservation throughout Australia. Of this the following outlays were scheduled for the Big Scrub:

		1986/87 $	1987/88 $
2.	Management plan - Big Scrub Remnants	30,000	30,000
3.	Rehabilitation - Big Scrub Remnants	20,000	50,000
21.	Outdoor interpretive panels, Victoria Park (+ Werrikimbee National Park)	30,000	
25.	Aquisition of private rainforest land for inclusion in National Parks and Reserves (all N.S.W.)	1,600,000	800,000

It would appear that, of the N.S.W. funding, over 30% in 1986/87 and over 50% in 1987/88 is allocated to visitor facilities and tourist oriented expenditure. If this Discussion Paper is any example, much of the planning and management expenditure will also be oriented towards human use and we would wonder why the program has been entitled a 'National Rainforest Conservation Program'. How much of the allocations for management have been spent to date for the Big Scrub remnants?

In October, 1987, a workshop was held at the N.R.C.A.E. to consider a Discussion Paper for the Big Scrub Conservation Strategy.

The issues which were raised in discussion at this workshop and in discussion elsewhere, give rise to serious concern that the management plan that might be drawn up by the present consultants will be so poorly researched and devised that remnants which have managed to survive so far could be degraded or destroyed. Our concerns fall into a number of categories.

1. The Consultancy Brief issued by the N.P.W.S.
2. The use of consultants and the allocation of tenders.
3. Shortcomings of the Discussion Paper
   i) The overall conceptual framework of the Discussion Paper.
   ii) Invalid assumptions and inadequate methodologies.
   iii) Omissions.
   iv) Recommendations.
4. Conclusions

1. The Consultancy Brief issued by the N.P.W.S.

On what basis was 'Big Scrub' defined? On what basis were 'major' and 'minor' remnants divided?

There is some conflict in the Terms of Reference between the preparation of a conservation strategy and the concept of management for 'potential and appropriate use' of the remnants. The original allocation was under the National Rainforest Conservation Program. A great deal of money is already being spent on the health, welfare and recreation of people. It is not appropriate that the NPWS which is the only statutory body in the State with the primary function of protecting ecosystems also directs their

relatively limited funding to this purpose. In addition, money has already been allocated under the program for outdoor interpretive facilities at Victoria Park. David Keith, a botanist with N.P.W.S., Sydney justifies the accent on human use because 'the Federal Government has devoted these funds because people have put pressure on them to do so'. This indicates a misunderstanding of the enormous amount of time and effort so many people have put into attempting to conserve and preserve remaining ecosystems and their remnants.

The Discussion Paper did not come to grips with the area which was to be covered by the Conservation Strategy. It is important to resolve the question of whether the Strategy covers only Big Scrub remnants or whether it should be extended to cover other rainforest remnants in the area. In fact, information should have been presented in the paper on the conservational value of different concepts of the 'Big Scrub' and the various alternatives properly described and documented for discussion.

The North Coast N.P.A. feels that the remnants should be considered as an ecological whole within a regional perspective, which is how they are considered by many of their resident flora and fauna, and not as disjunct entities. With this view, the corridors and linkages which presently exist along creeks, rivers, along regenerating slopes, and even along road verges gain a new perspective as a 'tremendous resource for maintenance of the rainforest areas' (Peter Stace, Dept. of Ag.). In considering the Big Scrub it should also be borne in mind that it was always a mosaic of communities with the rainforest being scattered amongst other vegetation types depending on soil conditions.

2. The use of consultants and the allocation of tenders.

Was the contract issued at State or Federal level? On what basis was it granted? The North Coast branch of N.P.A. is concerned about the allocation of other rainforest conservation funds with this example in mind.

Why was the contract given to consultants who had no demonstrated expertise in rainforest ecology or in management for conservation? The money allocated should have been used to employ people to plug the holes in the data base and to identify overall and individual conservation threats and challenges, under N.P.W.S. direction.

If N.P.W.S. were not to use their expertise, why was the contract not then given to consultants who have suitable expertise in conservation management and a knowledge of the Big Scrub remnants? The remnants are too important to be left to consultants who have, in fact, demonstrated their poor grasp of the ecology of the Big Scrub remnants and of management issues and, unfortunately, of scientific research, in this Discussion Paper.

3. Shortcomings in the Discussion Paper.

The Discussion Paper failed to adequately address the Consultancy Brief in that it:

* did not review relevant information concerning the natural and cultural features of the "Big Scrub" as well as data relating to the remnants existing and potential use. The bibliography is pitiful, despite a 'review of literature' purportedly carried out. Much more is available, both published and unpublished, e.g. there are many references to birds in Big Scrub remnants in the literature and information is also

available from a number of local experts.

* does not show evidence of consultation with land management authorities and landowners.

* does not evaluate the relevant background information

* does not adequately identify management issues current and foreseeable in the near future.

* did not provide a general statement as to their importance of the Big Scrub remnants as small natural areas for agriculture and wildlife.

i) The overall conceptual framework of the Discussion Paper.

During the Workshop, Nan Nicholson made the following points which we feel should be emphasised

* these areas are already being used by species other than ourselves which gives them a value far beyond human use since we don't need these areas for our very survival

* these areas have an inherent right to exist without our feeling a compulsion to benefit from them

* the pressures on these areas are going to increase enormously in the next few decades and they must not be expected to absorb an ever increasing range of human uses or entrepreneurial expectations.

* any interference at all from now on is radical extremism and we now must take a more moderate position and avoid damaging in any way what is left.

* the Conservation Strategy should not be a blueprint to allocate human use of the area.

John Bruce, the Regional forester for Coffs Harbour district noted that:

* there are other rainforest areas which are accessible and large enough to better absorb impact

* these tiny remnants could be easily trampled to death if human use is promoted.

* tourists are at present interested in rainforest rather than in the Big Scrub remnants and interest in the remnants should not be encouraged.

He pointed out that even the larger areas under Forestry Management could be in an 'overuse' situation in the near future and controls may need to be considered. Hitchcock (1984) also points out that recreation is a land use which conflicts with the conservation of small botanically important rainforest remnants.

The North Coast N.P.A. feels that consideration of the fiscal value of an area has no place in a conservation strategy and we are concerned by the following attitude exhibited by the consultants.

'... the remnants of the Big Scrub have been recognised at both State and Local Government level as important elements within the fabric of

an overall tourism based economic strategy'.

To compound this, the section 'Socio-Economic context' contained inaccurate and misleading statements.

'economy was dominated by traditional agricultural pursuits to the detriment of diversified commercial and industrial development' (our accent)
'The "aura" of the subregion's rainforest remnants is illustrated in the array of tourist promotional literature ....'. These do not refer to the Big Scrub remnants but to the larger National Parks referred to by John Bruce.

This Discussion Paper fails to address the impact of the present levels of recreational use on each of the remnants and completely fails to identify the extent of potential planned or unplanned recreational use.

The Big Scrub remnants do not need money spent on setting up government units whose roles relate 'to the pursuit of the co-operative management model' (p58). This Discussion Paper demonstrates very clearly the problems inherent in wasting money on theoretical models in the absence of practical experience.

ii) Inadequate methodologies and invalid assumptions.

Classification seems to have been undertaken for the purpose of allocating 'conservation' status. Such an allocation is not in the brief which specifically states that 'conservation strategies should be devised for all major and minor Big Scrub remnants'. In the end, the Primary and Secondary status were largely allocated before any 'analysis' of 'species richness' by whether they were 'true' Big Scrub sites or not!

The consultants failed to recognize the inadequacies of their approach throughout and the high degree of subjectivity and bias in the methods used. Mention was made at the Workshop that 'published data from recognized journals was used' for the classification but the data used (Floyd, 1981, Holmes, 1987) are not published.

Computer classification is used as an aid to delineating ecological groups if the user does not know what they are and when there is too much data for the calculations to be done by hand. However, this expertise was available both within N.P.W.S. and from local consultants available to N.P.W.S. In this case the consultants stressed that they were taking an 'objective approach' thus failing to recognize the subjectivity inherent in the purpose and assumptions underlying classification, in the data, and in their selection of the classification method which is only one of many methods.

It is usual to publish a data set, in summarized form if it is very large, when it is to be used for computer analysis. Diagrams alone are meaningless. The computer analyses presented in this paper appear to have been used as 'window dressing'. They do not seem to provide useful information

Diagrams are poorly drafted e.g. 'Plans' 3,4 which purport to show size and distribution of major and minor remnants. Because no scale is provided, no idea can be gained of the actual sizes involved.

a) Analysis of Site Diversity

Site characteristics were determined from Bureau of Meteorology,

(1972) and Nicholls & Tucker (1956). This is not an adequate basis for the determination of limiting factors of each site. The analysis of site diversity (p16) is a waste of time and money for that number of sites x that number of environmental parameters. Even if the consultants were themselves ignorant, a hand method would have been more appropriate. The results are not different to what was already known by many people in the area.

b) Vegetation Representation and Diversity

Contrary to the statement (p20) that 'the data is the result of an extensive and consistent sampling method', Floyd's records are derived from one, rarely two transects, and Jenny Holmes' records are derived from what Glen Holmes referred to as a 'boredom index', i.e. they wandered through until they weren't finding new species, generally for about half an hour. This is an adaptation of a standard method for maximising the number of species found, but it is not intended to be used for comparison of different sites. The Holmes' records were collected, not primarily as a list of plant species, but as a 'measure of the available resource to birds that was presented by the Big Scrub'.

The transect method fails to take into account the patches even within quite small remnants due to past disturbance or microsite characteristics. These patches are more likely (but not systematically) to have been picked up by the Holmes. The transect method may also be totally inadequate where gradients are involved which is the case in many rainforest situations.

Nowhere was it actually mentioned what 'vegetation species' covered. In fact, the Holmes' report lists trees, shrubs, and vines only. Conservation of tree and shrub species is not an adequate basis for conservation of the Big Scrub remnants, most of the species occur elsewhere in rainforest Parks. No weight was given to other attributes of species or of their relationships, i.e. there was no recognition of associations, variations in abundances, successional stages, mutualistic relationships, species longevity, species dispersal characteristics, etc.

Even if presence/absence of some classes of plants is considered to be an adequate basis for conservation, there is no indication of whether these species are present in enough numbers to remain regeneratively viable. Throughout, the authors discuss 'diversity' when they mean only species richness.

Floyd recognised two alliances (subtropical rainforest and dry rainforest) and four suballiances (White Booyong, Black Bean, Pepperberry-Blue Fig, Hoop Pine). People familiar with this area and with rainforest plants readily recognize them. Floyd has noted the endangered state of the Blue Fig suballiance.

Since the Big Scrub area was originally a mosaic with four rainforest subassociations and a number of other vegetation types, it is not meaningful, even if the data were more reliable, to compare each remnant with an overall species list. Even so, the derived vegetation classification from 'Plans' 7,8,9 has very unclear separations (eg Plan 9 'small species poor' and 'poor species richness - small') and confusing allocation of categories (eg soils, cf. Plan 7, Plan 9).

Table 2 is very misleading. Although this is not made clear by the consultants, Hayter's Hill is actually two rainforest remnants of different suballiances. Any two remnants together would show a higher species richness than either one alone.

It is difficult to understand why weeds were included in a classification of Big Scrub remnant vegetation (Plan 7). One should not need the added expense of computer classification to know that 'some weed species are less selective of soil type than the rainforest species' (p 21). If this was not already known through an understanding of weed attributes and characteristics, local experts could have been consulted.

The inclusion of rainforest species as edge and exotics gives little confidence in the species area curves. In any case, the methodology and assumptions underlying the use of the species area curves are questionable, particularly the assumption that it is purely the number of species which is to be preserved and that this will rely solely on area. While there can be no doubt that large areas are more likely to be viable, there is no assessment of the area needed for viability in this case. The use of species area curves is not appropriate as a method of estimating the area required to 'preserve 80% of the species'. The Conservation Strategy should aim at conserving 100% of species. The loss of 20% of species would be an ecological disaster.

It is of serious concern that the authors focus solely on plant species richness with no consideration of the faunal component or of interactions and relationships between them or their effects on site characteristics. Unless a more ecologically based approach is taken, 'management' could seriously affect the viability of remnants.

Without any information on abundance patterns and without adequately defining such terms as 'marked' and 'dominance', one of the people speaking for the consultants at the workshop (Prof. R. Specht) clarified the peculiar basis on which one of the Recommendations was made by actually stating that a tendency for marked dominance would give species poor plant and animal communities and that cutting down areas to disturb them would need to be considered in management plans!!!! This attitude is of great concern. We are dealing here with a community that exists not through catastrophic regeneration as occurs in certain heath communities but through microseral regeneration because there is continual natural creation of small gaps (Hopkins, 1981). We are dealing with very small remnants and with communities in which 'dominance' is more likely to occur during colonisation after disturbance than at any later stage.

c) Avifauna Representation and Diversity

The birds were again subjectively classified by computer using the invalid assumption that only those species deemed 'true dependents' were of concern. In fact, A. Gilmore notes that the Big Scrub remnants are used by birds of the high altitude rainforests for migration and overwintering purposes. We feel it is totally inadequate not to address this issue in a conservation strategy.

'Clearly, rain forest bird communities are far from static and it would be wrong to assess their conservational needs until these migratory patterns are better understood' (Broadbent & Clark, 1977)

'Even in such a small group of birds of one habitat (pigeons) there is a wide variety of reactions to habitat disturbance. This underlines the need for considerable research on wildlife before appropriate management plans for reserves, or for the bird's populations can be formulated with confidence'. (Frith, 1977)

A large amount of data does exist, although unpublished e.g. Victoria Park and Davis Scrub have been studied as bird-banding sites for the

past 10 years and data would be available either from the bander (T.H.Alley) or through the Assoc. of Australian Birdbander, or National Parks (Federal). Bird banding has also been carried out in Brockley by Bill Davis under the official scheme.

The idea of nominating a handful of sites for preservation is ecologically absurd as :

* this would preserve only a small subset of the populations;

* All remnants are interdependent bird habitat, along with corridors and regrowth forests ;

* There is a seasonal interdependence between all lowland remnants and higher elevation rainforests through the movements of altitudinal migrants.

d) Physical Limitations!

Previous researchers indicate that continuity of the rainforest is related largely to soil conditions and nutrient status and not to rainfall and evaporation in this region (Webb, 1963). If the consultants had evidence to back up their conjecture, it should have been referenced.

The physical limitation to rainforest growth through water stress was predicted to be a major threat because of the climatic change presently in train. However, it should be borne in mind that predicted conditions are similar to those which existed about 6 kya.

During discussion, R.Specht stated that they had predicted conditions here to be increasingly dry because the increasing temperatures would mean a latitudinal shift of rainfall patterns southwards. While there is evidence that the region should experience greater contrast between summer and winter rainfall and an increase in cyclonic events as is presently the climatic norm further north, it is not true to say, as R.Specht has done, that because we will be getting temperatures similar to those now experienced by Rockhampton, we will be getting similar amounts of rainfall. A large component of our precipitation is orographic. However, it was apparently on these assumptions that this section was based.

The water available to the vegetation 'can be measured by a simple calculation' if and only if, the components of that equation are known for each remnant.

The terms used in the discussion of Moisture Index are incorrect.
Eo = Evaporation from a lake surface
Et = Potential evaporation
Ep = Pan evaporation

Many researchers have recognised the inadequacies of predicting water budgets from simplistic equations coupled with no actual data.

'Using the annual averages of 30 year data, with a kraznozem peak at each site, rainfall being the only input and no physical losses, the water balance equation may be calculated' (Planners North, p35). This is nonsense.

The consultants should reference the source of such questionable information as 'given that chocolate soils, which have a much lower soil water storage capacity than kraznozem...', 'if the soil holds less water (the example here being a podzol)'. It should also be noted that, contrary to the

beliefs of the consultants, soils on the flats at Lismore are alluvial clays, although the surrounding hill slopes have chocolate soils. Both the hillslopes and the flats do carry remnant rainforest vegetation.

Since the results predicted from their equations are demonstrably untrue, this again demonstrates the problem of using consultants who are not acquainted with the area. Consultants should never be used who draw firm conclusions from baseless assumptions.

e) Exotics and Edge Effects

Many people who know the rainforest remnants recognize that the single most dangerous threat at present is the invasion by exotic weeds. There is quite a body of knowledge locally available on the management of small rainforest remnants, regenerative techniques, and gap management. Floyd (1984) describes management of small rainforest areas with particular reference to weed control. Money should not be allocated to research these areas solely because consultants are employed who are not themselves aware of available resources and management techniques. Any monies available for this area should employ people who already know how to get on with the job.

Although the list of edge and exotic species was not included in the Discussion Paper, the list was subsequently obtained. In the discussion paper, weeds were discussed very generally, the number of species being the chief consideration. In addition, species which were regarded as 'edge' species by the consultants were included. However, the 'edge species' contain many species which are not early colonisers. A scientific approach would have appreciated the dynamics of rainforests subject to different disturbance regimes, e.g. the successional turnover in species composition and structure as expounded by Mike Hopkins (1975, 1978, 1981).

It is not meaningful to lump all weeds together. They are not all of equal threat. In addition, contrary to the consultants' belief, some species can infest an 'intact' canopy, e.g. Asparagus sp., Commelina spp. Infestation of remnants is not wholly dependant on the edge - canopy gaps or disturbance of other kinds will increase weed infestation, e.g. Privet will invade 'inside' the canopy especially around water courses.

Hypothetical assumptions are dangerous in the absence of empirical research. While a 15m penetration may have been relevant to Lovejoy's Amazonian fragments, this obviously differs for each of our remnants by the height of each canopy, the curtaining of the edge by certain species, etc.

'The seed bank under a rainforest canopy is very low'. Where is the evidence for this? Local experience shows that this is not true of our rainforests. The seedbank available and its dispersal characteristics also depends on both the flora and fauna using the remnant and contiguous communities.

For the discussion, the following should have been identified and presented:

* the major weed threats
* weed sources and dispersal characteristics
* the condition of each remnant.
* regeneration potential (cost/time)
* shape of the remnant with regard to infestation
* likely propogule dispersal and germination characteristics
* effects of surrounding land use on weed infestation

Liason should have been effected with people engaged in regeneration work.

iii). Omissions.

a) Management and Land use

There is no mention of management to date. A number of the remnants have management plans in operation which have/had public input. (These are notably not the ones under NPWS management). Some of the remnants in public ownership are being actively regenerated by council or by volunteers. We believe it is likely that many private landowners have been active in caring for remnants on their land. No information on the status of present management or of surrounding land use policies was presented. There is no correlation or integration with other local planning exercises such as the Draft Environmental Plans for Ballina and Byron Bay.

Information which may be useful to landowners includes
* Aspects of reafforestation with local rainforest species
* Site suitability and preparation for reafforestation
* Rainforest regeneration techniques
* resource people/publications/government bodies for specific resource information

Information which should be gained for public ownership includes
* present status of use and its impacts. A number of the remnants in public ownership already have high usage levels and show significant signs of degradation from this.
* in those areas which will be unavoidably used for recreational and educational purposes, what are the limits to usage growth and what strategies can be devised to control and manage usage.

b) Ecology

The following biological aspect should be assessed to aid assessment of viability:

* The contribution to each community of species from
  the early colonisation stage
  Secondary phase of succession
  Mature phase.
* the present status of regeneration within each remnant.
* species which depend on mutualistic relationships for viability.
* relative abundance/dominance for each remnant.
* Specific threats to each remnant should be clearly identified with some indication of the rate of advance of the threat.
* It would be useful to determine the particular differences and important characteristics of each remnant.
* It would have been valuable to have site characteristics and land capabilities identified outside the present remnants to aid conservation through the reestablishment of corridors.
* the value and effect of replanting within remnants - information for each site.

Fauna was very inadequately covered. The only mention of fauna other than avifauna is on p 43 where the three sites are marked as having bats without further comment and in the following unreferenced and unsubstantiated statement:

'Rainforest dependent mammals and reptiles appear to be rare in the remnants, and certainly no appropriate data exists for this study. The

consequences of their loss is little understood'. If consultants are to be employed, they should have the appropriate expertise.

iv) Recommendations.

The North Coast branch of the N.P.A is totally opposed to the following recommendations of this Discussion Paper.

* Division of remnants into
  - Primary Conservation Sites
  - Secondary Conservation Sites
  - General Remnant Sites
  - Designated Tourist and Educational Sites (pp 58, 59)

These divisions were in any case arbitrarily allocated. It is of paramount concern that sites have been allocated status at all, let alone apparently on the basis of whether they are 'true' Big Scrub sites or not.

* During the workshop discussion Ms. A.Specht stated that she 'didn't assume that conservation of all sites was possible' i.e. she assumed that it wasn't possible, yet adequate information on conservation status and viability was not presented for any site.

* 'entrepreneurial use of general remnant sites ought to be encouraged subject to the preparation of satisfactory management plans. Furthermore, the National Parks and Wildlife Service should give serious consideration to supporting the construction of tourist infrastructure in close proximity to designated tourist and eductional sites'. (pp59,61). The consultants appear completely unable to grasp the fragility of these remants. As a further example, Boatharbour has conflicting usages as a prime tourism site and as a prime conservation site.

* 'The community (both resident and tourist) should enjoy reasonable access to the remnants for scientific, historical, educational and recreational purposes. It is Governments' proper role to facilitate such access'. The National Parks and Wildlife Act actually requires that priority be given to protecting ecosystems, particularly since the N.P.W.S. sites are Nature Reserves and primarily aimed at species conservation. No assessment of the impact of present usage on these remnants, or of the effects of recreational use in general is evidenced in the Discussion Paper.

* 'removing and controlling weeds, ensuring that the edge of the remnant is sharp' (p62)

* 'maintaining species diversity, by ensuring gaps occur, and the remnants are not overprotected'. !!!!! We have discussed the dangers of this belief and the natural occurrence of gaps earlier.

4. Conclusions

We hope that a Conservation Strategy for particular rainforest remnants would contain sufficient information on the techniques and resources available for management of such areas in general as well as containing site specific management requirements. This Discussion Paper does not form the basis for either.

While it is not necessary to go into the mechanics of management, a Conservation Strategy should clearly spell out the end that is to be achieved and the priority of action for each remnant as well as give some guidance as to desirable means.

Because the Discussion Paper which was presented by Stephen Connelly of Planner's North, in conjunction with Ms Alison Specht et. al. of the N.R.C.A.E's Centre for Coastal Management, is totally inadequate, the North Coast Branch of the N.P.A. believes that the employment of these Consultants should be terminated. We are extremely concerned that, instead of insisting on high standards in the formulation of the Strategy, the N.S.W. N.P.W.S. might modify the Brief to suit the Consultants. Since the conservation management of the Big Scrub remnants has not yet been adequately discussed, there must be further public input to the formulation of the Conservation Strategy, and of the Management Plans for the three Nature Reserves, Victoria Park, Davis Scrub, and Broken Head.