

Fisheries Bulletin 2

An estuarine inventory for New South Wales, Australia

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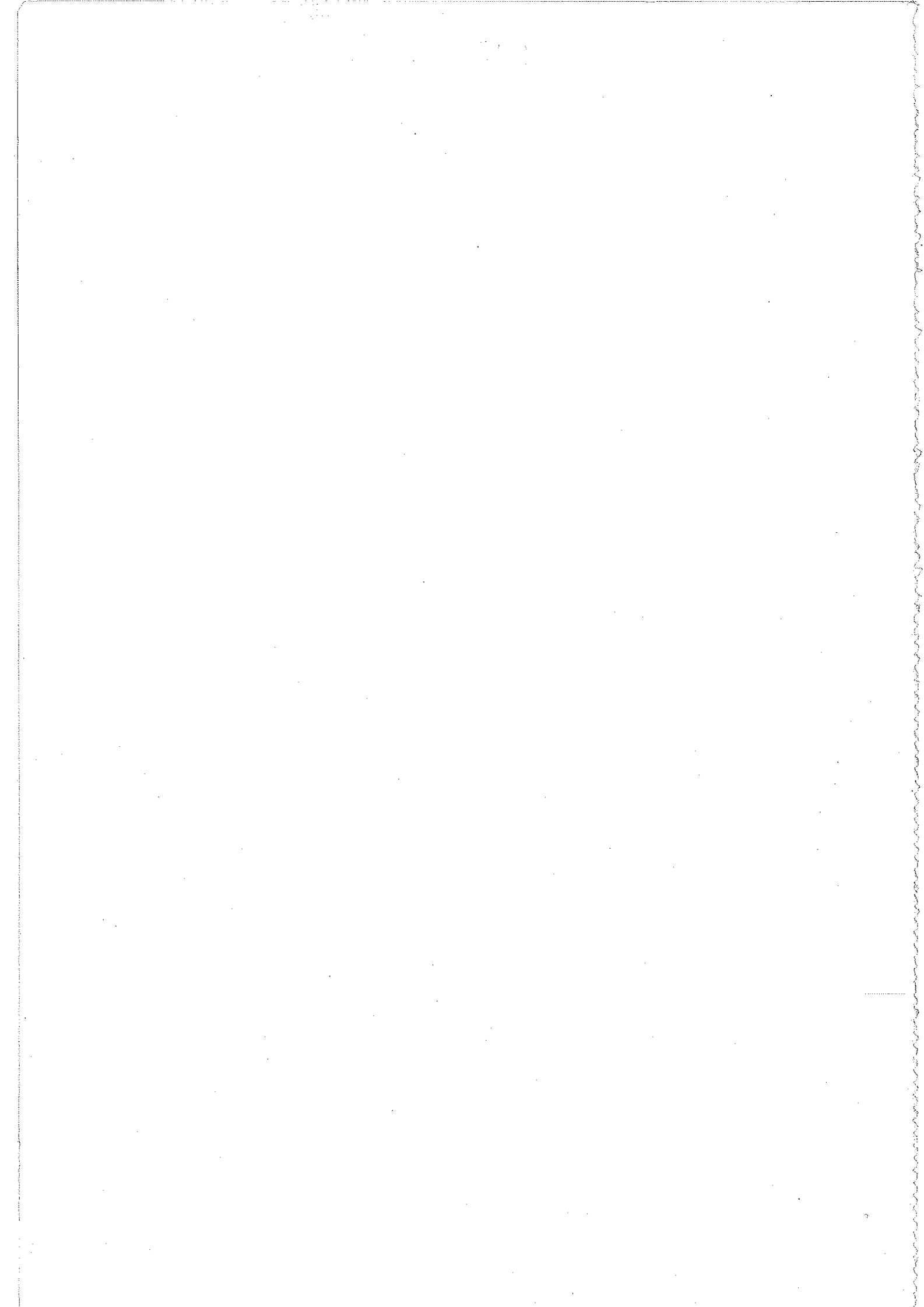
Summary: This fisheries-oriented inventory consists of tabular information and an atlas of estuarine wetlands describing 133 estuaries and embayments along the New South Wales (Australia) coast.

Information presented includes location, local government areas, estuarine water areas, mangrove, seagrass and saltmarsh areas, fish catch statistics and oyster production figures. Approximately 107 square kilometres of mangroves in 69 estuaries, 155 square kilometres of seagrass in 111 estuaries and 58 square kilometres of tidal saltmarsh in 101 estuaries have been mapped. These maps are available for use in estuarine management and planning.

Two recommendations are made regarding estuarine management and planning. The first is that estuarine wetland communities be protected by rigorous application of local government zoning provisions currently available. The second is that the interests of the professional fishing and oyster farming industries, as well as those of amateur fishermen, be considered carefully in Regional and Local Environmental Studies and Plans prepared for land-rezoning and development proposals.

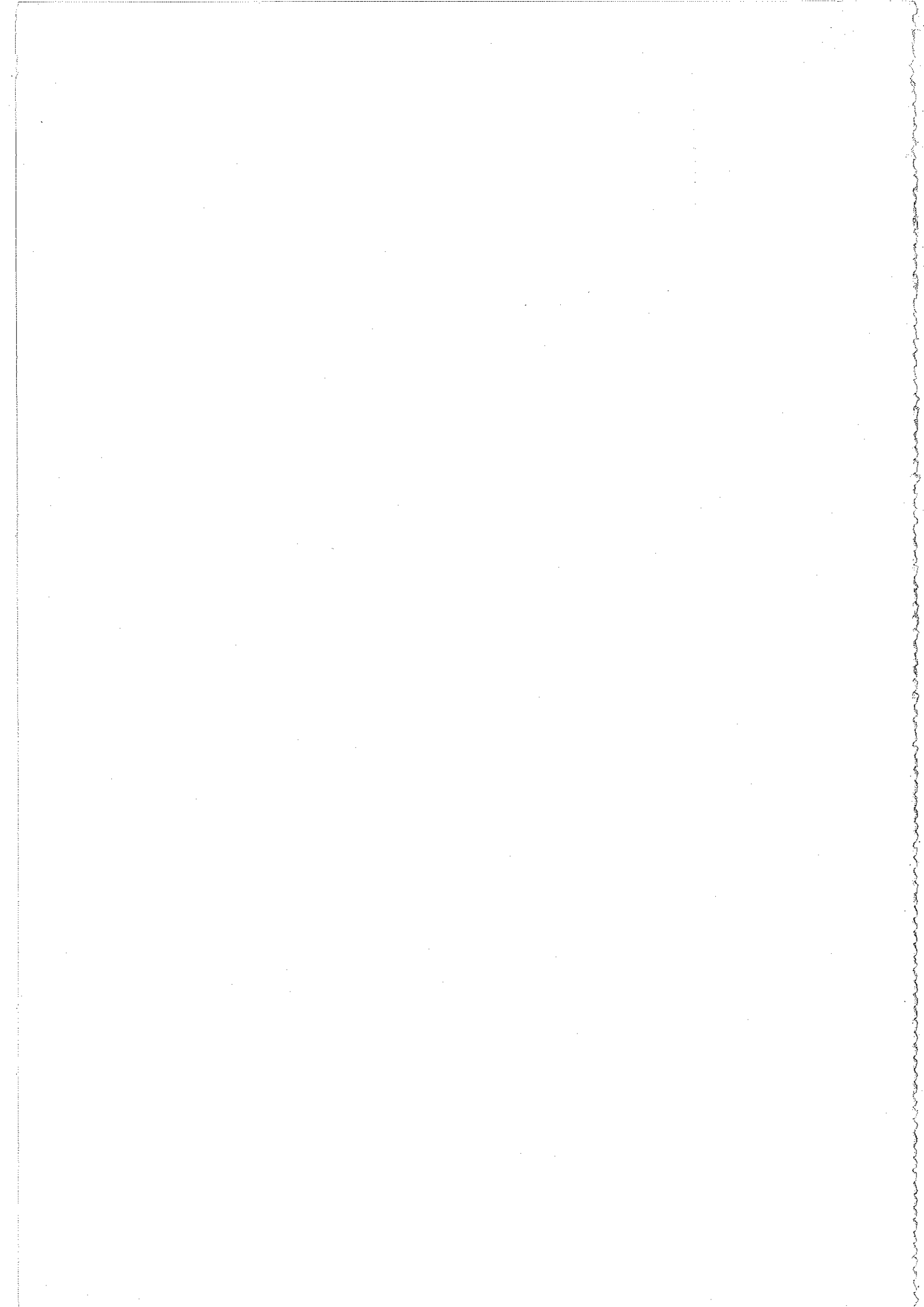


Department of Agriculture New South Wales



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INTRODUCTION

The fisheries of New South Wales represent a multi-million dollar renewable resource, not only in terms of commercial harvests but also in revenue generated by recreational fisherman. In New South Wales, at least \$38 million worth of fisheries products are commercially harvested from the estuaries each year. In addition to this, annual expenditure on recreational fishing was recently estimated to be over \$250 million per annum (J. Pepperell, personal communication).

The management of the fisheries resources of New South Wales is the responsibility of the Minister for Agriculture and Fisheries under the New South Wales Fisheries and Oyster Farm Act. This Act states that:

"The duty of protecting, developing and regulating the fisheries of New South Wales . . . shall be vested in the Minister."

Developing and regulating fisheries resources includes exploratory fishing, the survey of fish stocks, the issue of licences, imposition of size limits, and restriction of net sizes and types. Protection of fisheries resources includes the management of the habitats important to fish. Recent scientific studies in New South Wales estuaries have established that seagrasses and mangroves play an important role as fish habitats

(Anon 1981; Pollard 1984; Bell *et al.* 1984) and as primary producers (Goulter & Allaway 1979; West & Larkum 1983). Saltmarshes are important as habitats, particularly for bird life, and as natural buffers regulating the exchange of nutrients between land and estuary (Queen 1977; Adam 1981). The importance of estuaries to the inshore fisheries production from New South Wales waters has been outlined by Pollard (1976).

As the Division of Fisheries considers the protection of seagrass, mangrove and saltmarsh habitats and their associated communities fundamental to the management of estuarine fisheries, our policies regarding estuarine wetlands are based on conservation and rehabilitation. It is unrealistic to expect total preservation of all wetlands and the Division accepts that, in the community's interest, changes to some wetland areas are unavoidable, especially near urban centres. The specific needs of the community must be carefully and comprehensively balanced against the necessity to protect fisheries resources.

The aim of this bulletin is to provide a fisheries-oriented inventory of the New South Wales estuaries and, in so doing, assist in estuarine management.

METHODS AND RESULTS

MAPPING

The distributions of estuarine wetland plant communities were mapped between 1981 and 1984. Base maps for each estuary were traced from Central Mapping Authority (C.M.A.) 1:25 000 topographic maps. Draft vegetation-type boundaries, interpreted from recent aerial photos, were drawn on these base maps using a Bausch and Lomb Zoom Transfer Scope.

Final estuarine wetland maps were produced after field surveys were carried out to confirm boundaries and identify plant species.

Vegetation-types identified on these maps were saltmarshes (all species combined), mangroves (all species combined), and seagrasses. In the case of seagrasses, the following species or families were mapped: *Zosteraceae* (including *Zostera capricorni*, *Zostera muelleri*, and *Heterozostera tasmanica*), *Posidonia australis*, *Halophila* spp. (*Halophila ovalis* and *Halophila decipiens*) and *Ruppia* spp. (*Ruppia megacarpa*, *Ruppia polycarpa* and *Ruppia maritima*).

Areas of each vegetation-type and the surface water area of each estuary were estimated from the 1:25 000 estuarine wetland maps using millimetre graph paper.

Approximately 107 square kilometres of mangroves

in 69 estuaries, 155 square kilometres of seagrass in 111 estuaries and 58 square kilometres of tidal saltmarsh in 101 estuaries have been mapped. Reduced versions of these maps are presented in this bulletin, and full-size maps are available from the Division.

It should also be noted that there have been some significant changes in wetland distribution since the preparation of these maps, particularly in the case of seagrasses. For example, large areas of the seagrass *Posidonia australis* have disappeared from Botany Bay due to increased wave action and overgrazing by sea-urchins while seagrasses of the family *Zosteraceae* have increased in area in both Port Hacking and Botany Bay.

ESTUARINE DATABASE

The estimates for estuarine wetland area, and the species lists for mangroves and seagrasses in each estuary were combined with other information collected, such as location, estuary type, entrance status, estuarine-based fisheries production and sewage disposal sites, to form a computer database from which tables 1-5 have been prepared. Regions listed are those used by the New South Wales Department of Environment and Planning.

DISCUSSION AND RECOMMENDATIONS

The management of estuarine waters and adjacent lands and resources is a complicated process involving legislation and regulations of many State and Local bodies.

An important planning role in estuarine management is created for local government by the New South Wales Environmental Planning and Assessment Act (E.P.A. Act). In this Act local authorities are directed

to prepare Local Environmental Studies (L.E.S.) and Local Environmental Plans (L.E.P.) which control future development in each Local Government Area. The Act also outlines conditions under which Environment Impact Statements (E.I.S.) must be prepared.

During the preparation of an L.E.S., L.E.P. or E.I.S. which includes or may affect natural waterways, the Division of Fisheries (Department of Agriculture) must be consulted. In general, the Division recommends that all estuarine wetlands be zoned as Estuarine Wetland Protection, Foreshore Protection or some other specialised conservation zoning, and that a 30 metre buffer zone be created between the waterway or wetland and any proposed adjacent development. In addition, the regulations of the planning instrument should be such that any development or drainage on the zoned land will require the preparation of an E.I.S. which can be assessed by other government departments and concerned members of the community. Mangroves, particularly in urban areas, should also be included in Local Tree Preservation Orders so that indiscriminate felling is prohibited.

ACKNOWLEDGMENTS

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Two sections of the New South Wales Fisheries and Oyster Farms Act also affect the destruction of mangroves and the development of flood-prone areas (including wetlands). Section 88 of the Act has recently been amended so that a permit must be obtained to cut or lop mangroves growing below mean high water mark. Section 90I of the Act requires that the approval of the Division be obtained before proceeding with developments involving dredging or reclamation.

The Division of Fisheries also requires that the interests of the fishing and oyster farming industries be considered in any development proposal or land rezoning. Reference should be made directly by the proponent to local fishermen's co-operatives, oyster-farmer groups and recreational angling organisations.

In addition to this fisheries-oriented inventory of estuaries, an environmental inventory of estuaries and coastal lagoons of New South Wales has previously been prepared by the Total Environment Centre dealing with land-use, landform, tenure and degree of disturbance (Bell & Edwards 1980), and the New South Wales Coastal Council is presently preparing an atlas of fresh and saline coastal wetlands.

Geological Survey Branch (Department of Mineral Resources) and Department of Environment and Planning for the use of zoom transfer scopes in aerial photograph interpretation.

REFERENCES

- Anon. (1981) The ecology of fish in Botany Bay. New South Wales State Pollution Control Commission, Report BBS 23, 23 pp.
- Adam, P. (1981) Australian saltmarshes. *Wetlands* (Journal of the Coast and Wetlands Society) 1: 8-10
- Bell, F. C. & Edwards, A. R. (1980) An environmental inventory of estuaries and coastal lagoons in New South Wales. Total Environment Centre. Sydney, 187 pp.
- Bell, J. D., Pollard, D. A., Burchmore, J. J., Pease, B. C. & Middleton, M. J. (1984) Structure of a fish community in a temperate tidal mangrove creek in Botany Bay, New South Wales. *Australian Journal of Marine and Freshwater Research* 35: 33-46
- Goulter, P. F. E. & Allaway, W. G. (1979) Litter fall and decomposition in a mangrove stand of *Avicennia marina* (Forsk.) Vierh, in Middle Harbour, Sydney. *Australian Journal of Marine and Freshwater Research* 30: 541-6
- Pollard, D. A. (1976) Estuaries must be protected. *Australian Fisheries* 36 (6): 6-10
- (1984) A review of ecological studies on seagrass/fish communities, with particular reference to recent studies in Australia. *Aquatic Botany* 18: 3-42
- Queen, W. H. (1977) Human uses of saltmarshes. In *Wet coastal ecosystems* (Ed. V. J. Chapman). (Elsevier: Amsterdam) pp. 363-8
- West, R. J. & Larkum, A. W. D. (1983) Seagrass primary production—a review. *Proceedings of the Linnaean Society (NSW)* 106 (3): 213-23

TABLE 1. List of New South Wales estuaries and some estuarine parameters

A. North Coast Region

Estuary	Location		Local government area	C.M.A. map (1:25 000)	Estuary type*	Entrance status†	Map water area‡ (km ²)
	Latitude	Longitude					
TWEED RIVER	28 10	153 33	TWEED	TWEED HEADS BILAMBIL, CUDGEN MURWILLUMBAH	1B/C, 2C, 2D	OT	17.916
CUDGEN LAKE	28 16	153 35	TWEED	CUDGEN	3B	OT	1.427
CUDGERA CREEK	28 22	153 35	TWEED	CUDGEN, POTTSVILLE	N.D.	O	0.238
MOOBALL CREEK	28 24	153 34	TWEED	POTTSVILLE	3C	O	0.402
BRUNSWICK RIVER	28 32	153 33	BYRON	BRUNSWICK HEADS POTTSVILLE	2D, 1B/C	OT	2.222
BELONGIL CREEK	28 37	153 36	BYRON	BYRON BAY	N.D.	I	0.126
TALLOW CREEK	28 40	153 37	BYRON	BYRON BAY	N.D.	IX	0.082
BROKEN HEAD CREEK	28 42	153 37	BYRON	BYRON BAY	N.D.	I	0.050
RICHMOND RIVER	28 53	153 35	BALLINA LISMORE	BALLINA EMPIRE VALE WARDELL, LISMORE	1B/C, 2D, 2C/D	OT	19.071
EVANS RIVER	29 07	153 26	RICHMOND RIVER	WOODBURN TABBIMOBLE	1B	OT	1.787
JERUSALEM CREEK	29 13	153 23	RICHMOND RIVER	TABBIMOBLE	N.D.	O	0.214
CLARENCE RIVER	29 25	153 22	MACLEAN ULMARRA COMPANHURST	YAMBA MACLEAN WOOMBAAH, BANYABRA BROOMS HEAD	2D, 2C 2B	OT	89.243
SANDON RIVER	29 41	153 19	MACLEAN ULMARRA	BROOMS HEAD SANDON	2D	O	1.414
WOOLI WOOLI RIVER	29 53	153 16	ULMARRA	BARE POINT, RED ROCK PILLAR VALLEY NORTH SOLITARY ISLAND	2D	OT	1.900
STATION CREEK	29 57	153 15	ULMARRA	RED ROCK NORTH SOLITARY ISLAND	N.D.	I	0.306
CORINDI RIVER	29 59	153 14	ULMARRA	RED ROCK	2D	O	0.873
ARRAWARRA CREEK	30 04	153 12	COFFS HARBOUR	WOOLGOOLGA	3B	I	0.123
DARKUM CREEK	30 05	153 12	COFFS HARBOUR	WOOLGOOLGA	N.D.	I	0.046
WOOLGOOLGA LAKE	30 06	153 12	COFFS HARBOUR	WOOLGOOLGA	3A/B	IX	0.180
HEARNS LAKE	30 08	153 12	COFFS HARBOUR	MOONEE BEACH	3B	IX	0.106
MOONEE CREEK	30 12	153 09	COFFS HARBOUR	MOONEE BEACH	2D	O	0.333
COFFS HARBOUR CREEK	30 18	153 08	COFFS HARBOUR	COFFS HARBOUR	2D	O	0.308
BOAMBEE CREEK	30 21	153 06	COFFS HARBOUR	COFFS HARBOUR	2D	O	0.573
BONVILLE CREEK	30 23	153 06	COFFS HARBOUR	RALEIGH	2D	O	1.244
BELLINGER RIVER	30 30	153 02	BELLINGEN	COFFS HARBOUR RALEIGH, BELLINGEN	2D	OT	6.567
DALHOUSIE CREEK	30 32	153 01	BELLINGEN	MISSABOTTI	N.D.	IX	0.051
OYSTER CREEK	30 34	153 01	BELLINGEN	MISSABOTTI	N.D.	I	0.084
DEEP CREEK	30 36	153 00	NAMBUCCA	MISSABOTTI MACKSVILLE	2C/D	IX	1.021
NAMBUCCA RIVER	30 39	153 00	NAMBUCCA	EUNGAI, MACKSVILLE	2D	OT	7.738
MACLEAY RIVER	30 52	153 01	KEMPSEY	CLYBUCCA, EUNGAI SOUTH WEST ROCKS	2D	OT	18.169
SOUTH WEST ROCKS CREEK	30 53	153 02	KEMPSEY	SOUTH WEST ROCKS	N.D.	O	0.118
SALTWATER CREEK	30 53	153 03	KEMPSEY	SOUTH WEST ROCKS	N.D.	I	0.078
KOROGORO CREEK	31 03	153 03	KEMPSEY	KOROGORO POINT	N.D.	O	0.221
KILLICK CREEK	31 11	152 58	KEMPSEY	KUNDABUNG	N.D.	IX	0.198
HASTINGS RIVER	31 25	152 55	HASTINGS	TELEGRAPH POINT PORT MACQUARIE	2D	OT	17.287
LAKE INNES/LAKE CATHIE	31 29	152 50	HASTINGS	PORT MACQUARIE GRANTS HEAD	3A/B	IX	5.821
CAMDEN HAVEN RIVER	31 38	152 50	HASTINGS	LAURIETON, LORNE GRANTS HEAD BYABARRA	2C, 2A/B 2B/C	OT	27.833
MANNING RIVER	31 53	152 41	GREATER TAREE	TAREE CUNDLETOWN COOPERNOOK	2D	OT	25.348
KHAPPINGHAT CREEK	32 01	152 34	GREATER TAREE	CUNDLETOWN HALLIDAYS POINT	3A/B	IX	0.960

* 1-drowned river valley; 2-barrier lagoon; 3-coastal lagoon; 4-open embayment; N.D.—no data; A to D refer to the degree of maturity or infilling of the estuary. A-little infilling, D-very infilled.

† O-open to sea; I-intermittently open or closed; C-primarily closed; X-mechanically opened; T-training walls constructed.

‡ area of water shown on maps not including stands of mangrove or saltmarsh.

TABLE 1. List of New South Wales estuaries and some estuarine parameters—(continued)

B. Hunter, Gosford/Wyong and Sydney Regions

Estuary	Location		Local government area	C.M.A. map (1:25 000)	Estuary type*	Entrance status†	Map water area‡ (km ²)
	Latitude	Longitude					
WALLIS LAKE	31 13	152 30	GREAT LAKES	NABIAC, FORSTER COOLONGLOOK	2B	OT	85.559
SMITHS LAKE	32 23	152 28	GREAT LAKES	PACIFIC PALMS MYALL LAKE	3A	IX	9.371
MYALL LAKES	32 32	152 18	GREAT LAKES	SEAL ROCKS THE BRANCH BOMBAH POINT BULADELAH	FRESH, 3A	O	101.933
KARUAH RIVER	32 39	151 58	PORT STEPHENS GREAT LAKES	MYALL LAKE CLARENCETOWN THE BRANCH KARUAH	1C	O	7.541
MYALL RIVER	32 40	152 10	GREAT LAKES	THE BRANCH BOMBAH POINT	N.D.	O	3.876
PORT STEPHENS	32 42	152 11	PORT STEPHENS	PORT STEPHENS PORT STEPHENS KARUAH	1A, 1B	O	125.970
HUNTER RIVER	32 55	151 48	NEWCASTLE	MORNA POINT WILLIAMTOWN BERESFIELD NEWCASTLE WALLSEND	2C/D	OT	30.421
LAKE MACQUARIE	33 05	151 33	LAKE MACQUARIE WYONG	WILLIAMTOWN WALLSEND CATHERINE HILL BAY MORISSET	2A	OT	115.112
TUGGERAH LAKES	33 16	151 30	WYONG	SWANSEA CATHERINE HILL BAY TOURLEY WYONG	2A/B	IX	70.299
WAMBERAL LAGOON	33 25	151 27	GOSFORD	GOSFORD	3A/B	IX	0.495
TERRIGAL LAGOON	33 26	151 26	GOSFORD	GOSFORD	3A/B	IX	0.258
AVOCA LAKE	33 28	151 26	GOSFORD	GOSFORD	3A/B	IX	0.649
COCKRONE LAKE	33 30	151 25	GOSFORD	GOSFORD	3A/B	IX	0.320
BRISBANE WATER	33 31	151 20	GOSFORD	GOSFORD	2A/B	O	27.241
HAWKESBURY RIVER	33 34	151 20	GOSFORD HORNSBY	BROKEN BAY, GOSFORD GUNDERMAN, COWAN MANGROVE, LOWER PORTLAND HORNSBY	1A, 1B, 1C	O	100.005
PITTWATER	33 35	151 19	HAULKHAM HILLS WARRINGAH	BROKEN BAY MONA VALE	1A	O	17.314
NARRABEEN LAGOON	33 43	151 17	WARRINGAH	MONA VALE	2B	IX	2.181
DEE WHY LAGOON	33 45	151 18	WARRINGAH	MONA VALE SYDNEY HEADS	3A/B	IX	0.238
HARBORD LAGOON	33 46	151 17	WARRINGAH	SYDNEY HEADS	N.D.	I	0.058
MANLY LAGOON	33 47	151 17	WARRINGAH	SYDNEY HEADS	N.D.	I	0.086
PORT JACKSON	33 50	151 17	15 COUNCILS	SYDNEY HEADS PARRAMATTA RIVER	1A, 1B/C	O	49.667
BOTANY BAY	34 00	151 14	BOTANY ROCKDALE SUTHERLAND	BOTANY BAY PORT HACKING	3B/C	O	49.100
GEORGES RIVER	34 01	151 08	SUTHERLAND BANKSTOWN HURSTVILLE ROCKDALE KOGARAH LIVERPOOL	BOTANY BAY PORT HACKING	1B	O	12.466
PORT HACKING	34 05	151 09	SUTHERLAND	PORT HACKING	1A	O	11.298

* 1-drowned river valley; 2-barrier lagoon; 3-coastal lagoon; 4-open embayment; N.D.—no data; A to D refer to the degree of maturity or infilling of the estuary. A-little infilling, D-very infilled.

† O-open to sea; I-intermittently open or closed; C—primarily closed; X-mechanically opened; T-training walls constructed.

‡ area of water shown on maps not including stands of mangrove or saltmarsh.

TABLE 1. List of New South Wales estuaries and some estuarine parameters—(continued)

C. Illawarra and South Coast Regions

Estuary	Location		Local government area	C.M.A. map (1:25 000)	Estuary type*	Entrance status†	Map water area‡ (km ²)
	Latitude	Longitude					
TOWRADGIE CREEK	34 25	150 55	WOLLONGONG	WOLLONGONG	N.D.	I	0.060
PORT KEMBLA HARBOUR	34 28	150 54	WOLLONGONG	WOLLONGONG	N.D.	OT	0.098
LAKE ILLAWARRA	34 33	150 52	WOLLONGONG	WOLLONGONG	2A/B	IX	36.270
BENSONS CREEK	34 34	150 52	SHELLHARBOUR	ALBION PARK	N.D.	I	0.087
MINNAMURRA RIVER	34 38	150 52	SHELLHARBOUR	ALBION PARK	2C	O	0.601
WRIGHTS CREEK	34 40	150 51	KIAMA	KIAMA	N.D.	I	0.033
WERRI LAGOON	34 44	150 50	KIAMA	KIAMA	N.D.	I	0.113
CROOKED RIVER	34 46	150 49	KIAMA	GERROA	N.D.	OT	0.221
SHOALHAVEN RIVER	34 52	150 45	SHOALHAVEN	BERRY, NOWRA	2D	*	12.889
CROOKHAVEN RIVER	34 54	150 46	SHOALHAVEN	GERROA, CROOKHAVEN	2C	O	7.883
LAKE WOLLUMBOOLA	34 57	150 46	SHOALHAVEN	CROOKHAVEN, NOWRA	3A	IX	6.211
JERVIS BAY	35 06	150 47	SHOALHAVEN	HUSKISSON, NOWRA	4,	O	102.129
				CURRARONG, CROOKHAVEN	2D		
				SUSSEX INLET			
ST. GEORGES BASIN	35 11	150 36	SHOALHAVEN	HUSKISSON, SUSSEX INLET	2A	O	38.859
SWAN LAKE	35 11	150 33	SHOALHAVEN	SUSSEX INLET	3A	I	4.082
BERRARA CREEK	35 12	150 32	SHOALHAVEN	SUSSEX INLET	3C	I	0.124
NERRINDILLAH CREEK	35 14	150 32	SHOALHAVEN	SUSSEX INLET	N.D.	I	0.065
LAKE CONJOLA	35 16	150 30	SHOALHAVEN	TIANJARA	2A	O	4.280
				PARISH CONJOLA			
NARRAWALLEE INLET	35 18	150 28	SHOALHAVEN	MILTON	3C	O	0.456
MOLLYMOOK CREEK	35 20	150 29	SHOALHAVEN	MILTON	N.D.	I	0.022
ULLADULLA HARBOUR	35 22	150 29	SHOALHAVEN	MILTON	N.D.	OT	0.119
BURRILL LAKE	35 24	150 27	SHOALHAVEN	TOUBOUREE, MILTON	2A	IX	4.206
TOUBOUREE LAKE	35 27	150 25	SHOALHAVEN	TOUBOUREE	2B	I	1.380
TERMEIL LAKE	35 28	150 23	SHOALHAVEN	TOUBOUREE	3B	I	0.445
MEROO LAKE	35 29	150 23	SHOALHAVEN	TOUBOUREE	3B	I	0.635
WILLINGA LAKE	35 30	150 23	SHOALHAVEN	KIOLOA	3B/C	IX	0.282
KIOLOA LAGOON	35 33	150 23	SHOALHAVEN	KIOLOA	N.D.	I	0.037
DURRAS LAKE	35 38	150 18	EUROBODALLA	DURRAS, KIOLOA	2A	I	3.214
CLYDE RIVER	35 42	150 10	EUROBODALLA	NELLIGEN, CURROWAN	1B/C	OT	19.898
CULLENDULLA CREEK	35 42	150 13	EUROBODALLA	NELLIGEN	N.D.	O	0.239
BATEMANS BAY	35 43	150 13	EUROBODALLA	NELLIGEN	4	O	5.301
TOMAGA RIVER	35 50	150 11	EUROBODALLA	MOGO	2D	O	1.214
CANDLAGAN CREEK	35 51	150 11	EUROBODALLA	MOGO	N.D.	O	0.067
MORUYA RIVER	35 55	150 09	EUROBODALLA	MORUYA	2D	OT	4.222
CONGO CREEK	35 57	150 09	EUROBODALLA	MORUYA	2D	I	0.128
MERINGO CREEK	35 59	150 09	EUROBODALLA	MORUYA	N.D.	C	0.097
COILA LAKE	36 02	150 08	EUROBODALLA	BODALLA	3A	IX	6.341
TUROSS LAKE	36 04	150 08	EUROBODALLA	BODALLA	2C	O	13.299
LAKE BRUNDEREE	36 05	150 07	EUROBODALLA	BODALLA	3A/B	I	0.184
LAKE BROU	36 08	150 07	EUROBODALLA	NAROOMA, BODALLA	3A	IX	1.663
LAKE DALMENY	36 10	150 07	EUROBODALLA	NAROOMA	2A	IX	1.393
KIANGA LAKE	36 12	150 08	EUROBODALLA	NAROOMA	N.D.	C	0.124
WAGONGA INLET	36 13	150 08	EUROBODALLA	NAROOMA	2A	OT	6.276
NANGUDGA LAKE	36 15	150 09	EUROBODALLA	CENTRAL TILBA, NAROOMA	N.D.	I	0.461
CORUNNA LAKE	36 17	150 08	EUROBODALLA	CENTRAL TILBA	3A	IX	1.669
TILBA TILBA LAKE	36 20	150 06	EUROBODALLA	CENTRAL TILBA	3A/B	CX	0.640
LITTLE LAKE	36 21	150 07	EUROBODALLA	CENTRAL TILBA	N.D.	C	0.100
WALLAGA LAKE	36 22	150 05	BEGA VALLEY	CENTRAL TILBA, BERAGUI	2A	IX	7.805
BERMAGUI RIVER	36 26	150 04	BEGA VALLEY	BERMAGUI	2C/D	OT	1.390
BARRAGOOT LAKE	36 28	150 04	BEGA VALLEY	BERMAGUI	3A/B	IX	0.377
CUTTAGEE LAKE	36 29	150 03	BEGA VALLEY	BERMAGUI	3A/B	IX	1.410
MURRAH LAGOON	36 32	150 03	BEGA VALLEY	MURRAH	2C	O	0.816
BUNGA LAGOON	36 33	150 03	BEGA VALLEY	MURRAH	N.D.	I	0.094
WAPENGO LAGOON	36 38	150 01	BEGA VALLEY	MURRAH, BEGA	2B/C	O	3.191
MIDDLE LAGOON	36 39	150 00	BEGA VALLEY	BEGA	3A	C	0.331
NELSON LAGOON	36 41	150 00	BEGA VALLEY	BEGA	2C	O	0.713
BEGA RIVER	36 42	149 59	BEGA VALLEY	BEGA	2D	I	2.657
WALLAGOOT LAKE	36 47	149 57	BEGA VALLEY	WOLUMLA	3A/B	I	3.672
BOURNDLA LAGOON	36 50	149 56	BEGA VALLEY	WOLUMLA	N.D.	C	0.058
BACK LAGOON	36 53	149 56	BEGA VALLEY	PAMBULA	3A/B	I	0.315
MERIMBULA LAKE	36 54	149 55	BEGA VALLEY	PAMBULA	2A/B	O	4.556
PAMBULA LAKE	36 57	149 55	BEGA VALLEY	PAMBULA	2B/C	O	2.949
CURALO LAGOON	37 03	149 55	BEGA VALLEY	EDEN	3B	I	0.708
NULICA RIVER	37 05	149 53	BEGA VALLEY	EDEN	N.D.	O	0.244
TWOFOLD BAY	37 05	149 55	BEGA VALLEY	EDEN	4	O	77.049
TOWAMBA RIVER	37 06	149 54	BEGA VALLEY	EDEN, KIAH	2D	O	1.427
FISHERIES CREEK	37 07	149 55	BEGA VALLEY	EDEN	N.D.	O	0.024
WONBOYN RIVER	37 17	149 57	BEGA VALLEY	KIAH, NARRABARBA	2C	O	3.616
MERRICA RIVER	37 18	149 56	BEGA VALLEY	NARRABARBA	N.D.	I	0.106
NADGEE RIVER	37 20	149 56	BEGA VALLEY	NADGEE	3B	I	0.162
NADGEE LAKE	37 28	149 58	BEGA VALLEY	NADGEE	N.D.	I	0.968

* 1-drowned river valley; 2-barrier lagoon; 3-coastal lagoon; 4-open embayment; N.D.—no data; A to D refer to the degree of maturity or infilling of the estuary. A-little infilling, D-very infilled.

† O-open to sea; I-intermittently open or closed; C-primarily closed; X-mechanically opened; T-training walls constructed.

‡ area of water shown on maps not including stands of mangrove or saltmarsh.

TABLE 2. Inventory of estuarine vegetation

A. North Coast, Hunter, Gosford/Wyong and Sydney Regions

Estuary	Av	Ae	Ex	Rh	Br*	Mangrove area† (km ²)	Z	P	H	R*	Seagrass area (km ²)	Sm*	Saltmarsh area† (km ²)
TWEED RIVER	X	X	X	X	X	3.091	X				0.331	X	0.213
CUDGEN LAKE	X					0.094					0.000	X	0.561
CUDGERA CREEK	X	X		X		0.138	X				0.016	X	0.016
MOOBALL CREEK	X	X				0.053	X				0.013	X	0.000*
BRUNSWICK RIVER	X	X	X	X	X	0.018	X				0.816	X	0.056
BELONGIL CREEK	X	X				0.050					0.000	X	0.054
TALLOW CREEK						0.000					0.000	X	0.003
BROKEN HEAD CREEK						0.000					0.000	X	0.036
RICHMOND RIVER	X	X	X		X	4.949	X				0.189	X	0.099
EVANS RIVER	X	X		X		0.330					0.000	X	0.375
JERUSALEM CREEK						0.000					0.000	X	0.021
CLARENCE RIVER	X	X	X		X	5.208	X		X	X	19.072	X	1.954
SANDON RIVER	X	X		X		0.533	X				0.028	X	0.258
WOOLI WOOLI RIVER	X	X	X	X		0.493	X				0.028	X	0.531
STATION CREEK						0.000					0.000		0.000
CORINDI RIVER	X	X		X		0.189	X				0.033	X	0.293
ARRAWARRA CREEK	X		X			0.000*	X				0.003	X	0.008
DARKUM CREEK		X				0.001					0.000	X	0.000*
WOOLGOOLGA LAKE	X	X				0.002					0.000	X	0.000*
HEARNS LAKE	X					0.044					0.000	X	0.000*
MOONEE CREEK	X	X				0.036	X				0.004	X	0.073
COFFS HARBOUR CREEK	X	X				0.167	X				0.018		0.000
BOAMBEE CREEK	X	X				0.066	X				0.011	X	0.158
BONVILLE CREEK	X	X				0.053	X				0.008	X	0.148
BELLINGER RIVER	X	X				0.847	X				0.059	X	0.029
DALHOUSIE CREEK	X					0.000*					0.000		0.000
OYSTER CREEK						0.000					0.000		0.000
DEEP CREEK	X					0.008	X				0.007	X	0.604
NAMBUCCA RIVER	X	X				0.779	X				0.224	X	1.034
MACLEAY RIVER	X	X	X			5.201	X				1.097	X	3.652
SOUTH WEST ROCKS CREEK	X	X				0.528	X				0.024	X	0.141
SALTWATER CREEK						0.000					0.000		0.000
KOROGORO CREEK	X					0.013					0.000	X	0.014
KILLICK CREEK	X	X				0.000*	X				0.011	X	0.008
HASTINGS RIVER	X	X	X			2.078	X				1.141	X	0.804
LAKE INNES/LAKE CATHIE	X					0.001	X		X		0.007	X	5.972
CAMDEN HAVEN RIVER	X	X	X			0.873	X		X	X	6.336	X	0.780
MANNING RIVER	X	X	X			3.582	X				0.329	X	0.721
KHAPPINGHAT CREEK						0.000	X				0.019	X	0.002
WALLIS LAKE	X	X				0.786	X	X	X	X	30.785	X	4.005
SMITHS LAKE						0.000	X		X	X	2.080	X	0.003
MYALL LAKES						0.000	X				0.079		0.000
KARUAH RIVER	X	X				3.479	X				0.380	X	4.828
MYALL RIVER	X	X				1.021	X				2.736	X	1.784
PORT STEPHENS	X	X				23.260	X	X	X		7.453	X	7.719
HUNTER RIVER	X	X				15.481				X	0.153	X	5.049
LAKE MACQUARIE	X					0.998	X	X	X	X	13.391	X	0.705
TUGGERAH LAKES						0.000	X		X	X	11.619	X	0.007
WAMBERAL LAGOON						0.000				X	0.245		0.000
TERRIGAL LAGOON	X					0.000*	X				0.046		0.000
AVOCA LAKE						0.000				X	0.161		0.000
COCKRONE LAKE						0.000					0.000		0.000
BRISBANE WATER	X	X				1.635	X	X	X		5.490	X	0.918
HAWKESBURY RIVER	X	X				10.654	X		X		0.470	X	1.126
PITTWATER	X	X				0.180	X	X	X		1.934	X	0.026
NARRABEEN LAGOON						0.000	X		X		0.468		0.000
DEE WHY LAGOON						0.000	X			X	0.034	X	0.044
HARBORD LAGOON						0.000				X	0.000		0.000
MANLY LAGOON						0.000	X				0.004		0.000
PORT JACKSON	X	X				0.914	X	X	X		1.286	X	0.073
BOTANY BAY	X	X				3.996	X	X	X		3.403	X	1.601
GEORGES RIVER	X	X				2.038	X				0.268	X	0.247
PORT HACKING	X	X				0.328	X	X	X		0.869	X	0.106

* Av-*Avicennia marina*; Ae-*Aegiceras corniculatum*; Ex-*Exocoecaria agallocha*; Rh-*Rhizophora stylosa*; Z-*Zosteraceae*; P-*Posidonia australis*; H-*Halophila* spp.; R-*Ruppia* spp.; Sm-saltmarsh.

† where mangroves and saltmarshes occur together, the mixed community is only included in the mangrove area.

‡ area too small to map at 1:25 000 scale.

TABLE 2. Inventory of estuarine vegetation—(continued)

B. Illawarra and South Coast Regions

Estuary	Av	Ae	Ex	Rh	Br*	Mangrove area† (km ²)	Z	P	H	R*	Seagrass area (km ²)	Sm*	Saltmarsh area‡ (km ²)
TOWRADGIE CREEK						0.000	X				0.036		0.000
PORT KEMBLA HARBOUR						0.000					0.000		0.000
LAKE ILLAWARRA	X					0.000*	X		X	X	5.116	X	0.203
BENSONS CREEK						0.000	X		X		0.028		0.000
MINNAMURRA RIVER	X	X				0.484	X				0.232	X	0.197
WRIGHTS CREEK						0.000				X	0.003		0.000
WERRI LAGOON						0.000	X			X	0.017	X	0.000*
CROOKED RIVER						0.000	X				0.004		0.000
SHOALHAVEN RIVER	X	X				0.670	X		X		0.340	X	0.146
CROOKHAVEN RIVER	X	X				2.806	X				0.678	X	1.396
LAKE WOLLUMBOOLA						0.000				X	1.145		0.000
JERVIS BAY	X	X				1.250	X	X	X	X	9.061	X	2.330
ST. GEORGES BASIN	X	X				0.252	X	X	X	X	8.538	X	0.036
SWAN LAKE						0.000				X	0.587		0.000
BERRARA CREEK						0.000	X				0.006		0.000
NERRINDILLAH CREEK						0.000				X	0.005		0.000
LAKE CONJOLA	X					0.000*	X		X		0.527	X	0.013
NARRAWALLEE INLET	X	X				0.378	X				0.014	X	0.091
MOLLYMOOK CREEK						0.000	X				0.009	X	0.000*
ULLADULLA HARBOUR	X					0.000*	X				0.010	X	0.000*
BURRILL LAKE	X					0.000*	X		X		0.508	X	0.157
TOUBOUREE LAKE						0.000	X		X	X	1.199	X	0.010
TERMEIL LAKE						0.000				X	0.070		0.000
MEROO LAKE						0.000				X	0.115		0.000
WILLINGA LAKE						0.000				X	0.004		0.000
KIOLOA LAGOON						0.000				X	0.003	X	0.006
DURRAS LAKE						0.000	X		X		0.509	X	0.046
CLYDE RIVER	X	X				2.318	X		X		0.092	X	1.017
CULLENDULLA CREEK	X					0.916	X				0.064	X	0.006
BATEMANS BAY						0.000	X	X			0.071		0.000
TOMAGA RIVER	X	X				0.210	X				0.046	X	0.351
CANDLAGAN CREEK	X					0.021	X				0.016	X	0.031
MORUYA RIVER	X	X				0.380	X		X		0.644	X	0.674
CONGO CREEK						0.000					0.000		0.000
MERINGO CREEK						0.000					0.000		0.000
COILA LAKE						0.000	X		X		1.862	X	0.317
TUROSS LAKE	X	X				0.566	X		X		0.452	X	0.401
LAKE BRUNDEREE						0.000				X	0.064	X	0.246
LAKE BROU						0.000	X			X	0.078	X	0.250
LAKE DALMENY						0.000	X		X		0.294	X	0.055
KIANGA LAKE						0.000				X	0.011	X	0.033
WAGONA INLET	X					0.249	X	X			1.484	X	0.056
NANGUDGA LAKE						0.000				X	0.120	X	0.115
CORUNNA LAKE						0.000	X		X		0.179	X	0.033
TILBA TILBA LAKE						0.000					0.000		0.000
LITTLE LAKE						0.000				X	0.003	X	0.047
WALLAGA LAKE						0.000	X		X	X	1.343	X	0.295
BERMAGUI RIVER	X					0.434	X	X	X		0.338	X	1.066
BARRAGOOT LAKE						0.000	X			X	0.049	X	0.053
CUTTAGEE LAKE						0.000	X		X	X	0.430	X	0.076
MURRAH LAGOON						0.000	X				0.016	X	0.109
BUNGA LAGOON						0.000					0.000	X	0.018
WAPENGO LAGOON	X					0.409	X		X		0.360	X	0.319
MIDDLE LAGOON						0.000	X			X	0.081	X	0.011
NELSON LAGOON	X	X				0.271	X		X		0.114	X	0.063
BEGA RIVER						0.000	X				0.304	X	0.411
WALLAGOOT LAKE						0.000	X		X	X	0.647	X	0.014
BOURND A LAGOON						0.000				X	0.043	X	0.000*
BACK LAGOON						0.000	X			X	0.204	X	0.018
MERIMBULA LAKE	X	X				0.377	X	X	X		2.297	X	0.629
PAMBULA LAKE	X					0.449	X	X			0.868	X	0.188
CURALO LAGOON						0.000	X			X	0.058	X	0.116
NULLICA RIVER	X					0.000*	X				0.020		0.000
TWOFOLD BAY						0.000	X	X			0.026	X	0.008
TOWAMBA RIVER						0.090	X			X	0.027	X	0.009
FISHERIES CREEK						0.000	X			X	0.046	X	0.042
WONBOYN RIVER	X					0.000*	X		X		0.237	X	0.483
MERRICA RIVER						0.000	X				0.000*		0.000
NADGEE RIVER						0.000					0.000		0.000
NADGEE LAKE						0.000				X	0.075		0.000

* Av-Avicennia marina; Ae-Aegiceras corniculatum; Ex-Exoecaria agallocha; Rh-Rhizophora stylosa; Z-Zosteraceae; P-Posidonia australis; H-Halophila spp.; R-Ruppia spp.; Sm-saltmarsh.

† where mangroves and saltmarshes occur together, the mixed community is only included in the mangrove area.

‡ area too small to map at 1:25 000 scale.

TABLE 3. Estuarine commercial fish production
A. North Coast, Hunter, Gosford/Wyong and Sydney Regions

Estuary	Fishing closure*	Fish production (kg)†	Prawn production (kg)†	Other crustacean production (kg)†	Oyster production (kg)†	Other mollusc production (kg)†
TWEED RIVER	YES	232559	12604	9309	134000	0
CUDGEN LAKE	YES	0	0	0	0	0
CUDGERA CREEK	YES	0	0	0	0	0
MOOBALL CREEK	YES	0	0	0	0	0
BRUNSWICK RIVER	YES	5073	323	509	11859	0
BELONGIL CREEK	NO	0	0	0	0	0
TALLOW CREEK	NO	0	0	0	0	0
BROKEN HEAD CREEK	NO	0	0	0	0	0
RICHMOND RIVER	YES	138388	620	298	17621	28
EVANS RIVER	YES	6817	530	40	1675	0
JERUSALEM CREEK	NO	0	0	0	0	0
CLARENCE RIVER	YES	801749	285216	5583	100299	230
SANDON RIVER	YES	7487	406	137	0	0
WOOLI WOOLI RIVER	YES	3194	353	33	29748	0
STATION CREEK	NO	0	0	0	0	0
CORINDI RIVER	YES	0	0	0	0	0
ARRAWARRA CREEK	YES	0	0	0	0	0
DARKUM CREEK	YES	0	0	0	0	0
WOOLGOOLGA LAKE	YES	58	0	0	0	0
HEARNS LAKE	YES	0	0	0	0	0
MOONEE CREEK	YES	0	0	0	0	0
COFFS HARBOUR CREEK	YES	0	0	0	0	0
BOAMBEE CREEK	YES	0	0	0	0	0
BONVILLE CREEK	YES	2847	90	135	0	0
BELLINGER RIVER	YES	6664	1495	1356	7035	0
DALHOUSIE CREEK	NO	0	0	0	0	0
OYSTER CREEK	YES	0	0	0	0	0
DEEP CREEK	YES	0	0	0	0	0
NAMBUCCA RIVER	YES	41745	0	4036	65995	0
MACLEAY RIVER AND SOUTH WEST ROCKS CREEK	YES	41152	144	8679	265253	4
SALTWATER CREEK	YES	0	0	0	0	0
KOROGORO CREEK	YES	0	0	0	0	0
KILLICK CREEK	YES	0	0	0	1675	0
HASTINGS RIVER	YES	61098	3099	2607	247632	3
LAKE INNES/LAKE CATHIE	YES	876	355	268	0	0
CAMDEN HAVEN RIVER	YES	142956	11035	12984	153564	55
MANNING RIVER	YES	93427	22429	1102	216008	135
KHAPPINGHAT CREEK	YES	0	0	0	268	0
WALLIS LAKE	YES	361006	55188	72901	1293368	3881
SMITHS LAKE	YES	53346	7110	1520	0	21
MYALL LAKES AND MYALL RIVER	YES	129852	8370	1692	0	12
KARUAH RIVER	YES	41781	2372	6183	0	12
PORT STEPHENS	YES	187714	3284	13774	2102795	520
HUNTER RIVER	YES	53049	51324	8585	9179	129
LAKE MACQUARIE	YES	432133	46830	17037	0	4201
TUGGERAH LAKES	YES	295871	73634	1870	0	25
WAMBERAL LAGOON	YES	0	0	0	0	0
TERRIGAL LAGOON	YES	0	0	0	0	0
AVOCA LAKE	YES	0	0	0	0	0
COCKRONE LAKE	YES	0	0	0	0	0
BRISBANE WATERS*	YES	6358	3201	502	317781	38
HAWKESBURY RIVER	YES	111319	83318	8831	1015921	95714
PITTWATER	YES	39787	3162	1074	0	51
NARRABEEN LAGOON	YES	0	0	0	0	0
DEE WHY LAGOON	YES	0	0	0	0	0
HARBORD LAGOON	YES	0	0	0	0	0
MANLY LAGOON	YES	0	0	0	0	0
PORT JACKSON	YES	43572	54941	2998	0	1058
BOTANY BAY AND GEORGES RIVER	YES	190791	11895	10311	1762904	70642
PORT HACKING*	YES	766	11	45	0	139

* Details of the extent and nature of fishing closures can be obtained from District Fisheries Inspectors. Additional closures may be in force under Maritime Services Board and/or National Parks and Wildlife Service provisions.

† Mean of the annual estuarine catch figures for the period 1972-1982. These figures were determined from the monthly returns of professional fisherman lodged with the Division of Fisheries. These figures are not corrected to take into account differences in fishing effort.

‡ Major portion of the estuary closed to commercial fishing.

TABLE 3. Estuarine commercial fish production—(continued)

B. Illawarra and South Coast Regions

Estuary	Fishing closure*	Fish production (kg)†	Prawn production (kg)†	Other crustacean production (kg)†	Oyster production (kg)†	Other mollusc production (kg)†
TOWRADGIE CREEK	NO	0	0	0	0	0
PORT KEMBLA HARBOUR	NO	0	0	0	0	0
LAKE ILLAWARRA	YES	129444	36560	3400	0	571
BENSONS CREEK	NO	0	0	0	0	0
MINNAMURRA RIVER	YES	0	0	0	0	0
WRIGHTS CREEK	NO	0	0	0	0	0
WERRI LAGOON	YES	0	0	0	0	0
CROOKED RIVER	YES	0	0	0	0	0
SHOALHAVEN RIVER	YES	90069	20713	1377	20368	1085
CROOKHAVEN RIVER	YES	16044	4265	85	121672	32
LAKE WOLLUMBOOLA	YES	0	0	0	0	0
JERVIS BAY	YES	65431	1415	166	737	171868
ST. GEORGES BASIN	YES	81592	1918	400	0	213
SWAN LAKE	YES	4511	73	6	0	1438
BERRARA CREEK	YES	0	0	0	0	0
NERRINDILLAH CREEK	NO	0	0	0	0	0
LAKE CONJOLA	YES	9090	89	58	22914	78
NARRAWALLEE INLET	YES	0	0	0	0	0
MOLLYMOOK CREEK	NO	0	0	0	0	0
ULLADULLA HARBOUR	NO	0	0	0	0	0
BURRILL LAKE	YES	11665	20	187	3082	22
TOUBOUREE LAKE	YES	0	0	0	0	0
TERMEIL LAKE	NO	0	0	0	0	0
MERCO LAKE	NO	0	0	0	0	0
WILLINGA LAKE	YES	0	0	0	0	0
KIOLOA LAGOON	NO	0	0	0	0	0
DURRAS LAKE	YES	8946	518	251	0	8
CLYDE RIVER	YES	9235	218	245	379153	8
BATEMANS BAY AND CULLENDULLA CREEK	NO	13265	2594	585	0	130
TOMAGA RIVER	YES	0	0	0	3752	0
CANDLAGAN CREEK	YES	0	0	0	0	0
MORUYA RIVER	YES	18784	1575	36	21239	7
CONGO CREEK	NO	4016	209	25	0	0
MERINGO CREEK	NO	0	0	0	0	0
COILA LAKE	YES	11307	2300	121	0	20
TUROSS LAKE	YES	20478	1148	392	87636	105
LAKE BRUNDEREE	NO	0	0	0	0	0
LAKE BROU	NO	5162	657	119	0	15
LAKE DALMENY	NO	9048	225	168	0	19
KIANGA LAKE	NO	0	0	0	0	0
WAGONA INLET	YES	3945	108	108	119997	11
NANGUDGA LAKE	YES	0	0	0	0	0
CORUNNA LAKE	NO	8242	1237	24	0	0
TILBA TILBA LAKE	NO	2513	174	39	0	0
LITTLE LAKE	NO	0	0	0	0	0
WALLAGA LAKE	YES	16841	144	249	1943	46
BERMAGUI RIVER	YES	2459	105	4	1742	302
BARRAGOOT LAKE	NO	0	0	0	0	0
CUTTAGEE LAKE	YES	0	0	0	871	0
MURRAH LAGOON	YES	1730	125	2	0	0
BUNGA LAGOON	NO	0	0	0	0	0
WAPENGO LAGOON	YES	2279	26	4	44421	1
MIDDLE LAGOON	NO	0	0	0	0	0
NELSON LAGOON	NO	243	0	46	6834	0
BEGA RIVER	YES	11318	144	74	201	0
WALLAGOOT LAKE	YES	4467	45	7	0	58
BOURNDA LAGOON	YES	0	0	0	0	0
BACK LAGOON	NO	0	0	0	0	0
MERIMBULA LAKE	YES	19	0	0	141035	0
PAMBULA LAKE	YES	4617	7	0	28743	0
CURALO LAGOON	NO	0	0	0	0	0
NULICA RIVER	NO	0	0	0	0	0
TWOFOLD BAY	YES	256429	221	10	2814	17
TOWAMBA RIVER	YES	755	0	0	1675	0
FISHERIES CREEK	NO	0	0	0	0	0
WONBOYN RIVER	YES	2292	356	0	16951	0
MERRICA RIVER	NO	0	0	0	0	0
NADGEE RIVER	NO	0	0	0	0	0
NADGEE LAKE	YES	0	0	0	0	0

* Details of the extent and nature of fishing closures can be obtained from District Fisheries Inspectors. Additional closures may be in force under Maritime Services Board and/or National Parks and Wildlife Service provisions.

† Mean of the annual estuarine catch figures for the period 1972-1982. These figures were determined from the monthly returns of professional fisherman lodged with the Division of Fisheries. These figures are not corrected to take into account differences in fishing effort.

‡ Major portion of the estuary closed to commercial fishing.

TABLE 4. List of coastal sewage treatment schemes and disposal sites

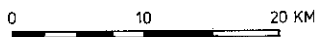
Estuary	Name of scheme	Disposal site	Estuary	Name of scheme	Disposal site
TWEED RIVER	BANORA POINT	TERRANORA INLET		RAYMOND TERRACE	HUNTER RIVER
	KINGSCLIFF	TWEED R.		BURWOOD BEACH	SEA
	MURWILLUMBAH	ROUS R.		BELMONT	SEA
BRUNSWICK RIVER	TWEED HEADS	COBAKI BROADWATER	LAKE MACQUARIE	EDGEWORTH	COCKLE CREEK
	BRUNSWICK HEADS	SIMPSONS CK		TORONTO	FENNELS BAY
	MULLUMBIMBY	BRUNSWICK R.		AVONDALE	DORA CREEK
TALLOW CREEK	OCEAN SHORES	BRUNSWICK R.	TUGGERAH LAKES	MORRISSET	WYEE CREEK
RICHMOND RIVER	BYRON BAY	TALLOW CK		SOUTH WYONG	SEA
	ALSTONVILLE	MAGUIRES CK		THE ENTRANCE	SEA
	BALLINA	NORTH CK CANAL		TOUKLEY-GOROKAN	SWAMP
	BANGALOW	MAORI CK	BRISBANE WATERS	WYONG	RIVER
	CASINO	BARLING CK		GOSFORD	BRISBANE WATERS
	CORAKI	SWAMP		KINCUMBER	SEA
	KYOGLE	RICHMOND R.		WOY WOI	SEA
	LENNOX HEAD	SEA	HAWKESBURY RIVER	WYOMING	NARARA CK
	LISMORE SOUTH	YEURABER CK		MOUNT RIVERVIEW	RIVER
	LISMORE EAST	WILSON R.		VALLEY HEIGHTS	RIVER
EVANS RIVER	EVANS HEAD-WOODBURN	SWAMP		BLACKHEATH	CREEK
CLARENCE RIVER	EDGECOMBE PARK	DEEP GULLY CK		BLAXLAND-GLENBROOK	CREEK
	MOUNT EDGECOMBE	CARRS CK		BOWRAL	MITTAGONG CK.
	BONALBO	LAND		GOULBURN	LAND
	GRAFTON NORTH	CLARENCE R.		HAZELBROOK	RIVER
	GRAFTON SOUTH	CLARENCE R.		JENOLAN CAVES	JENOLAN R.
	JUNCTION HILL	DEEP GULLY CK		KATOOMBA SOUTH	CREEK
	MACLEAN	CLARENCE R.		KATOOMBA NORTH	CREEK
	WOODENBONG	TOOLOOM CK		LITHGOW	FARMERS CK
	YAMBA	SWAMP		MITTAGONG	RIVER
HEARNS LAKE	WOOLGOOLGA	DOUBLE CROSSING CK		MOSS VALE	RIVER
COFFS HARBOUR CREEK	COFFS HARBOUR	SEA		MOUNT VICTORIA	RIVER
BELLINGER RIVER	BELLINGEN	BELLINGER R.		SPRINGWOOD	LAND
	DORRIGO	BIELSDOWN CK		WALLERAWANG	PIPERS FLAT CK
	SAWTELL	SEA		WENTWORTH FALLS	RIVER
	URUNGA	URUNGA LAGOON		CASTLE HILL	CATTAI CREEK
DEEP CREEK	NAMBUCCA HEADS	DEEP CK		QUAKERS HILL	SOUTH CREEK
NAMBUCCA RIVER	BOWRAVILLE	NORTH BOWRA R.		ST. MARYS	SOUTH CREEK
	MACKSVILLE	NAMBUCCA R.		PENRITH	NEPEAN RIVER
MACLEAY RIVER	ARMIDALE	RIVER		GLENBROOK-BLAXLAND	LAPSTONE CREEK
	FREDERICKTON	MACLEAY R.		WINMALEE	NEPEAN RIVER
	KEMPSEY WEST	MACLEAY R.	PITTWATER	CAMDEN	NEPEAN RIVER
	KEMPSEY SOUTH	MACLEAY R.		WARRIEWOOD	SEA
	SCOTTS HEAD	SAND EXFILTRATION			
	SMITHTOWN-GLADSTONE	MACLEAY R.	PORT JACKSON	NORTH HEAD	SEA
KILLICK CREEK	CRESCENT HEAD	SEA		VAUCLUSE	SEA
WALLIS LAKE	TUNCURRY	LAND		DIAMOND BAY	SEA
	FORSTER	OCEAN		BONDI	SEA
HASTINGS RIVER	PORT MACQUARIE	KOOLONBUNG CK	GEORGES RIVER	MALABAR	SEA
	PORT M.-LIGHTHOUSE BCH	SAND EXFILTRATION		LIVERPOOL	RIVER
	WAUCHOPE	UNNAMED CK		GLENFIELD	RIVER
CAMDEN HAVEN RIVER	CAMDEN HAVEN	SEA	PORT HACKING	CRONULLA	SEA
MANNING RIVER	HARRINGTON	SWAMP - MANNING R.	PORT KEMBLA HARBOUR	WOLLONGONG	SEA
	PURFLEET	LAND		PORT KEMBLA	SEA
	TAREE	BROWNS CK	BENSONS CREEK	SHELLHARBOUR	SEA
	WINGHAM	MANNING R.	SHOALHAVEN RIVER	BERRY	BROUGHTON CK
KARUAH RIVER	STROUD	RIVER		BOMADERRY	RIVER
MYALL RIVER	BULADELAH	RIVER		BRAIDWOOD	RIVER
	TEA GARDENS-HAWKES NEST	LAND		BUNDANOON	RIVER
PORT STEPHENS	MEDONIE	PORT STEPHENS		NOWRA	RIVER
	WANDA HEAD	PORT STEPHENS		SHOALHAVEN HEADS	SAND EXFILTRATION
	SANDY POINT	PORT STEPHENS	JERVIS BAY	HUSKISSON	SEA (JERVIS BAY)
	NELSON BAY	PORT STEPHENS	ULLADULLA HARBOUR	MILTON-ULLADULLA	SEA
	BOULDER BAY	SEA	BATEMANS BAY	BATEMANS BAY	SEA
HUNTER RIVER	ABERDEEN	RIVER	MORUYA RIVER	MORUYA	RIVER
	DENMAN	RIVER	WACONGA INLET	NAROOMA	SEA
	DUNGOG	LAND	BERMAGUI RIVER	BERMAGUI	SEA
	GLoucester	RIVER	BEGA RIVER	BEGA	SEA
	MERRIWA	LAND		TATHRA	SAND EXFILTRATION
	MUSWELLBROOK	RIVER		TURA BEACH	SAND EXFILTRATION
	SCONE	LAND	MERIMBULA LAKE	MERIMBULA	SAND EXFILTRATION
	SINGLETON	RIVER	TWOFOLD BAY	EDEN	SEA
	STOCKTON	SEA			

TABLE 5. Compilation of regional statistics

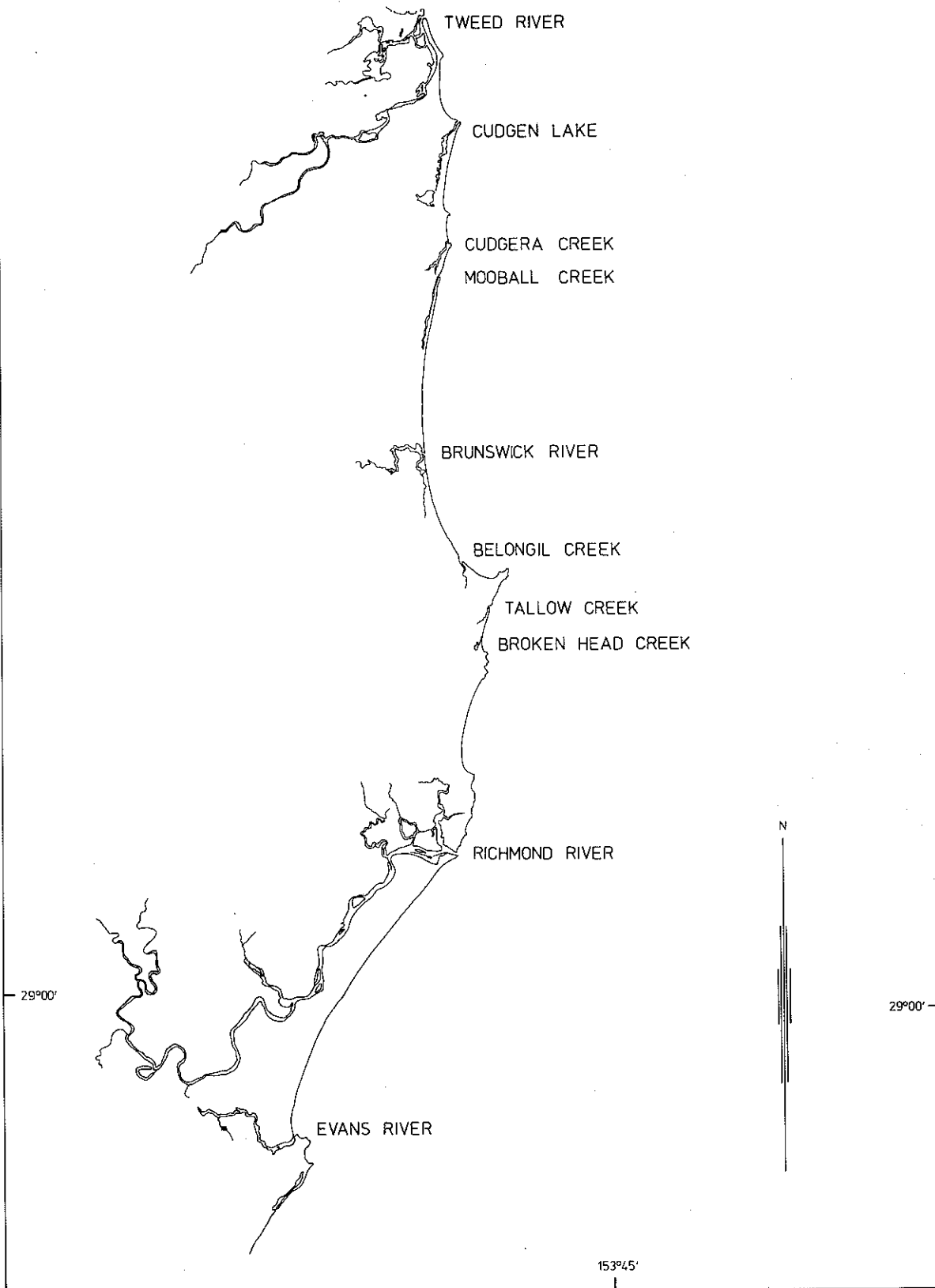
Statistic	Northern Region	Hunter Region	Gosford/Wyong Region	Sydney Region	Illawarra Region	Southern Region	Totals
No. of estuaries	39	8	7	9	26	44	133
Map water area (km ²)	252	480	100	142	221	181	1 376
Mangrove area (km ²)	29.425	45.025	12.289	7.456	5.840	6.690	106.725
Seagrass area (km ²)	29.824	57.057	18.031	8.266	28.255	13.573	155.006
Saltmarsh area (km ²)	18.618	24.093	2.051	2.097	4.584	6.607	58.051
Total mean fish production 1972-82 (kg/yr)	1 586 090	1 258 881	413 584	274 916	407 846	418 390	4 359 671
Total mean prawn production 1972-82 (kg/yr)	38 699	174 478	160 153	70 009	65 053	12 136	820 528
Total mean production of other crustaceans 1972-82 (kg/yr)	47 076	121 692	11 203	14 428	5 439	2 509	202 447
Total mean oyster production 1972-82 (kg/yr)	1 252 632	3 405 342	1 333 702	1 762 904	168 773	859 007	8 782 360
Total mean production of other molluscs 1972-1982 (kg/yr)	455	8 776	95 777	71 890	173 869	747	351 514

NORTHERN REGION
ESTUARIES AND LAGOONS

SHEET 1

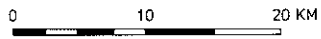


C.M.A. 1:250 000 SHEETS : TWEED HEADS MACLEAN

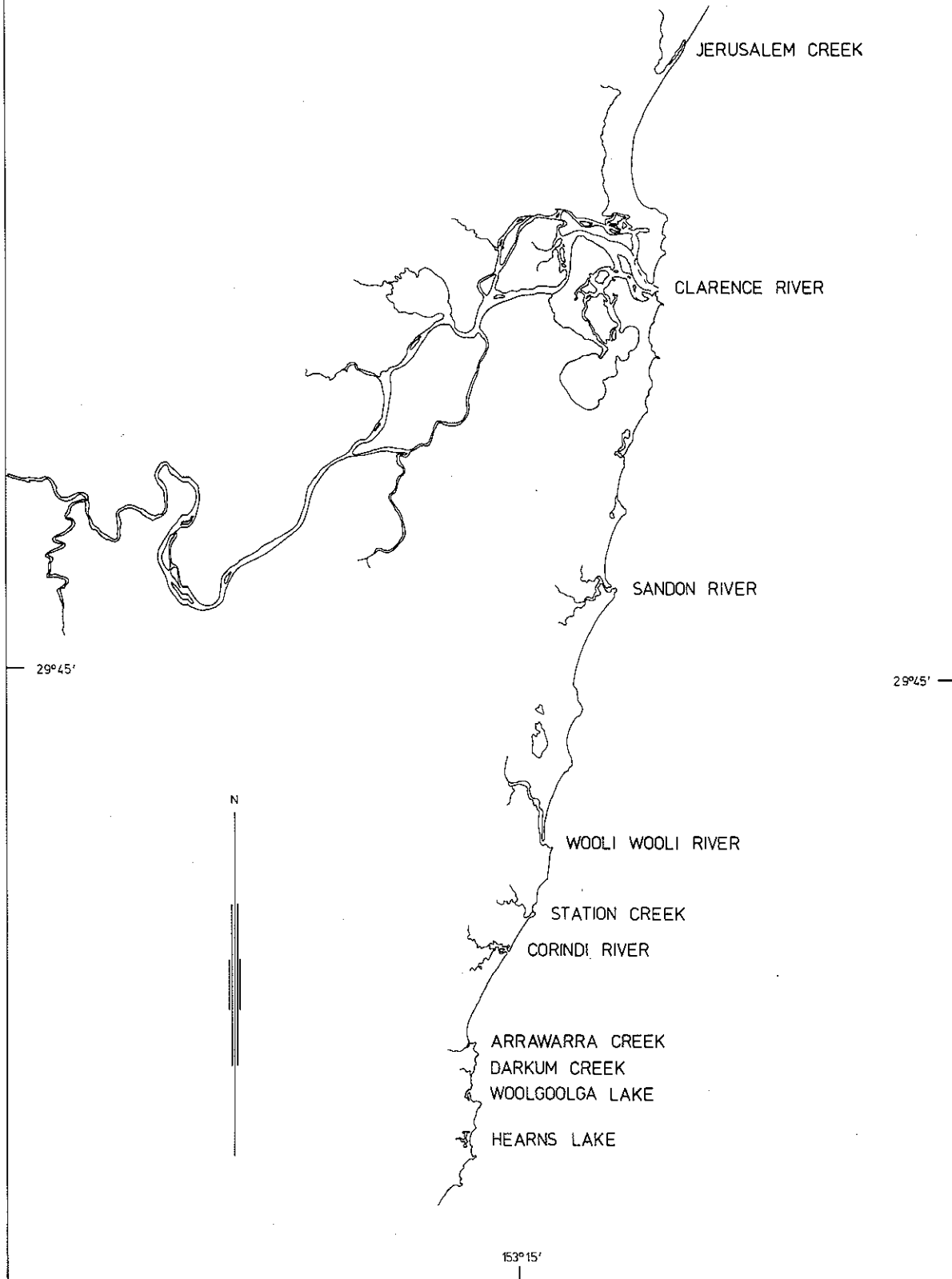


NORTHERN REGION
ESTUARIES AND LAGOONS

SHEET 2

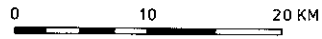


C.M.A. 1:250 000 SHEETS: GRAFTON MACLEAN
COFFS HARBOUR

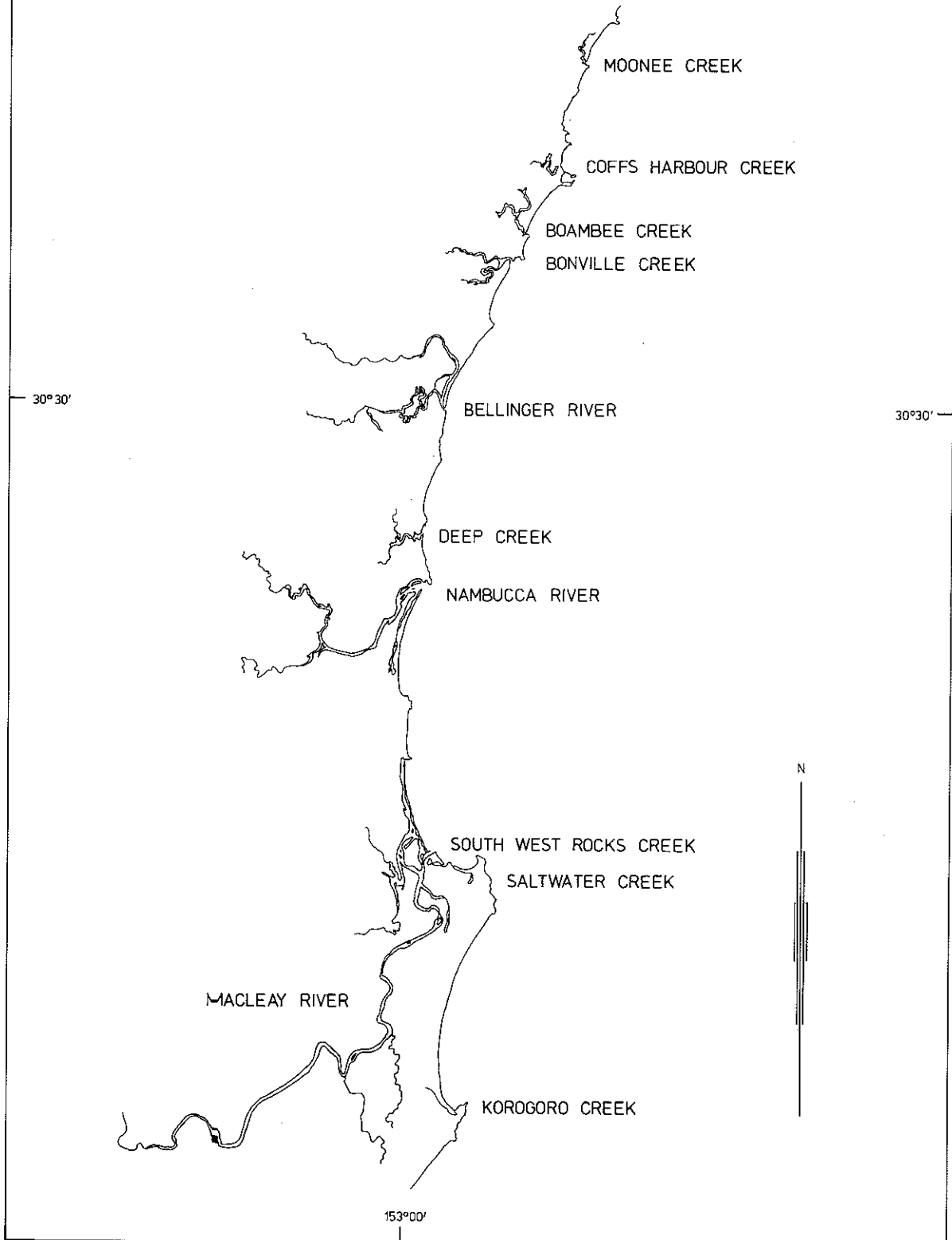


NORTHERN REGION
ESTUARIES AND LAGOONS

SHEET 3



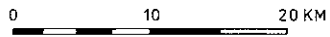
C.M.A. 1:250 000 SHEETS : DORRIGO COFFS HARBOUR
HASTINGS



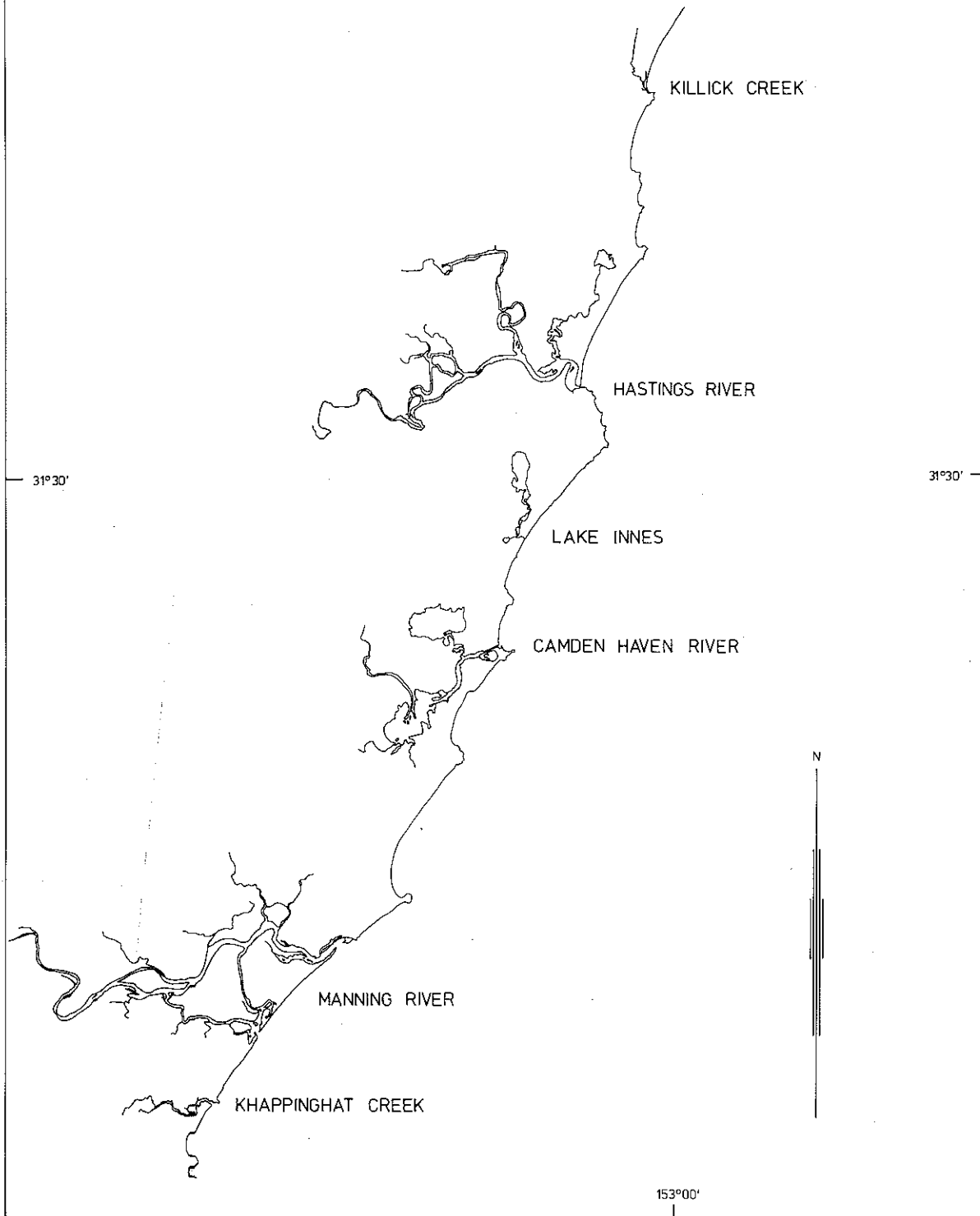
NORTHERN REGION
ESTUARIES AND LAGOONS

SHEET 4

0 10 20 KM

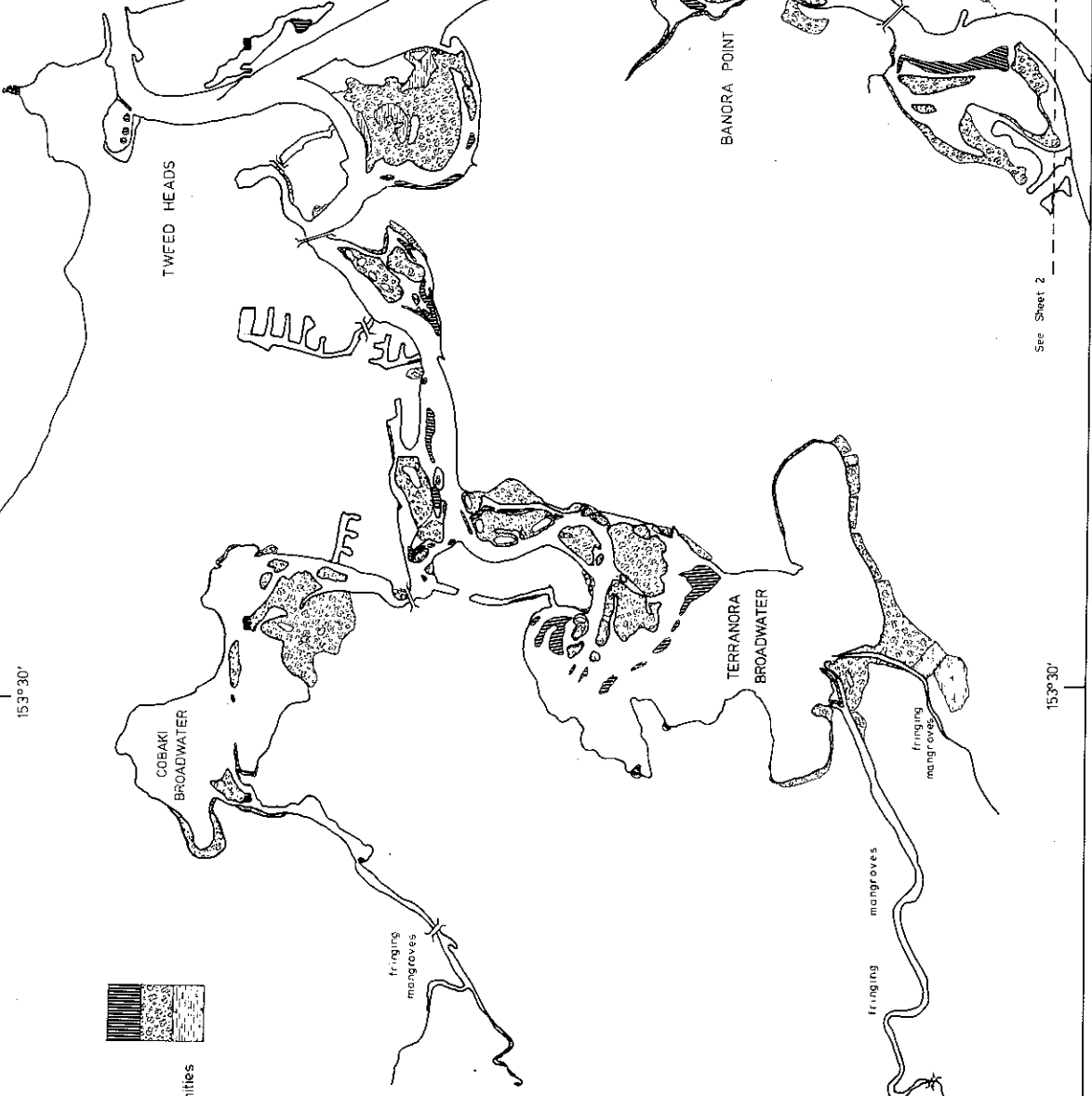


C.M.A. 1:250 000 SHEETS : HASTINGS NEWCASTLE



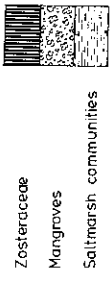
MAP N1

TWEED RIVER



See Sheet 2

SHEET 1.



**TWEED RIVER
NORTHERN REGION**



C.M.A. SHEETS · BILAMBIL · TWEED HEADS
MURWILLUMBAH · CUDGEN

Aerial photo series N.S.W. 2924 1981
Field Survey January 1983.
Prepared by R. West

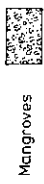


TWEED RIVER
NORTHERN REGION

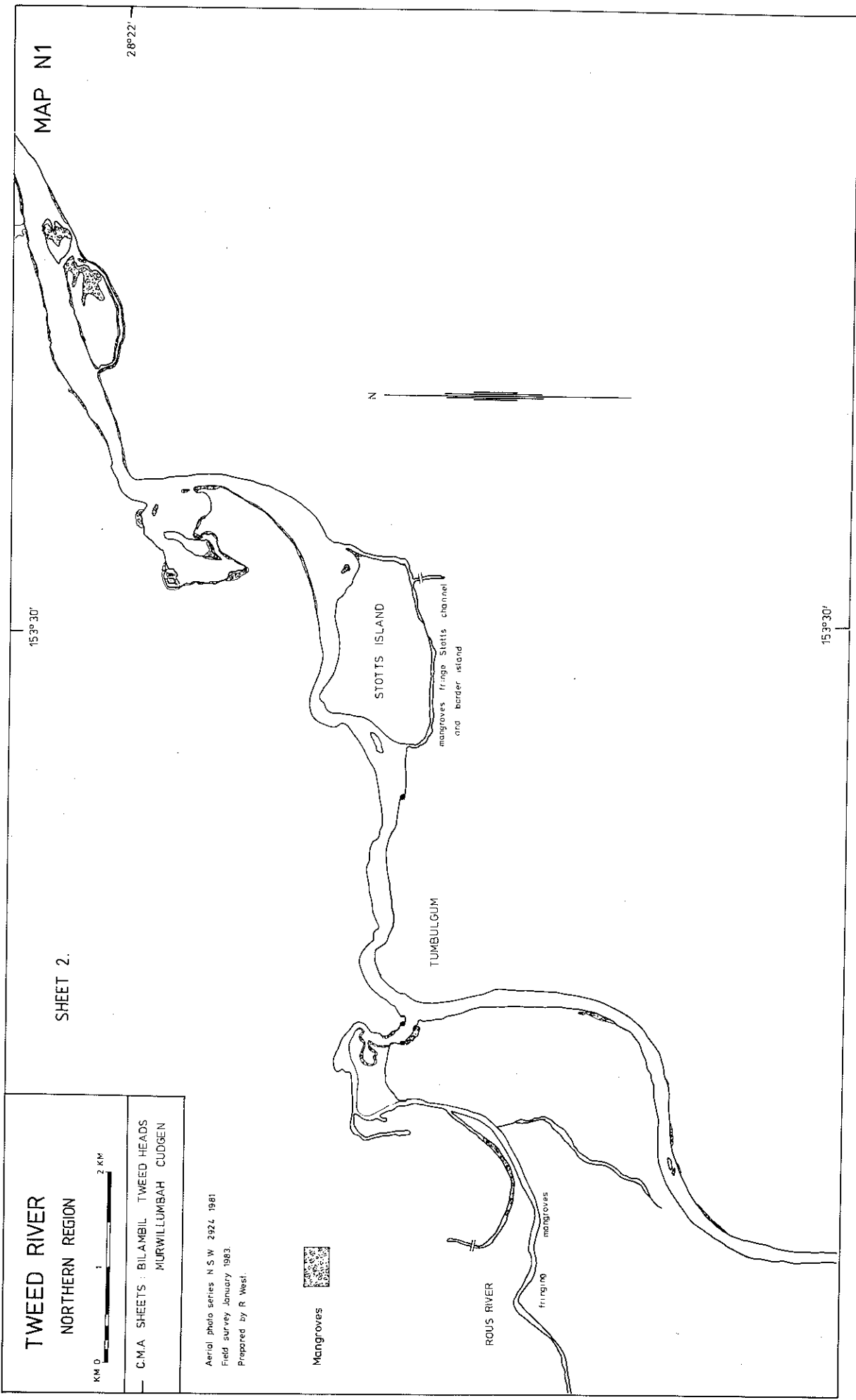


C.M.A. SHEETS : BILAMBIL TWEED HEADS
MURWILLUMBAH CUDGEN

Aerial photo series N.S.W. 2324 1961
Field survey January 1963.
Prepared by R. West.



Mangroves



153°30'

28°22'

MAP N1

SHEET 2.



STOTTS ISLAND

TUMBULGUM

ROUS RIVER

mangroves fringing Stotts channel
and border island

fringing
mangroves

153°30'

CUDGEN LAKE
NORTHERN REGION

K M 0 1 2 K M

C.M.A. SHEET : CUDGEN

Aerial photo series NSW 2922, 2923
and 2924, 1981.
Field survey January 1983
Prepared by R.West

Mangroves
Saltmarsh communities



MAP N2

153°35'

CUDGEN
LAKE

KINGSCLIFFE

CUDGEN



28°20'

BOGANGAR

28°20'

153°35'

CUDGERA CREEK
NORTHERN REGION

KM 0 1 2 KM

C.M.A. SHEETS : CUDGEN POTTSVILLE

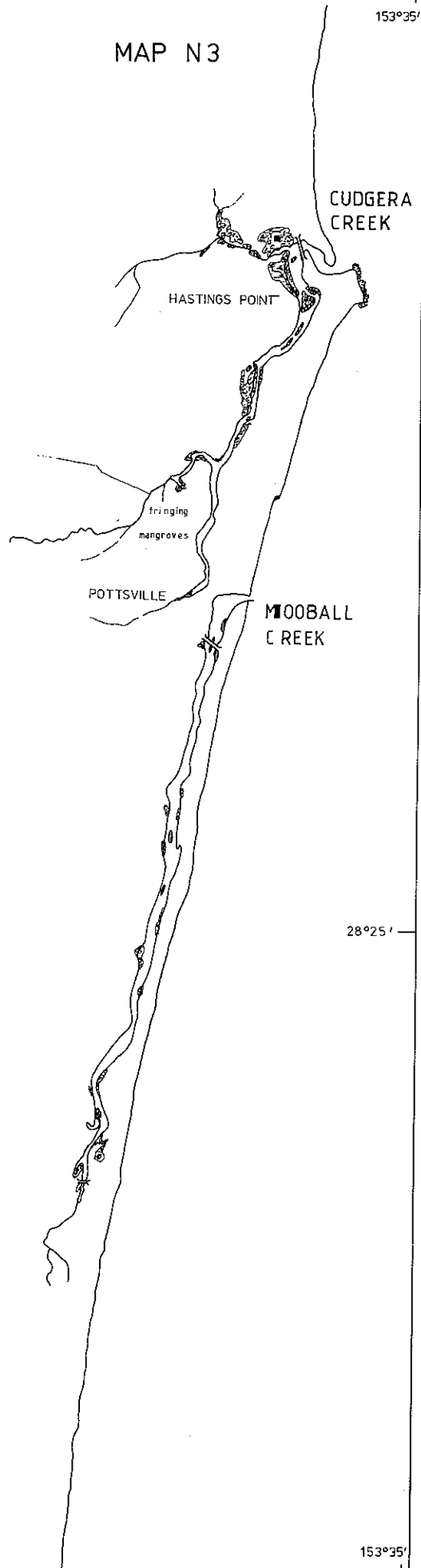
Aerial photo series 2924 1981
Field survey January 1983
Prepared by R.West

Zosteraceae
Mangroves
Saltmarsh communities



MAP N3

153°35'



28°25'

28°25'

153°30'

153°35'

BRUNSWICK RIVER

NORTHERN REGION

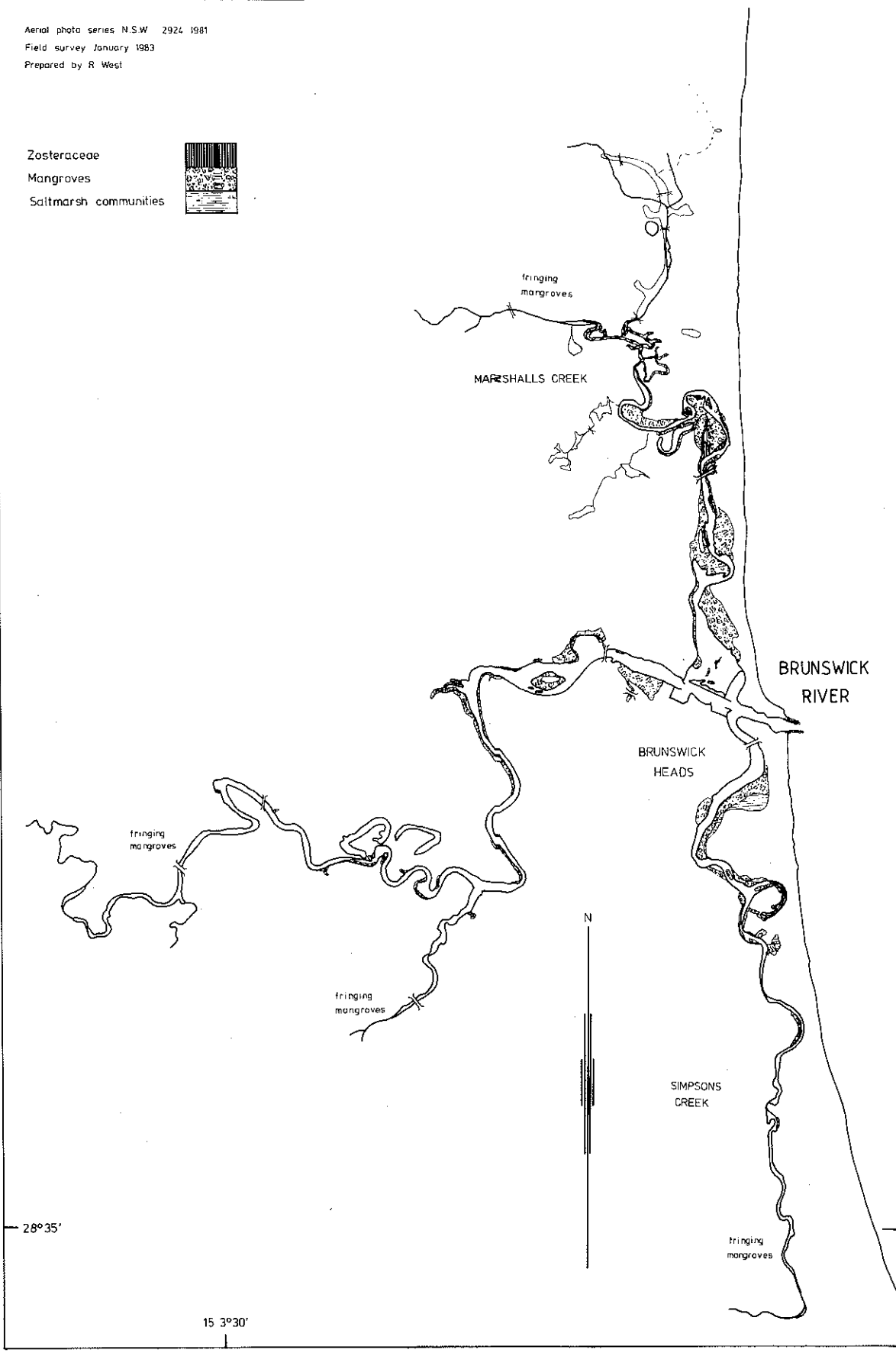
KM 0 1 2 KM

MAP N4

C.M.A. SHEET BRUNSWICK HEADS
POTTSVILLE

Aerial photo series N.S.W. 2924 1981
Field survey January 1983
Prepared by R. West

Zosteraceae
Mangroves
Saltmarsh communities



153°35'

MAP N5

BYRON BAY NORTHERN REGION

KM 0 1 2 KM

C.M.A. SHEETS : POTTSVILLE
BYRON BAY

Aerial photo series N.S.W. 2924. 1981.
Field survey January 1983.
Prepared by R. West.

Mangroves



Saltmarsh communities



28°37'

28°37'

BELONGIL CREEK

BYRON BAY

CUMBEBIN
SWAMP
(F.W.)

TALLOW CREEK

SUFFOLK
PARK

BROKEN HEAD
CREEK

BROKEN
HEAD

N



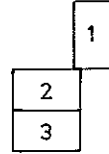
153°35'

**RICHMOND RIVER
NORTHERN REGION**

0 1 2KM

C.M.A. SHEETS: EMPIRE VALE
BALLINA WARDELL

SHEET 1



153°35'

MAP N6

Aerial photo series NSW 2923,292 4
Field survey January 1983
Prepared by R. West

Zosteraceae
Mangroves
Saltmarsh communities



fringing mangroves

N



fringing mangroves

NORTH
CREEK

28°50'

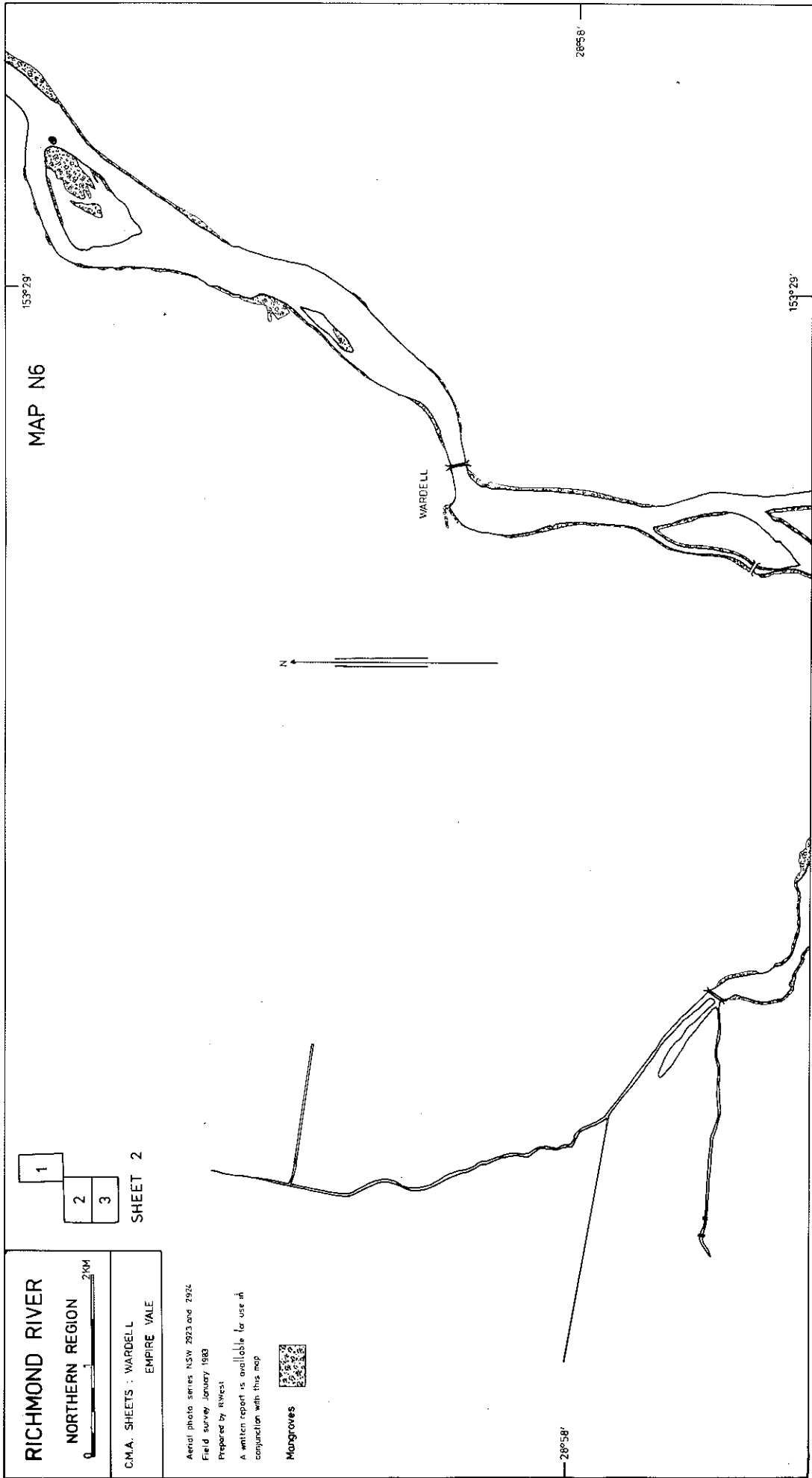
FISHERY
CREEK

EMIGRANT
CREEK

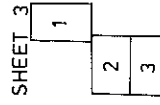
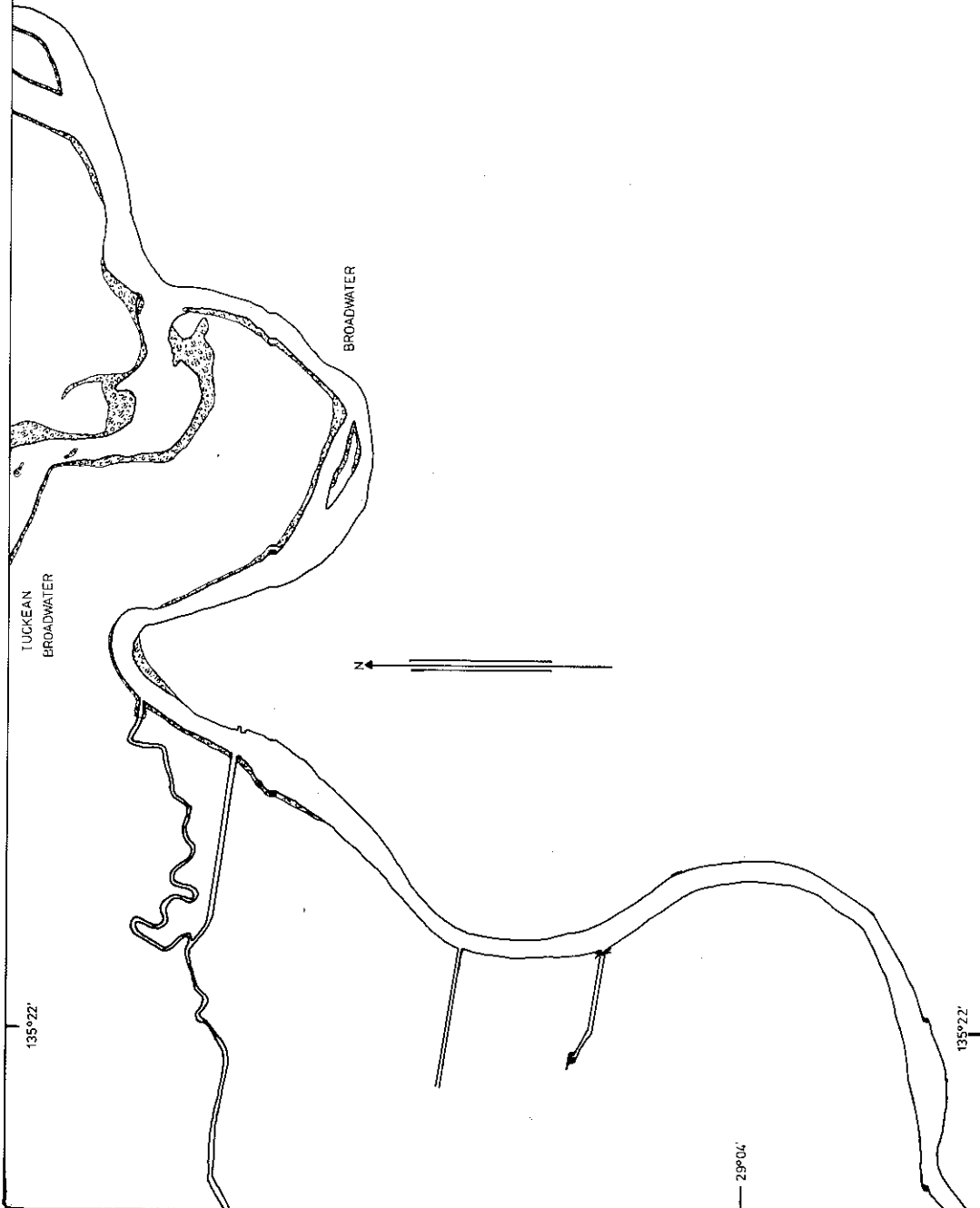
BALLINA

RICHMOND
RIVER

153°35'



MAP N6



29°04'

29°04'

135°22'

135°22'

RICHMOND RIVER

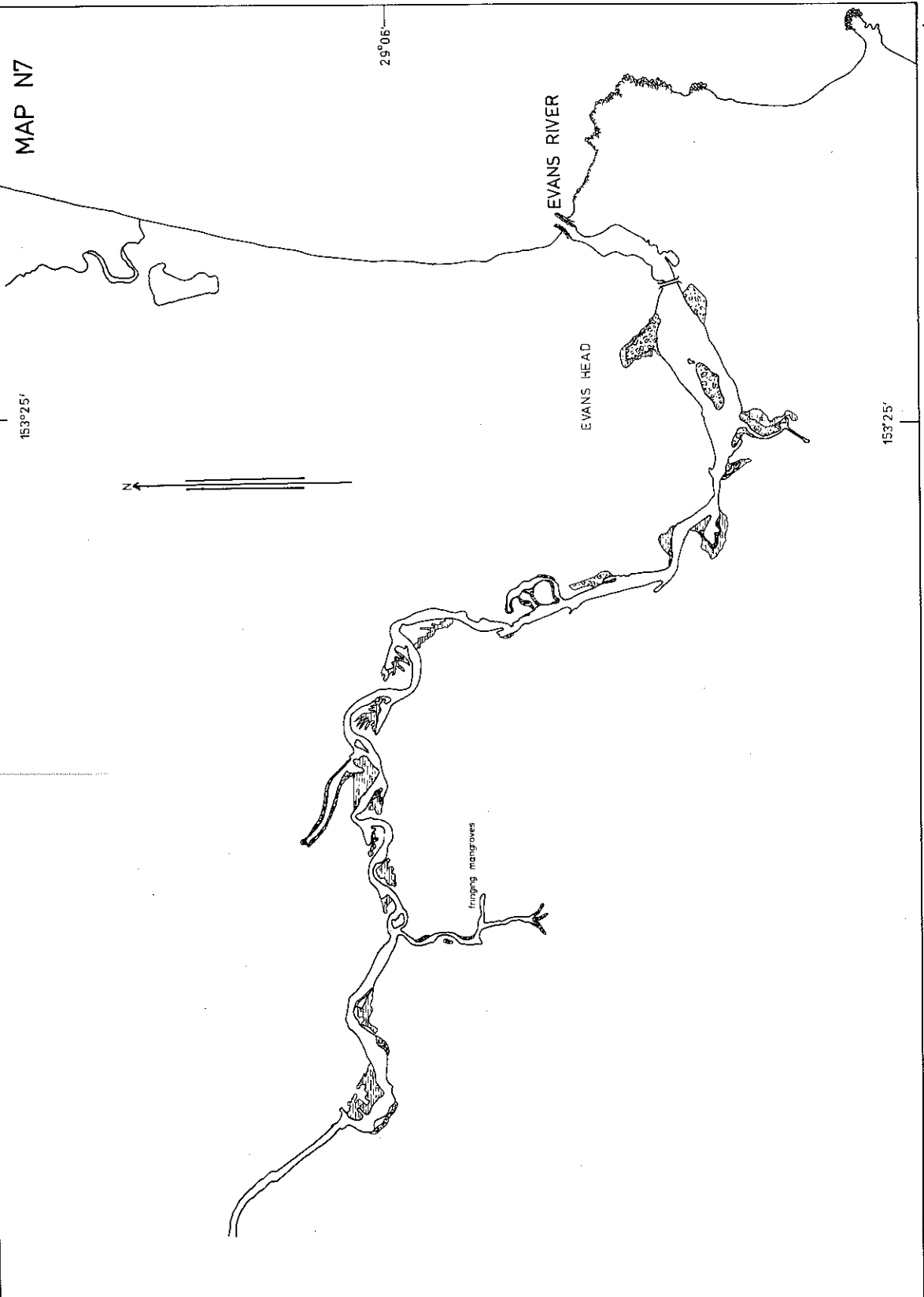
NORTHERN REGION



Mangroves



C.M.A. SHEETS : WARDELL
WOODBURN



EVANS RIVER
NORTHERN REGION

0 1 2 KM

C.M.A. SHEETS : WOODBURN
 TABBIMBLE

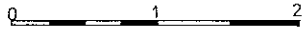
Aerial photo series N.S.W. 2923, 2924, 1981
 Field surveys January 1983.
 Prepared by R. West.



Mangroves
 Saltmarsh communities

JERUSALEM CREEK

NORTHERN REGION



C.M.A. SHEET : TABBIMOBLE

Aerial photo series N.S.W. 2923 1:25000 1981

Field survey March 1983

Prepared by C.Thorogood and R.West

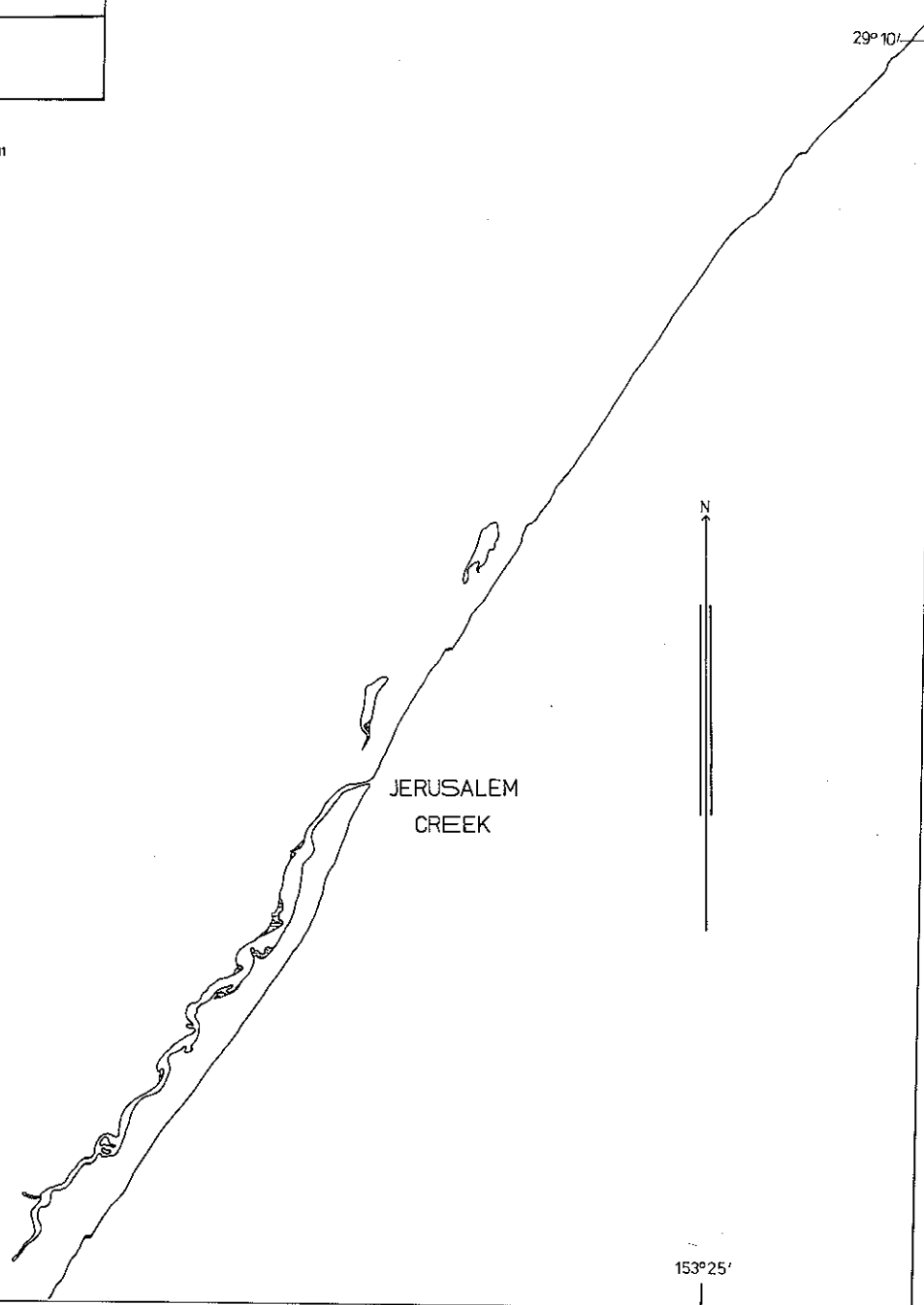
Saltmarsh communities



153°25'

MAP N8

29°10'



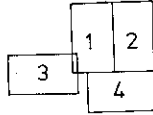
153°25'

CLARENCE RIVER
NORTHERN REGION

MAP N9

0 1 2KM

SHEET 1



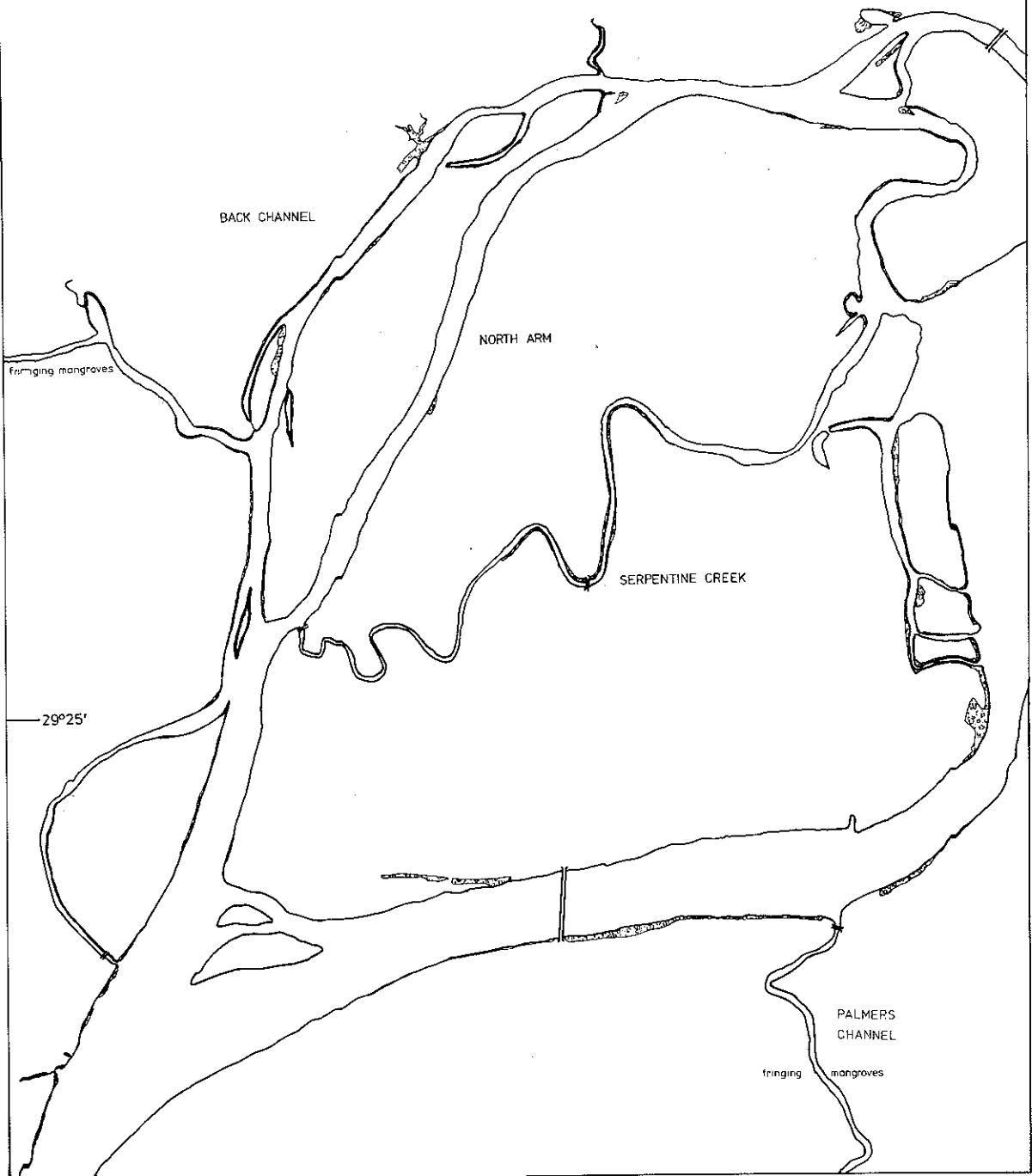
C. M.A. SHEETS : BANYABBA, YAMBA,
MACLEAN, WOOMBAH

Aerial photo series N.S.W. 2922 and 2923
1 : 25 000 1981
Field survey March 1983
Prepared by C Thorgood and R West

Zosteraceae

Mangroves

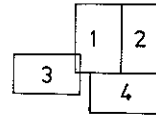
Saltmarsh communities



153°17'

MAP N9

SHEET 2



N

ESK RIVER

PALMERS ISLAND

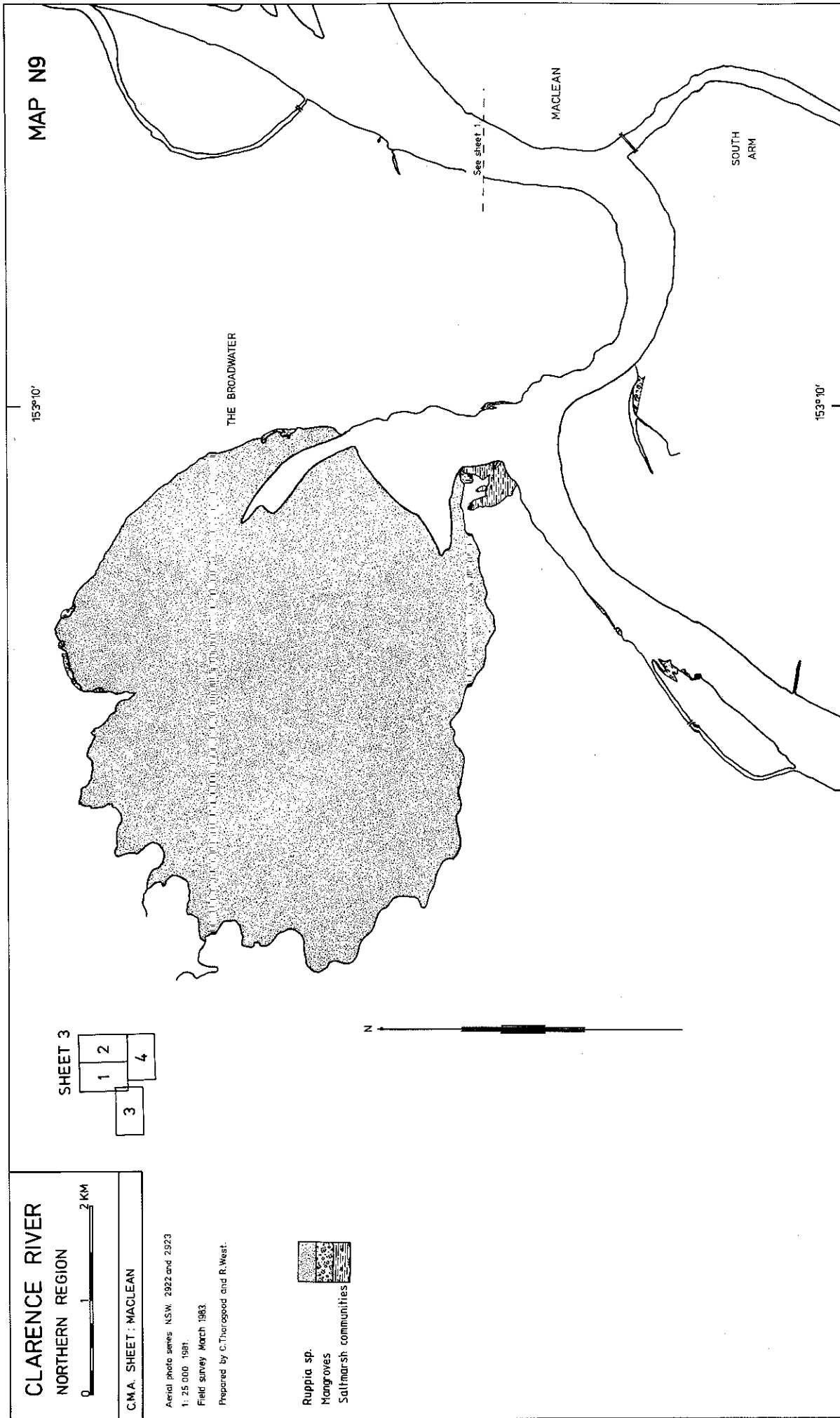
ILUKA

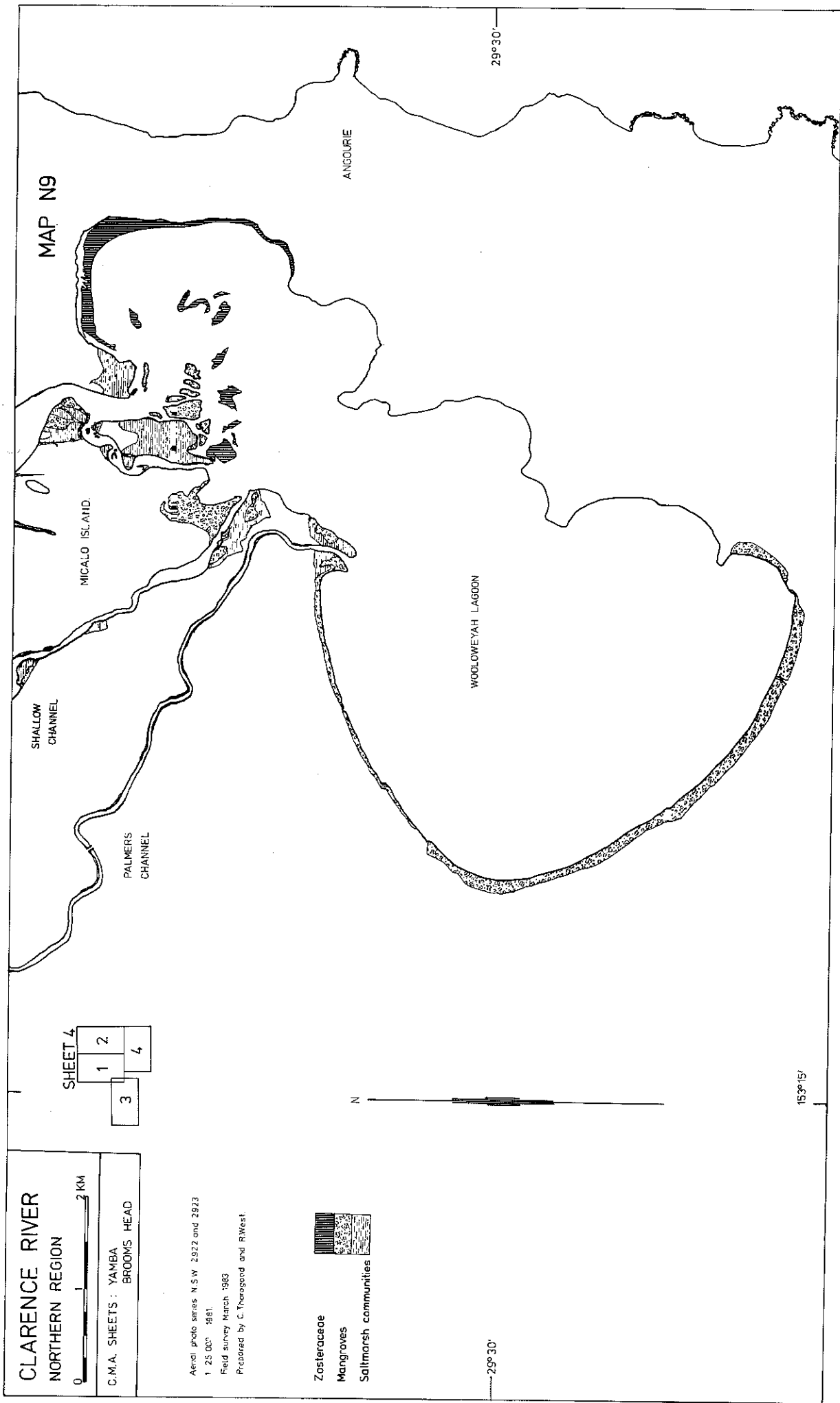
29° 25'

YAMBA

OYSTER CHANNEL

153°17'





**CLARENCE RIVER
NORTHERN REGION**

0 1 2 KM

C.M.A. SHEETS : YAMBA
BROOMS HEAD

Aerial photo series N.S.W. 2822 and 2823
1:25 000, 1981.
Field survey March 1983
Prepared by C. Therogood and R. West.

- Zosteraceae
- Mangroves
- Saltmarsh communities

SANDON RIVER

NORTHERN REGION

0 1 2KM

C.M.A. SHEETS : BROOMS HEAD

SANDON

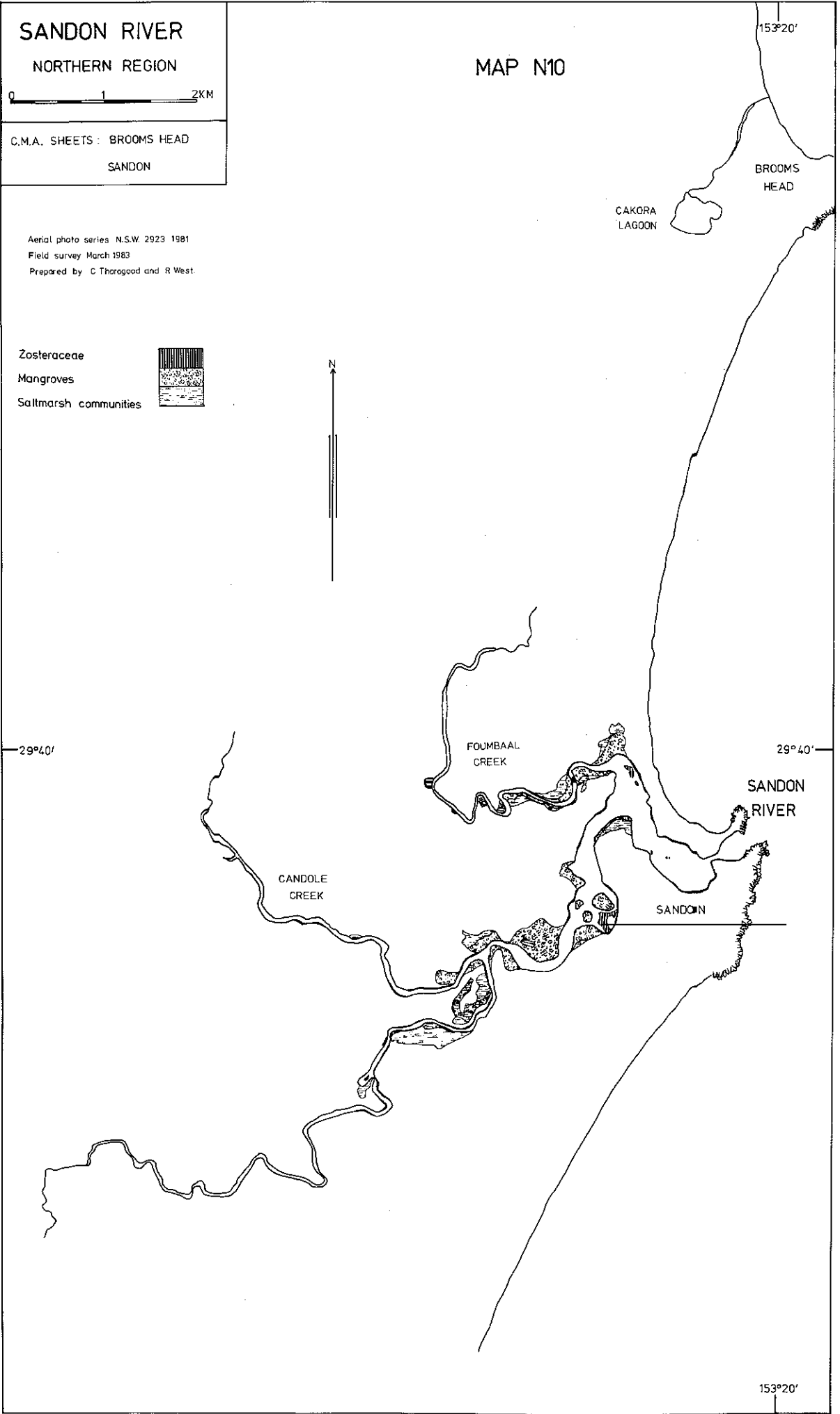
MAP N10

Aerial photo series N.S.W. 2923 1981
Field survey March 1983
Prepared by C Thorgood and R West.

Zosteraceae

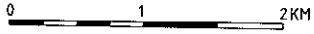
Mangroves

Saltmarsh communities



WOOLI WOOLI RIVER

NORTHERN REGION



C.M.A. SHEETS : BARE POINT, PILLAR VALLEY,
NORTH SOLITARY ISLAND, RED ROCK.

Aerial photo series N.S.W. 2923
Field survey March 1983.
Prepared by C.Thorogood and R. West.

Zosteraceae
Mangroves
Saltmarsh communities



153°15'

MAP N11

MINNIE
WATER
(F.W.)

LAKE
HIAWATHA
(F.W.)

BOOKRAM
CREEK

fringing mangroves

29°15'

29°15'

fringing mangroves

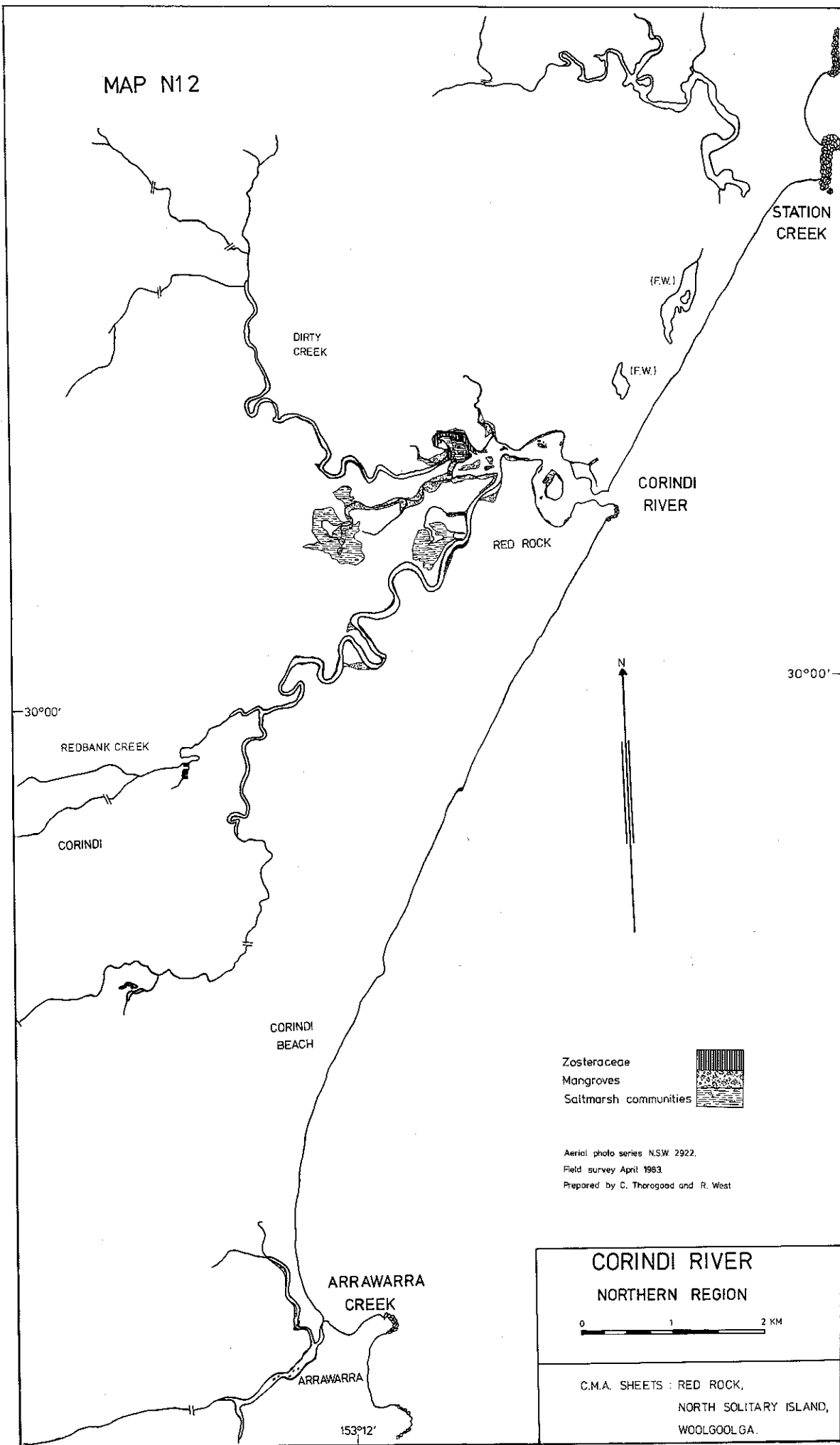
N

WOOLI

WOOLI WOOLI
RIVER

153°15'

MAP N12



Zosteraceae
 Mangroves
 Saltmarsh communities



Aerial photo series NSW 2922.
 Field survey April 1993.
 Prepared by C. Thorogood and R. West

CORINDI RIVER
NORTHERN REGION

0 1 2 KM

C.M.A. SHEETS : RED ROCK,
 NORTH SOLITARY ISLAND,
 WOOLGOOLGA.

MOONEE CREEK
NORTHERN REGION

0 1 2 KM

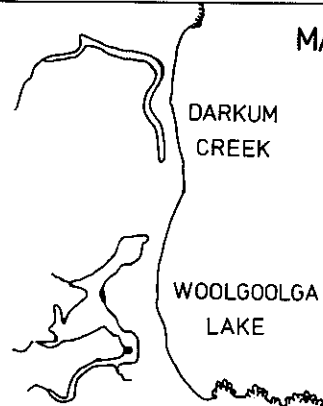
C.M.A. SHEETS : WOOLGOOLGA
MOONEE BEACH

Aerial photo series N.S.W. 2922
Field survey June 1983.
Prepared by C. Thorogood and R. West

Zosteraceae
Mangroves
Saltmarsh communities



MAP N13



WOOLGOOLGA



HEARN'S
LAKE

SANDY
BEACH



30°11'

Fringing mangroves

30°11'


MOONEE
CREEK



153°11'


COFFS HARBOUR CREEK
BOAMBEE CREEK
BONVILLE CREEK

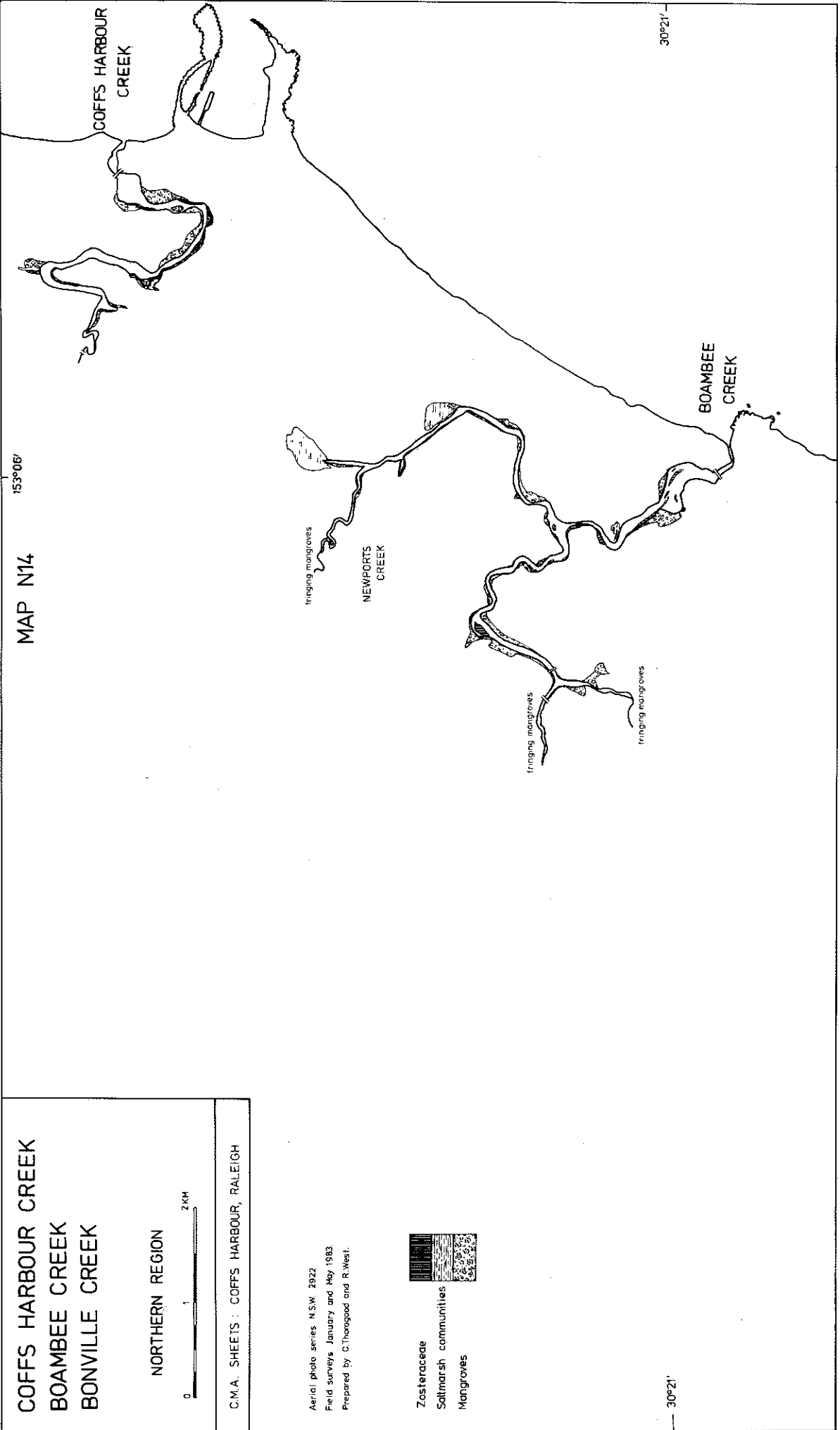
NORTHERN REGION



C.M.A. SHEETS : COFFS HARBOUR, RALEIGH

Aerial photo series, N.S.W. 2922
 Field surveys January and May 1983.
 Prepared by C.Thorpe and R.West.

-  Zosteraceae
-  Saltmarsh communities
-  Mangroves



MAP N14

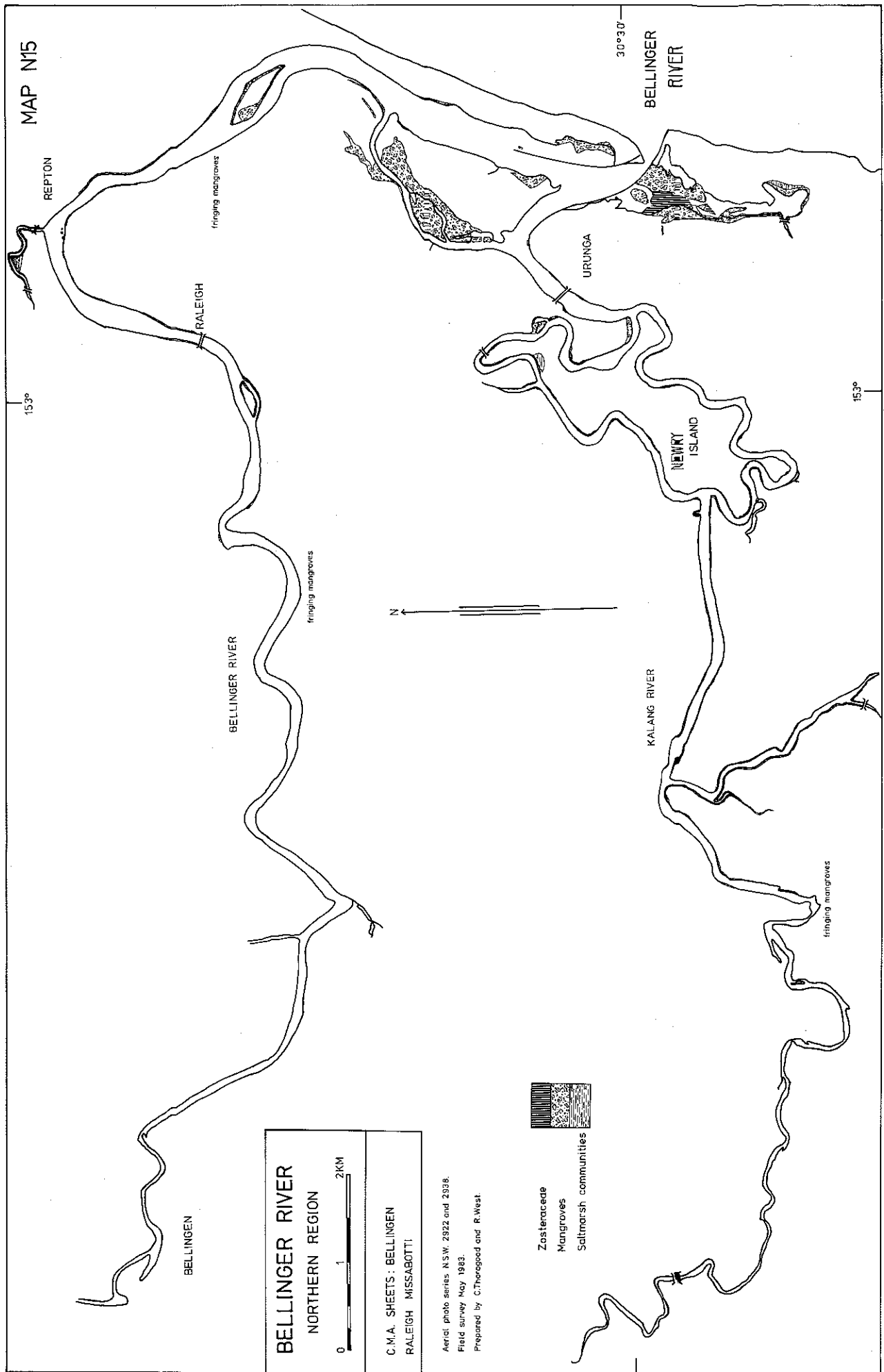


BONVILLE
CREEK

PINE CREEK

BUNDAGEREE CREEK

153°06'



DEEP CREEK
NORTHERN REGION

153°00'

MAP N16

KM 0 1 2 KM

C.M.A. SHEETS : MIS SABOTTI
MACKSVILLE

Aerial photo series N.S.W. 2938, 1981.
Field survey August/November 1983.
Prepared by Ron West and Trudly Walford.

Zosteraceae
Mangroves
Saltmarsh communities



N

fringing mangroves
DALHOUSIE
CREEK

● OYSTER
CREEK

30°35'

30°35'

VALLA BEACH

DEEP
CREEK

153°00'

NAMBUCCA RIVER
NORTHERN REGION

MAP N17

152°55'



C.M.A. SHEETS : EUNGAI, MACKSVILLE

BOWRAVILLE

30°40'

Aerial photo series N.S.W. 2938, 2937
Field survey January 1983
Prepared by R. West and C. Horwood

Zosteraceae
Mangroves
Saltmarsh communities



fringing mangroves

WIRRAMBI

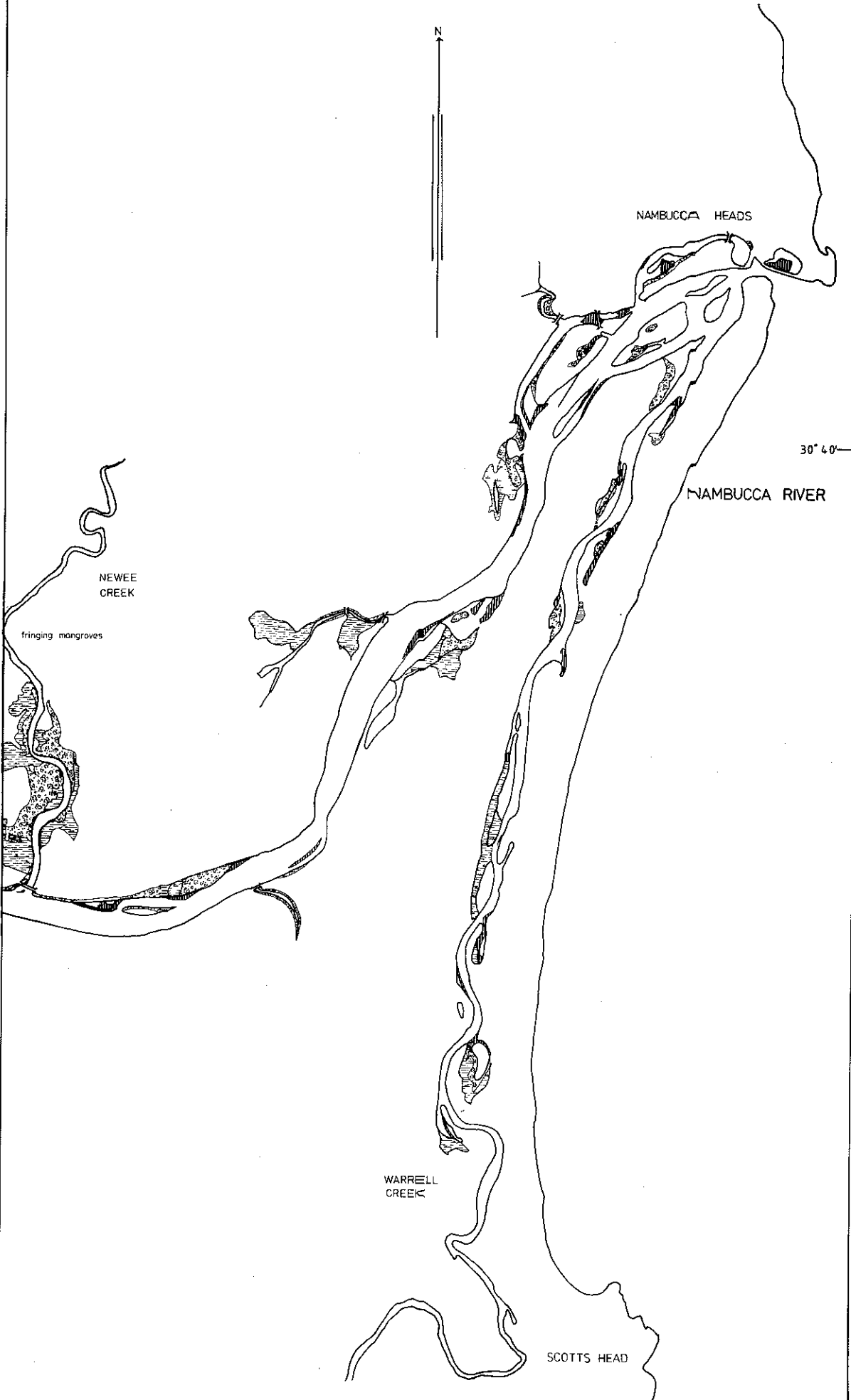
fringing mangroves

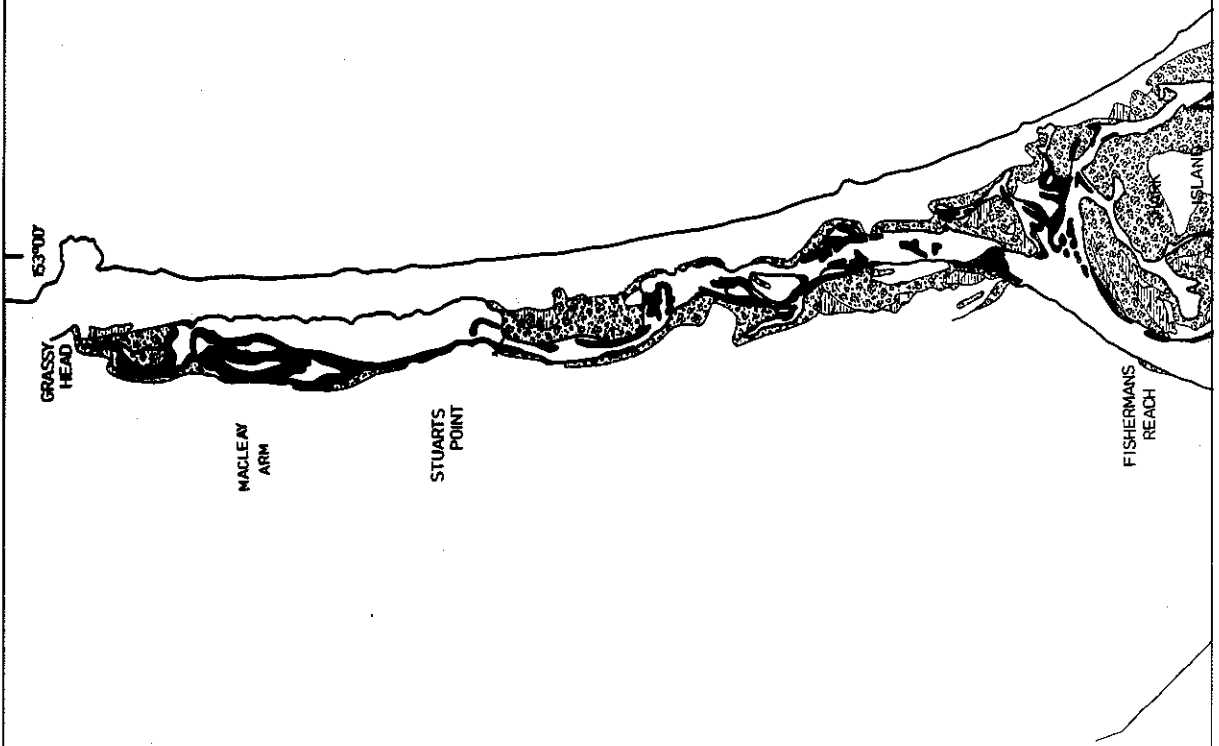
MACKSVILLE

fringing mangroves

CONGARINNI

TAYLORS ARM





MACLEAY RIVER
 NORTHERN REGION

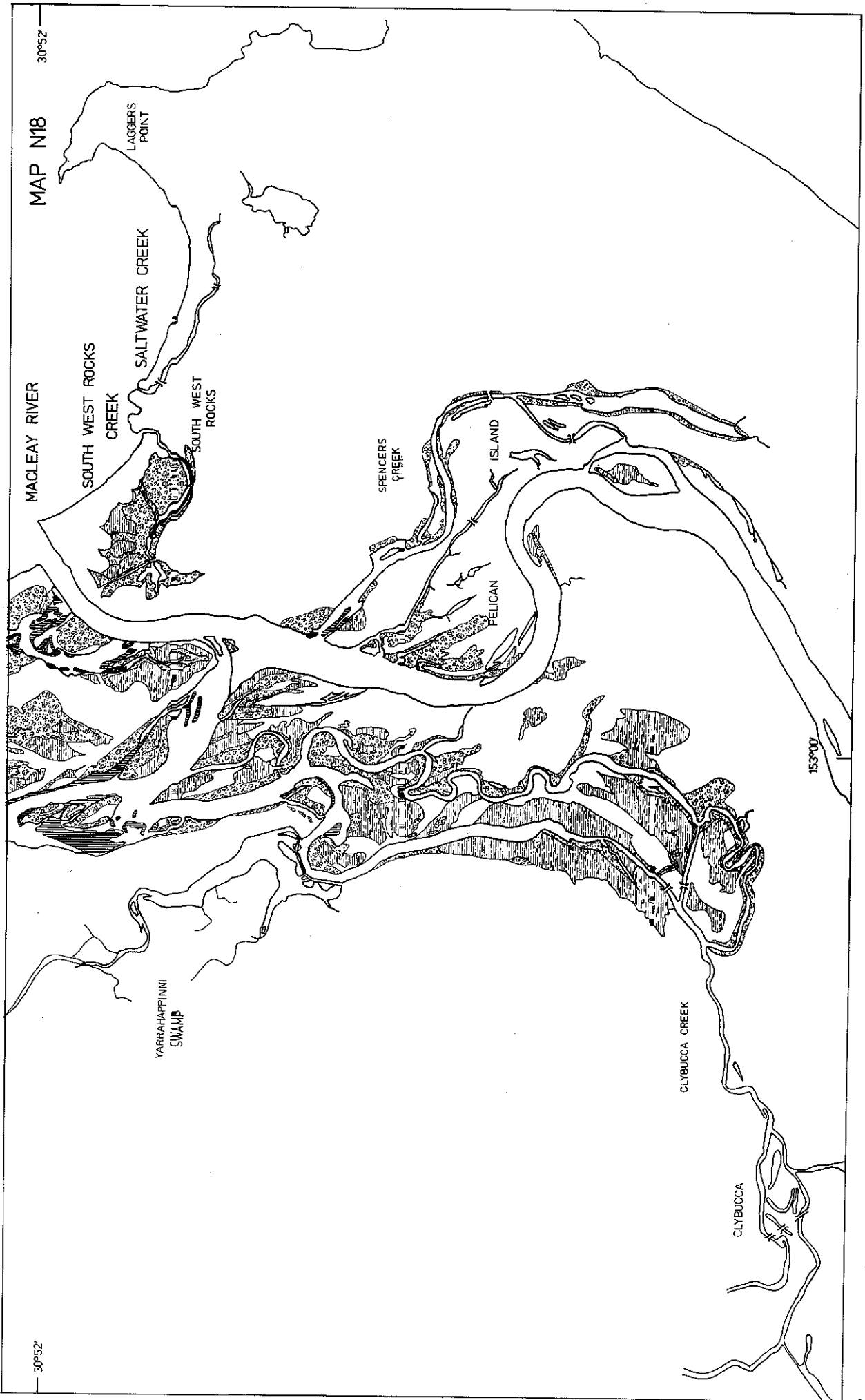
KN 0 1 2 KM

C.M.A. SHEETS : CLYBUCCA, EUNGAI
 SOUTH WEST ROCKS

Aerial photo series N.S.W. 2421, 1976 and 2938, 1981.
 Field survey May 1981.
 Prepared by M. Middleton and T. Walford.

Zosteraceae
 Mangroves
 Saltmarsh communities





30°52'

MAP N18

MACLEAY RIVER

SOUTH WEST ROCKS CREEK

SALTWATER CREEK

LAGGARDS POINT

SOUTH WEST ROCKS

SPENCERS CREEK

ISLAND

PELICAN

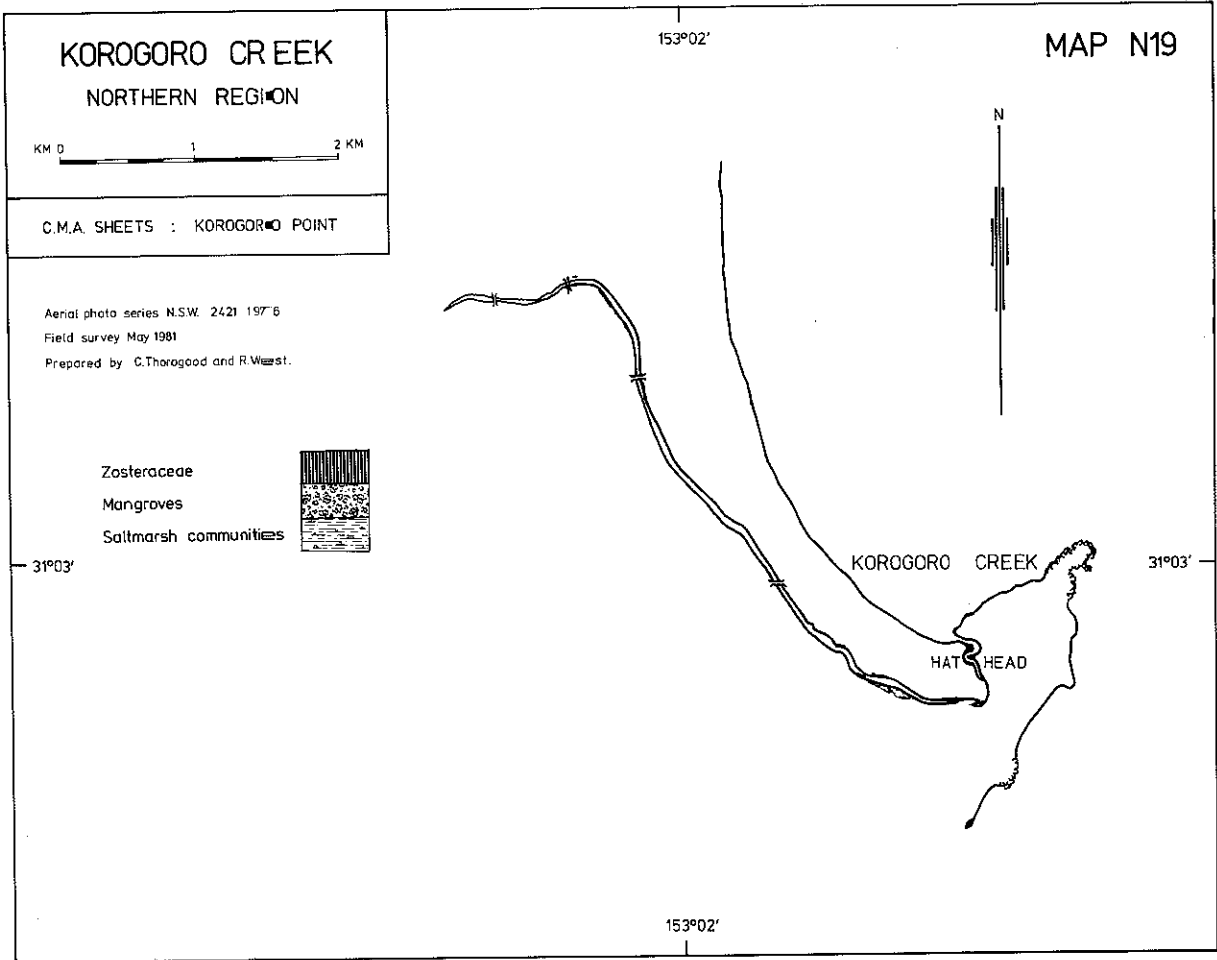
YARRAHAPPINNI SWAMP

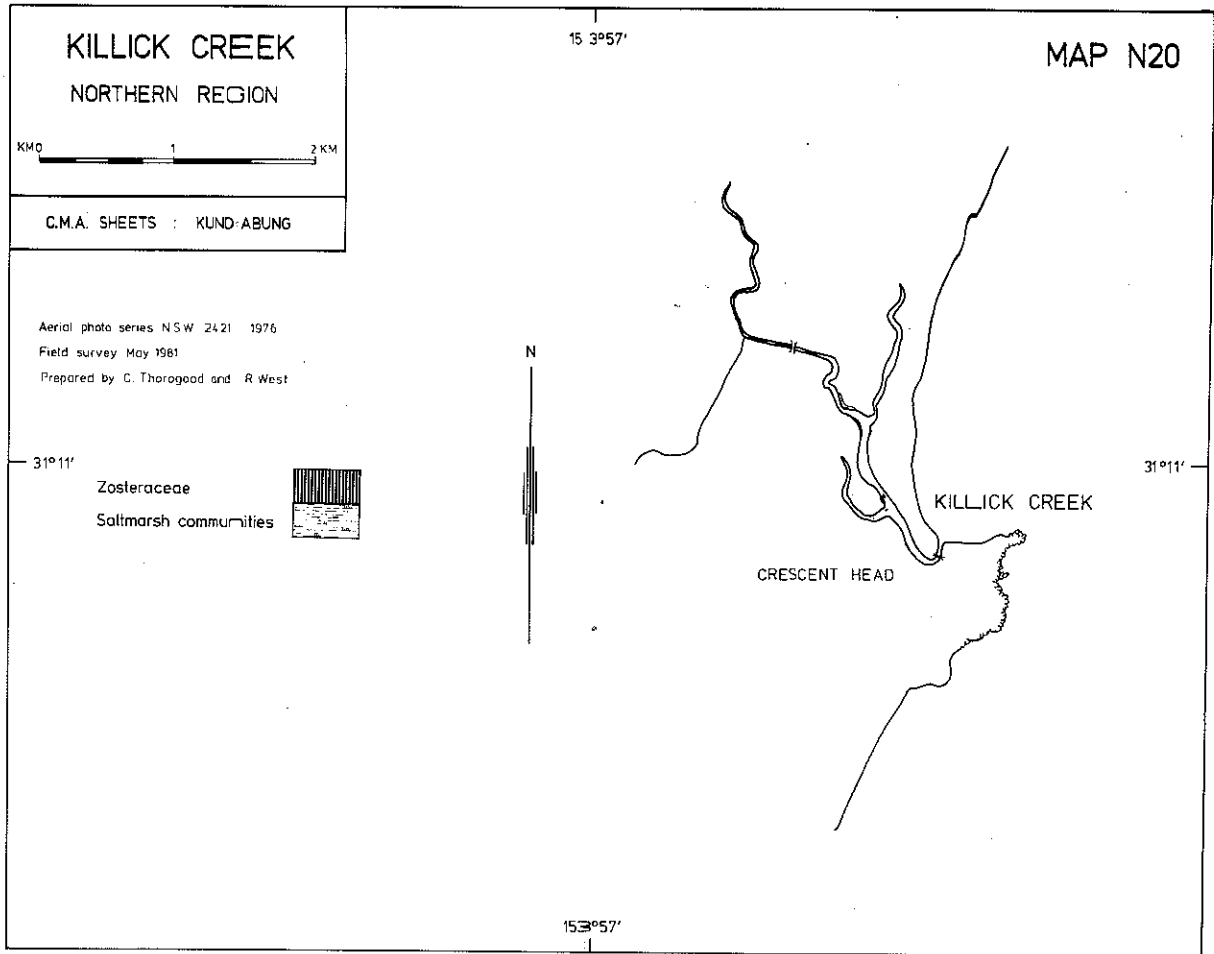
CLYBUCCA CREEK

CLYBUCCA

30°52'

153°00'





HASTINGS RIVER

NORTHERN REGION

KM 0 1 2

C.M.A. SHEETS : TELEGRAPH POINT
PORT MACQUARIE

Aerial photo series N.S.W. 2937 1981.
Field survey May 1983.
Prepared by Ron West and Trudy Wallford.

Zosteraceae
Mangroves
Saltmarsh communities

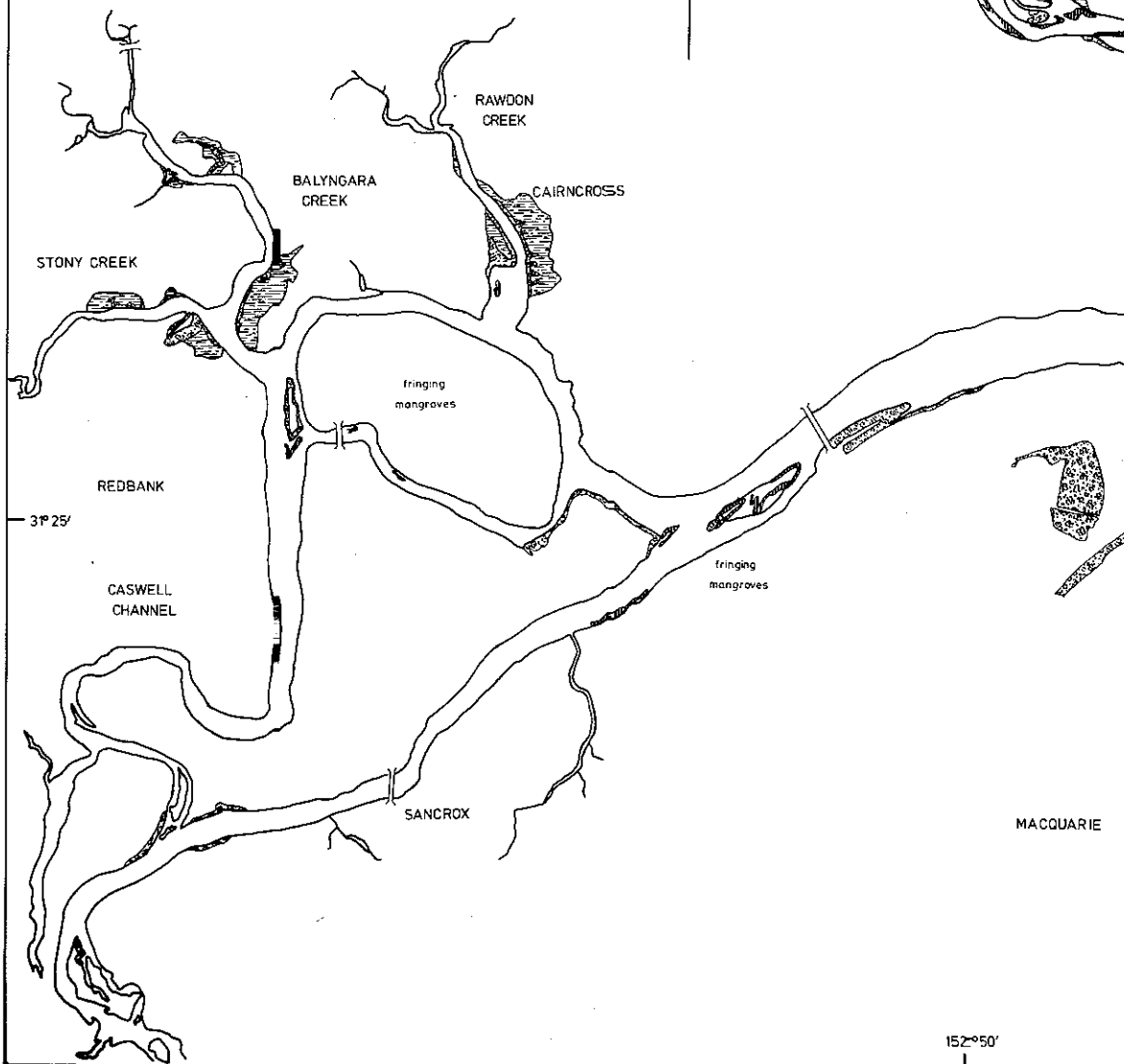


MAP N21

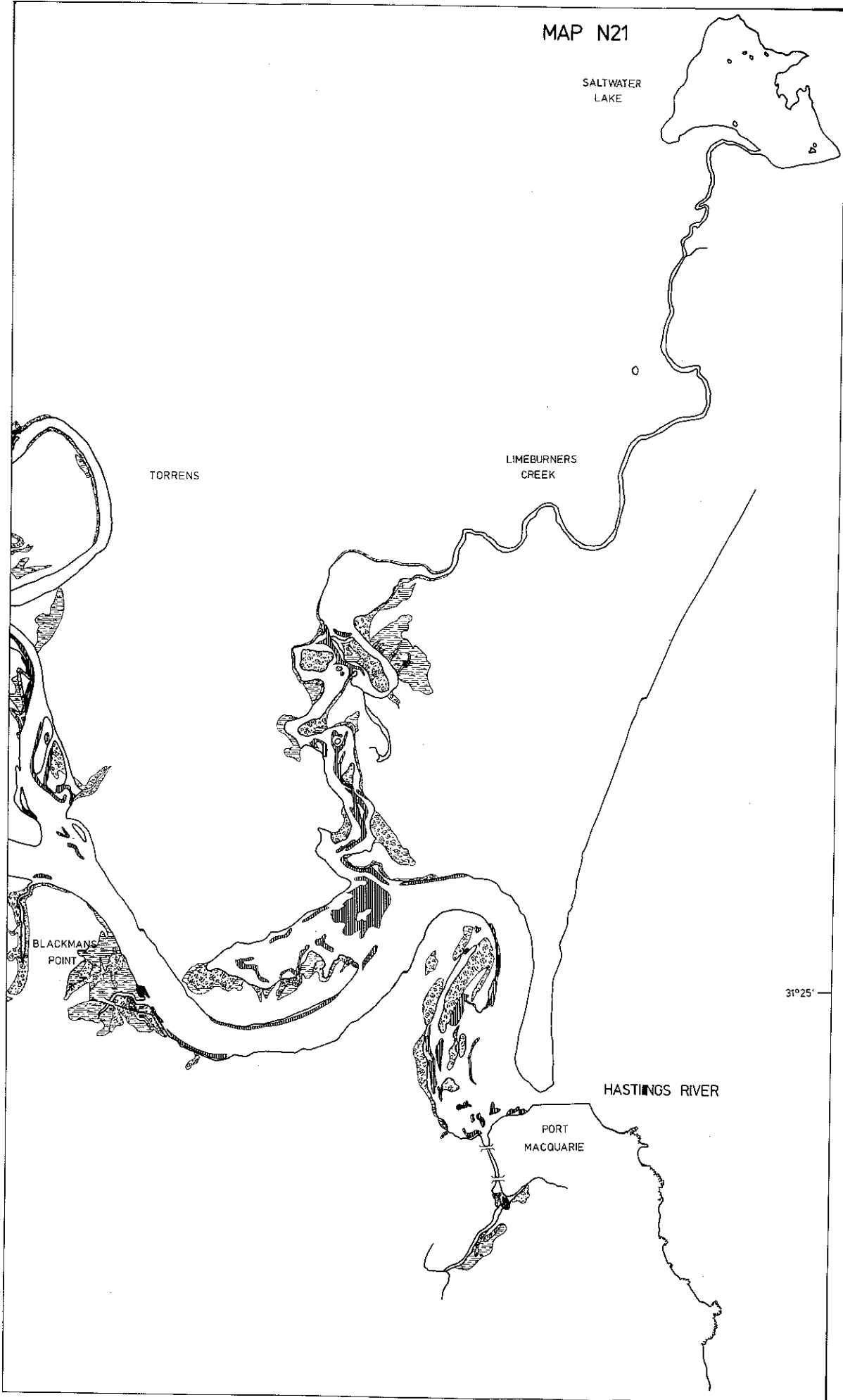
152°50'

MARIA RIVER

N



MAP N21



LAKE INNES

NORTHERN REGION

KM 0 1 2 KM

C.M.A. SHEETS : PORT MACQUARIE
GRANTS HEAD

Aerial photo series N.S.W. 2937

Field survey June 1983

Prepared by C.Thorogood and R.West

Halophila spp.
Zosteraceae

Mangroves

Saltmarsh communities



31°30'

31°30'

152°50'

MAP N22

LAKE INNES

LAKE CATHIE

MIDDLE ROCK
POINT

152°50'

N



MAP N23

152°45'



MAP N23

31°40'

CAMDEN HAVEN RIVER NORTHERN REGION

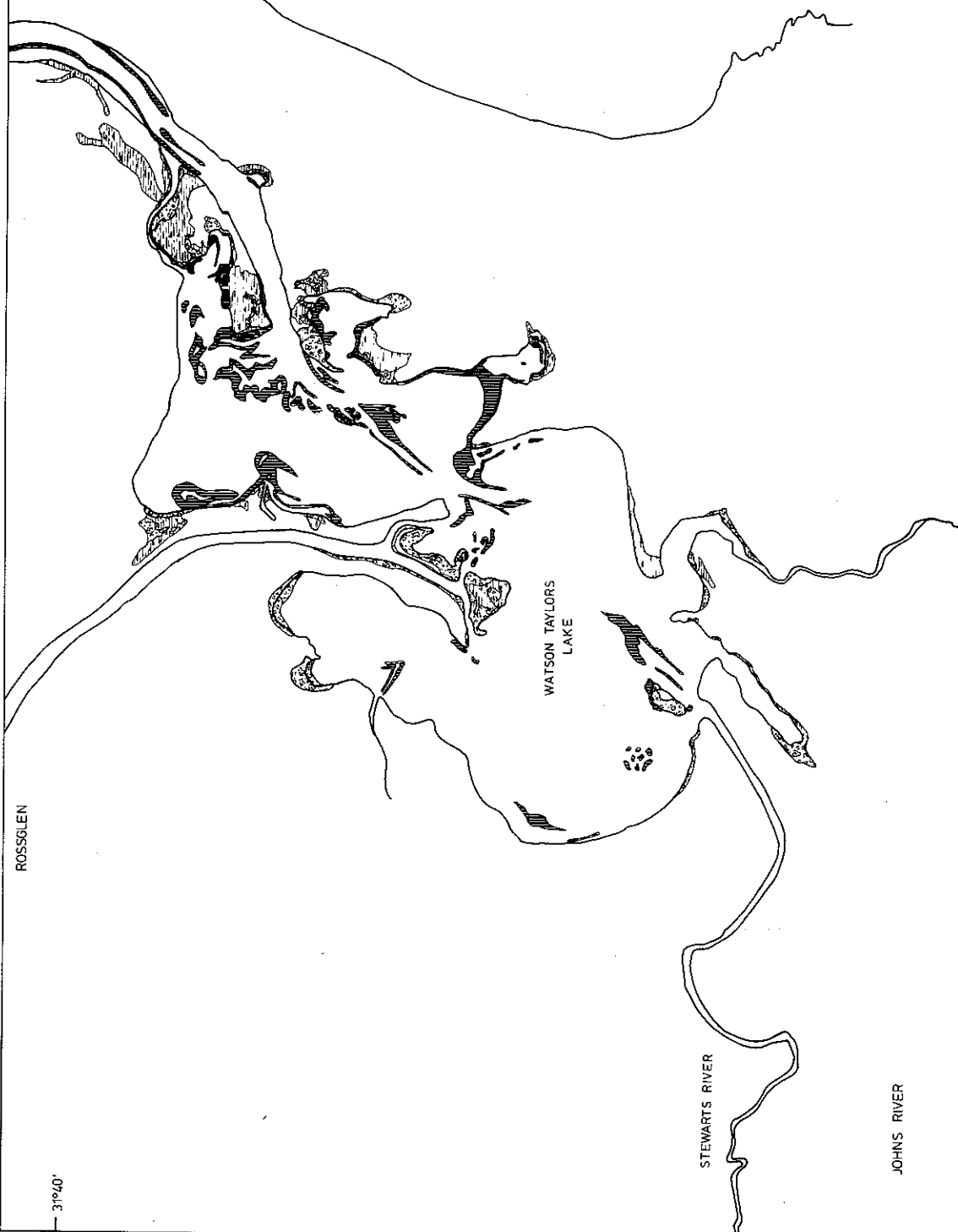
KM 0 1 2 KM

C.M.A. SHEETS : BYABARRA, GRANTS HEAD
LORNE, LAURIETON

Aerial photo series Camden Haven 2790, 2793, 2814, 1979
Field survey May 1983
Prepared by Ron West and Trudy Wallard.



Zosteraceae
Halophila spp.
Ruppia sp.
Mangroves
Saltmarsh communities



ROSSOLEN

WATSON TAYLORS
LAKE

STEWARTS RIVER

JOHNS RIVER

31°40'

152°45'

MAP N24

152°40'

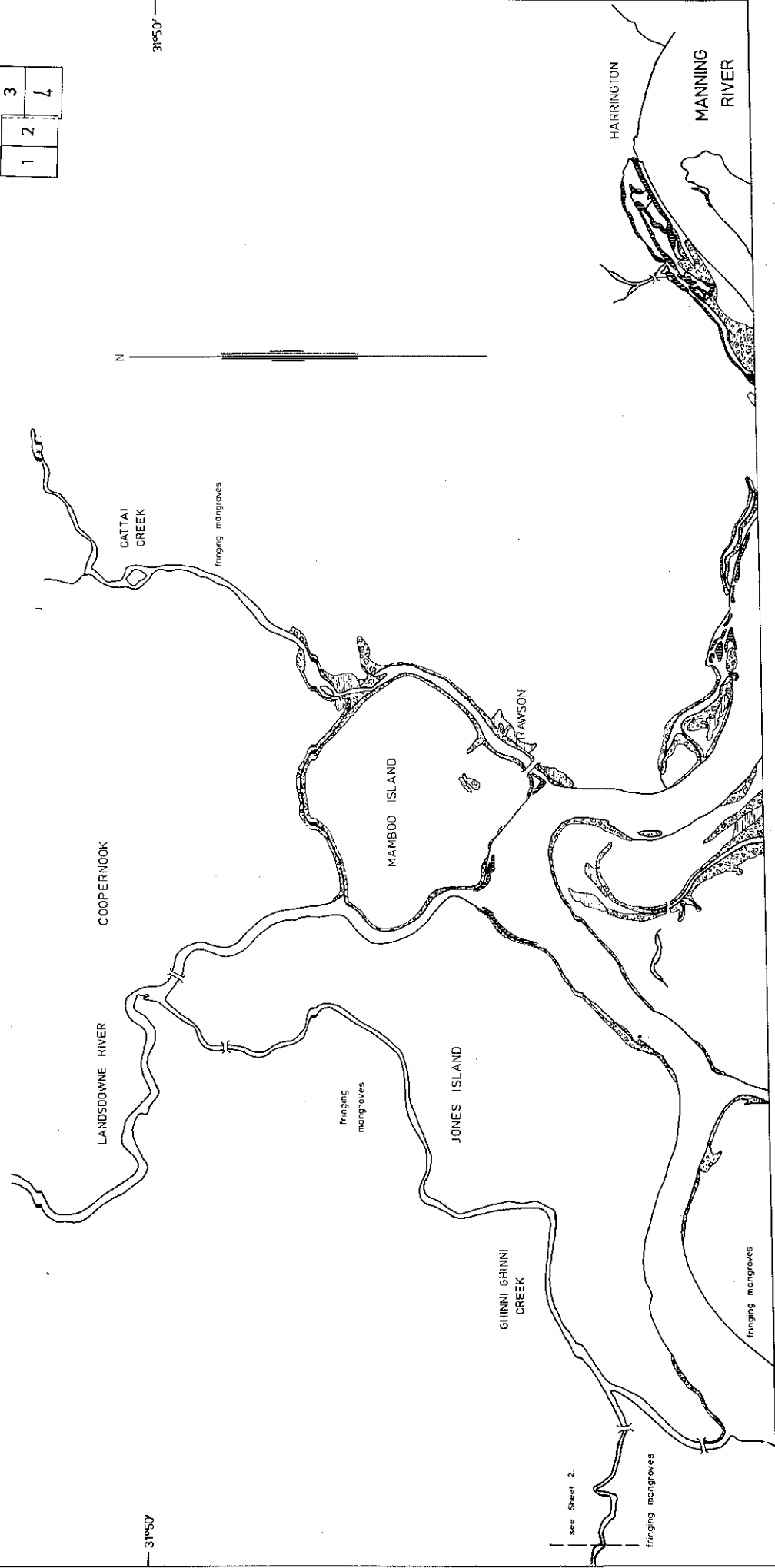
152°35'

SHEET 3.

1	2	3
		4

31°50'

31°50'



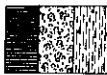
see Sheet 2.

MANNING RIVER NORTHERN REGION

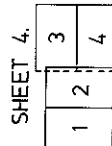


C.M.A. SHEETS : COOPERNOOK

Aerial photo series N.S.W. 2936 1981.
Field survey May 1983
Prepared by Ron West and Trudy Walford.

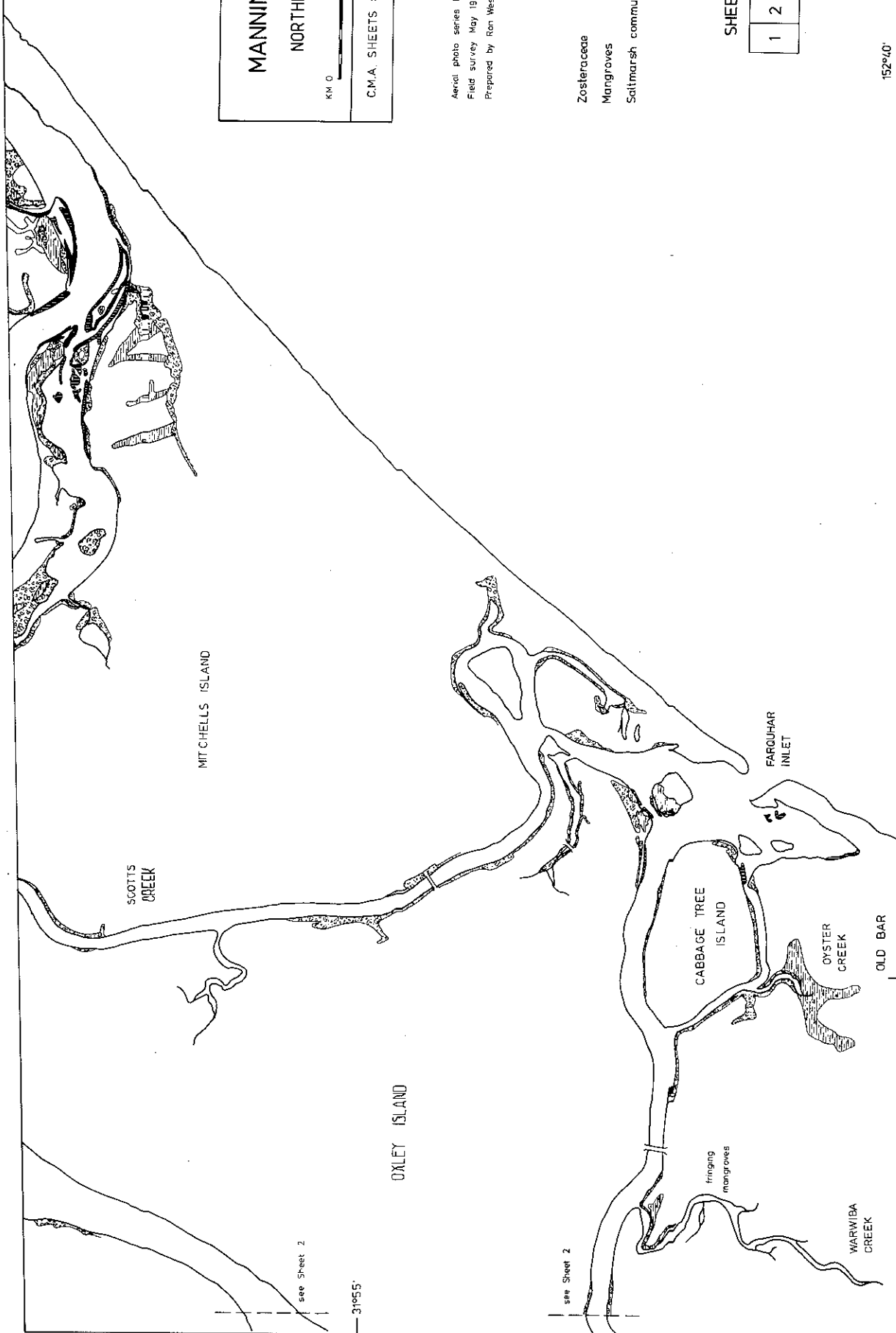


Zosteraceae
Mangroves
Saltmarsh communities



SHEET 4.

152°40'



see Sheet 2

31°55'

see Sheet 2

MANNING RIVER

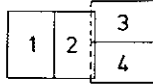
NORTHERN REGION

152°25'

MAP N24

SHEET 1.

KM 0 1 2 KM



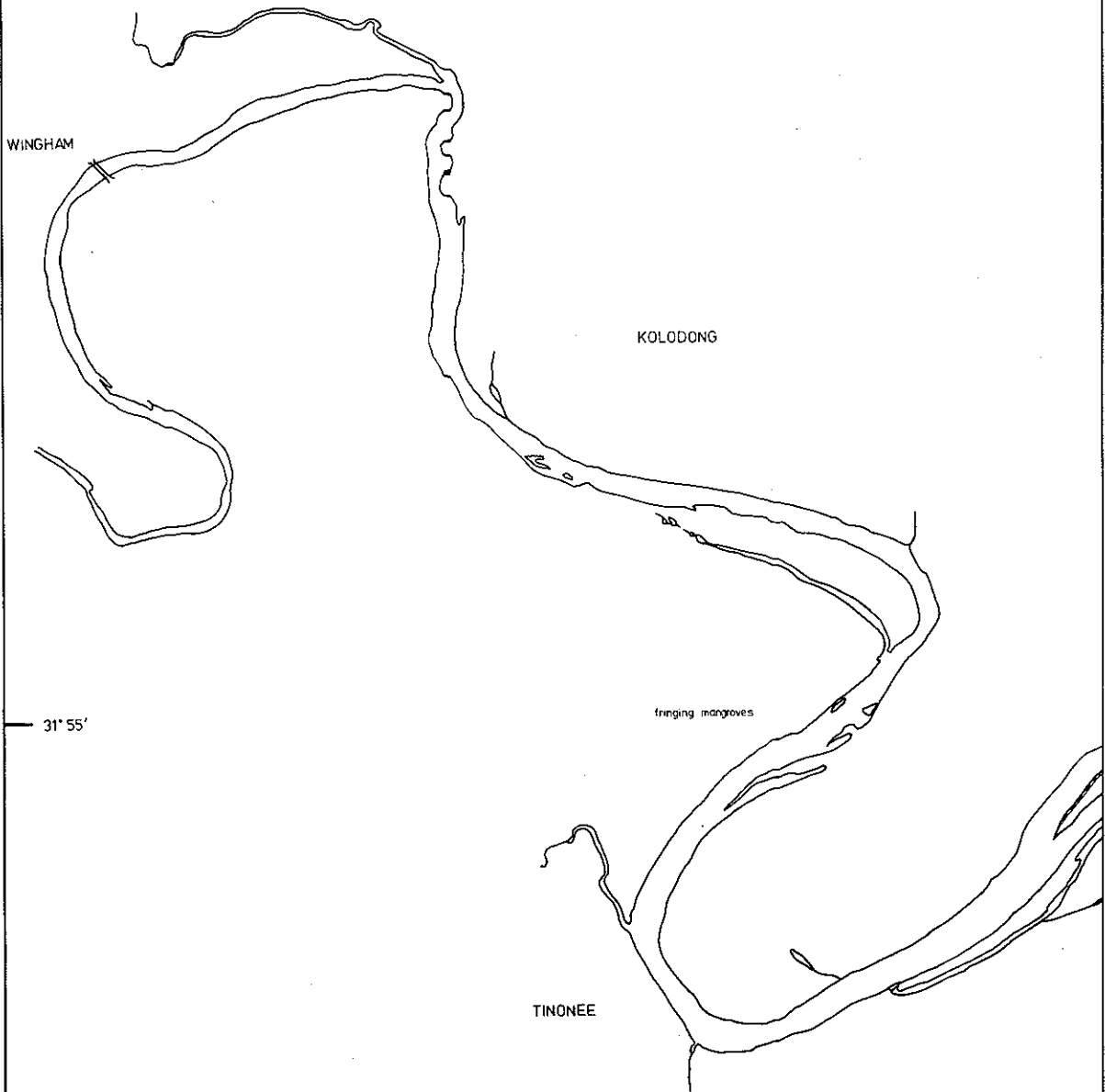
C.M.A. SHEETS : TAREE
CUNDLETON

Aerial photo series N.S.W. 2936 1961
Field survey May 1983
Prepared by Ron West and Trudy Watford

Zosteraceae

Mangroves

Saltmarsh communities



152°25'

152°30'

MAP N24

SHEET 2.

1	2	3
		4

31°50'

N

DAWSON RIVER

fringing mangroves

CUNDLETOWN

TAREE

DUMARESQ ISLAND

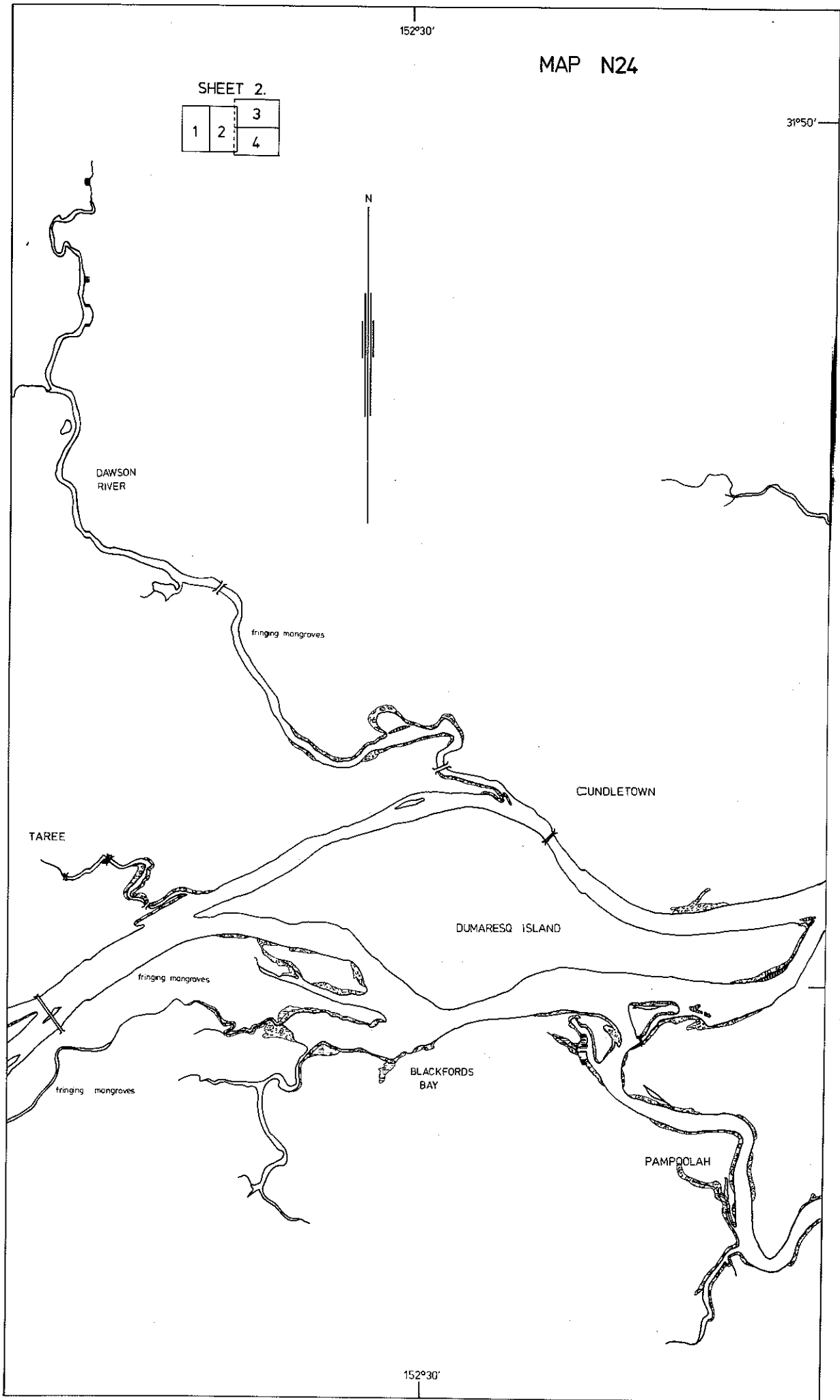
fringing mangroves

BLACKFORDS BAY

fringing mangroves

PAMPQOLAH

152°30'



KHAPPINGHAT CREEK
NORTHERN REGION



C.M.A. SHEETS : CUNDELTOWN
HALLIDAYS POINT

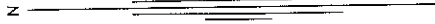
Aerial photo series N.S.W. 2817 1979.
Field survey June 1983.
Prepared by C.Thorogood and R.West.



Zosteraceae
Saltmarsh communities

MAP N25

152°30'



32°00'

SALTWATER

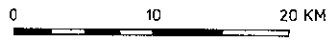
**KHAPPINGHAT
CREEK**

157°30'

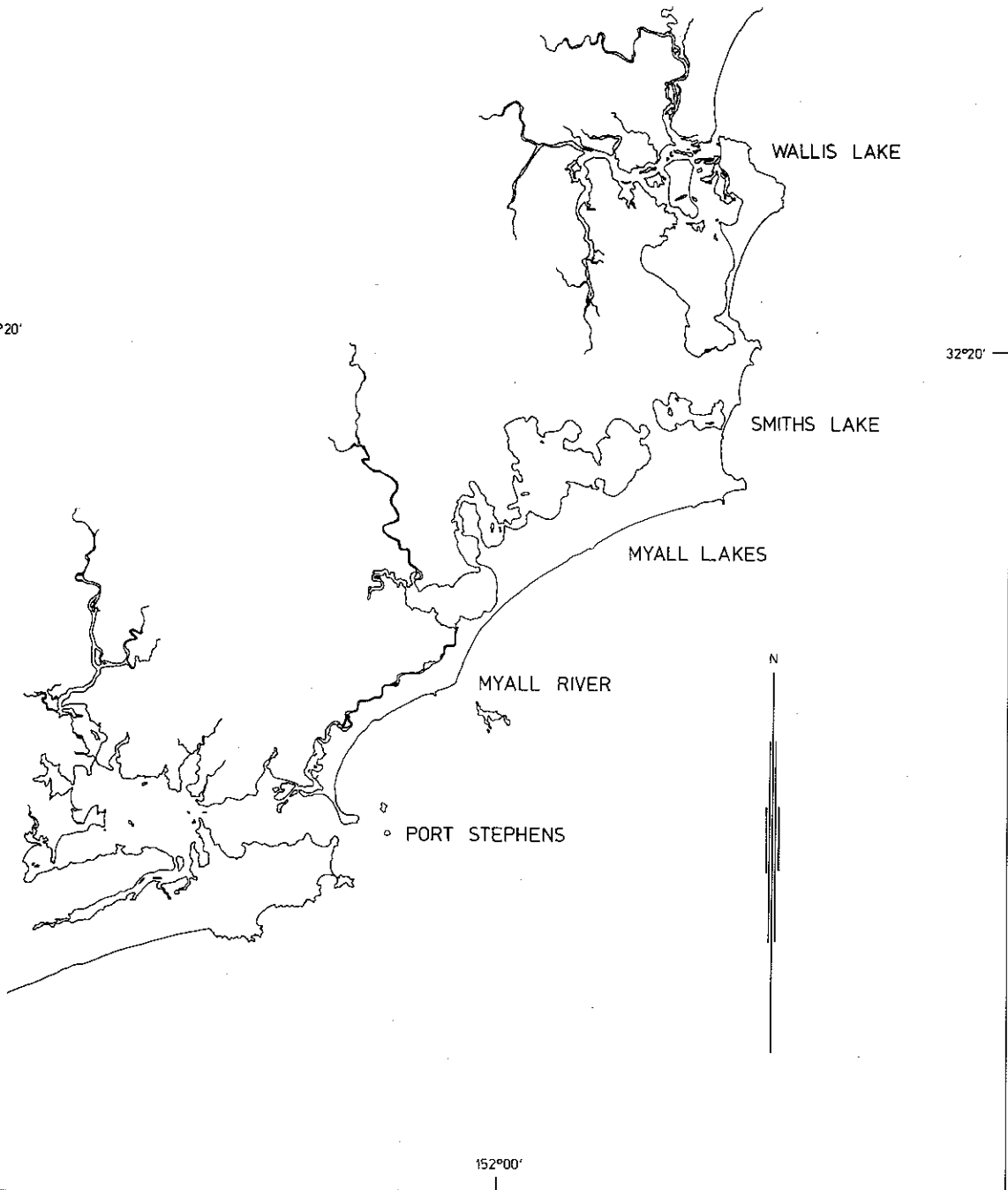
32°00'

HUNTER REGION
ESTUARIES AND LAGOONS

SHEET 1

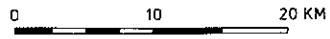


C.M.A. 1:250 000 SHEETS : NEWCASTLE

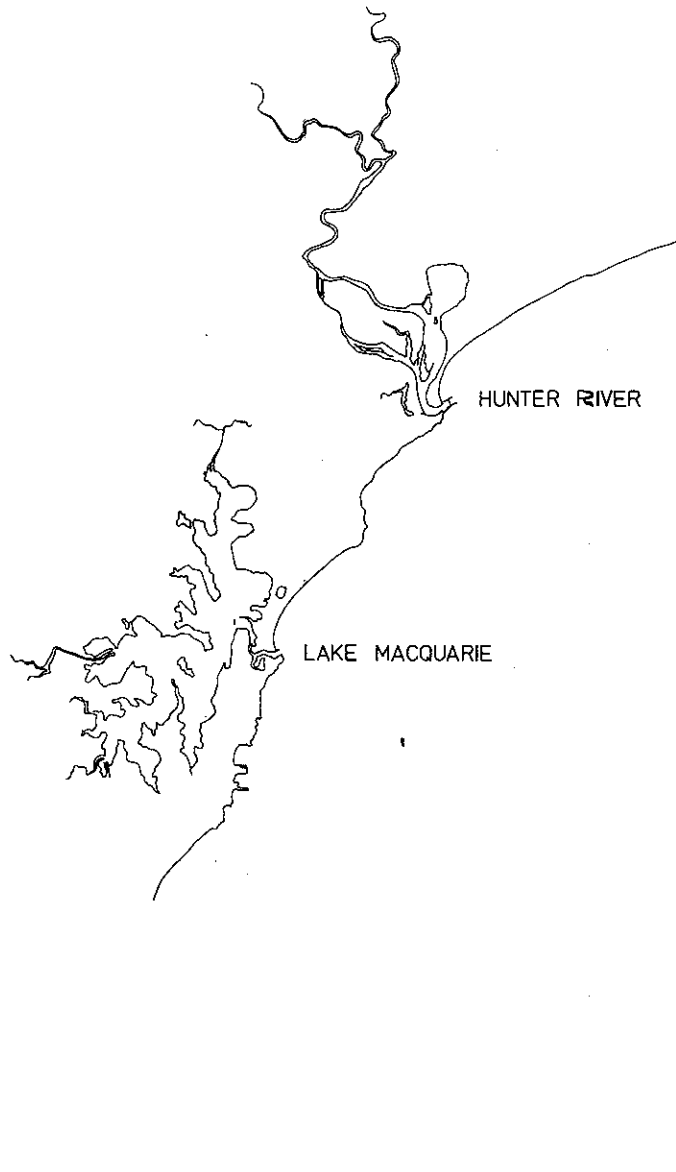


HUNTER REGION
ESTUARIES AND LAGOONS

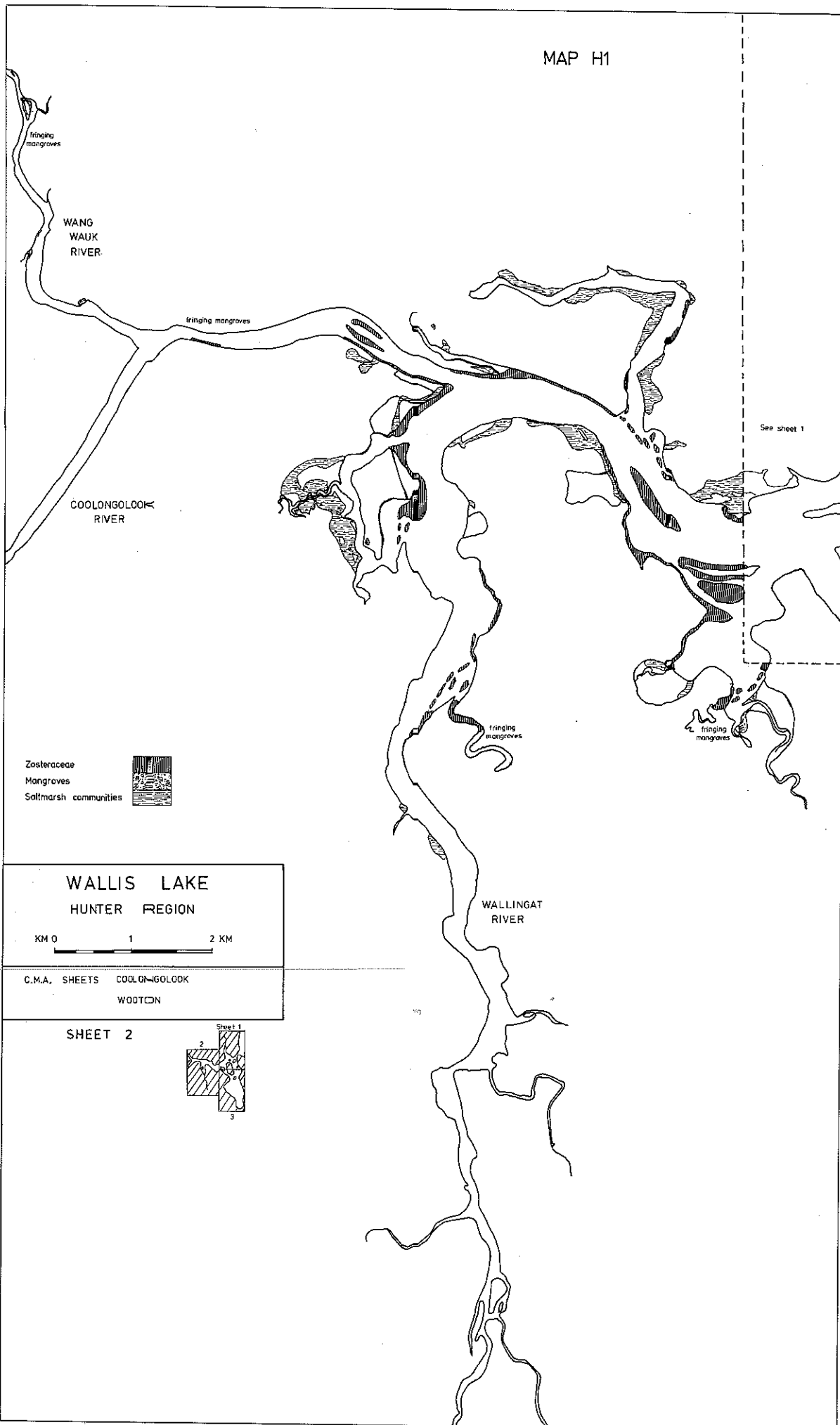
SHEET 2



C.M.A. 1:250 000 SHEETS : NEWCASTLE SYDNEY



MAP H1



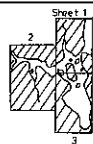
Zosteraceae
Mangroves
Saltmarsh communities

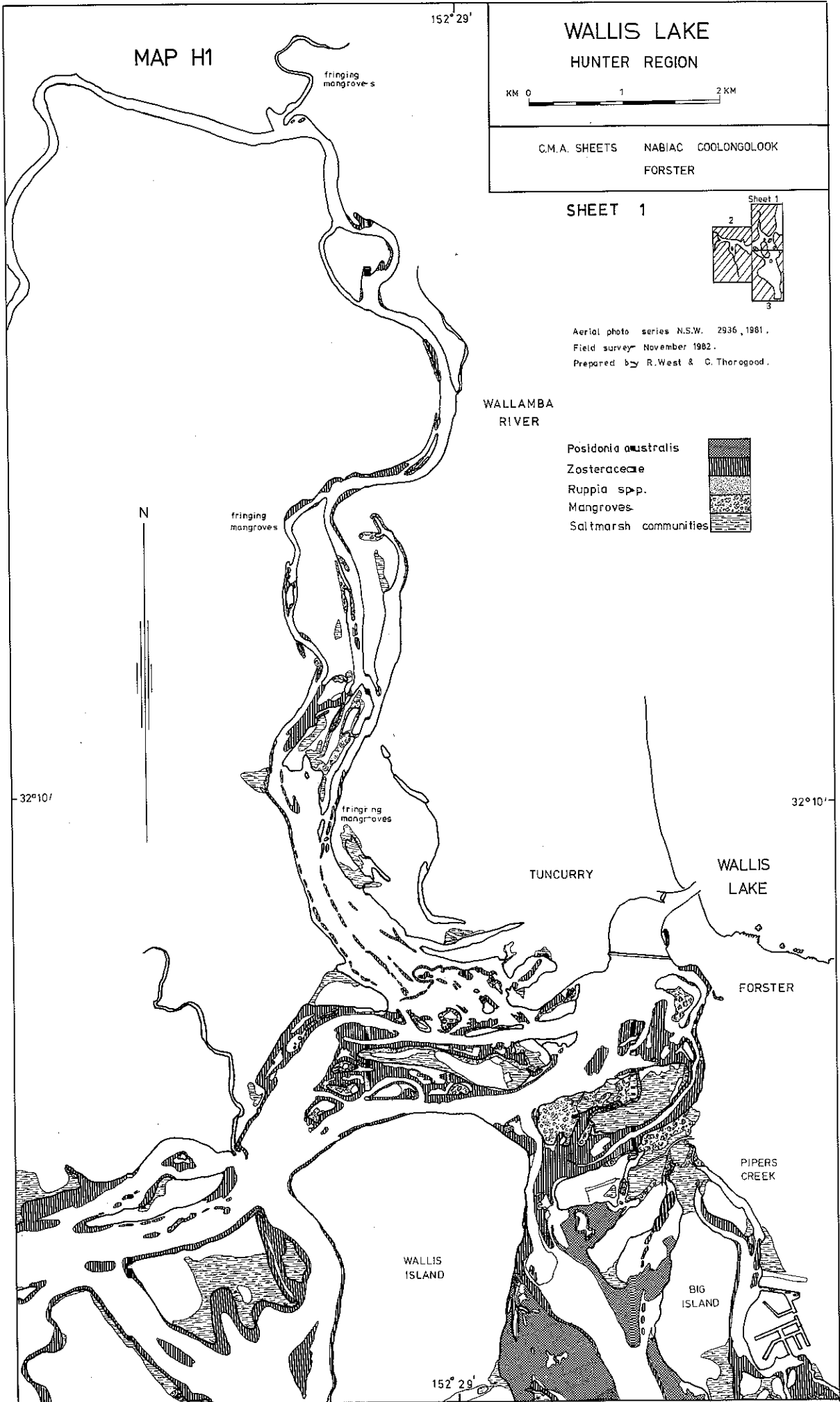
WALLIS LAKE
HUNTER REGION

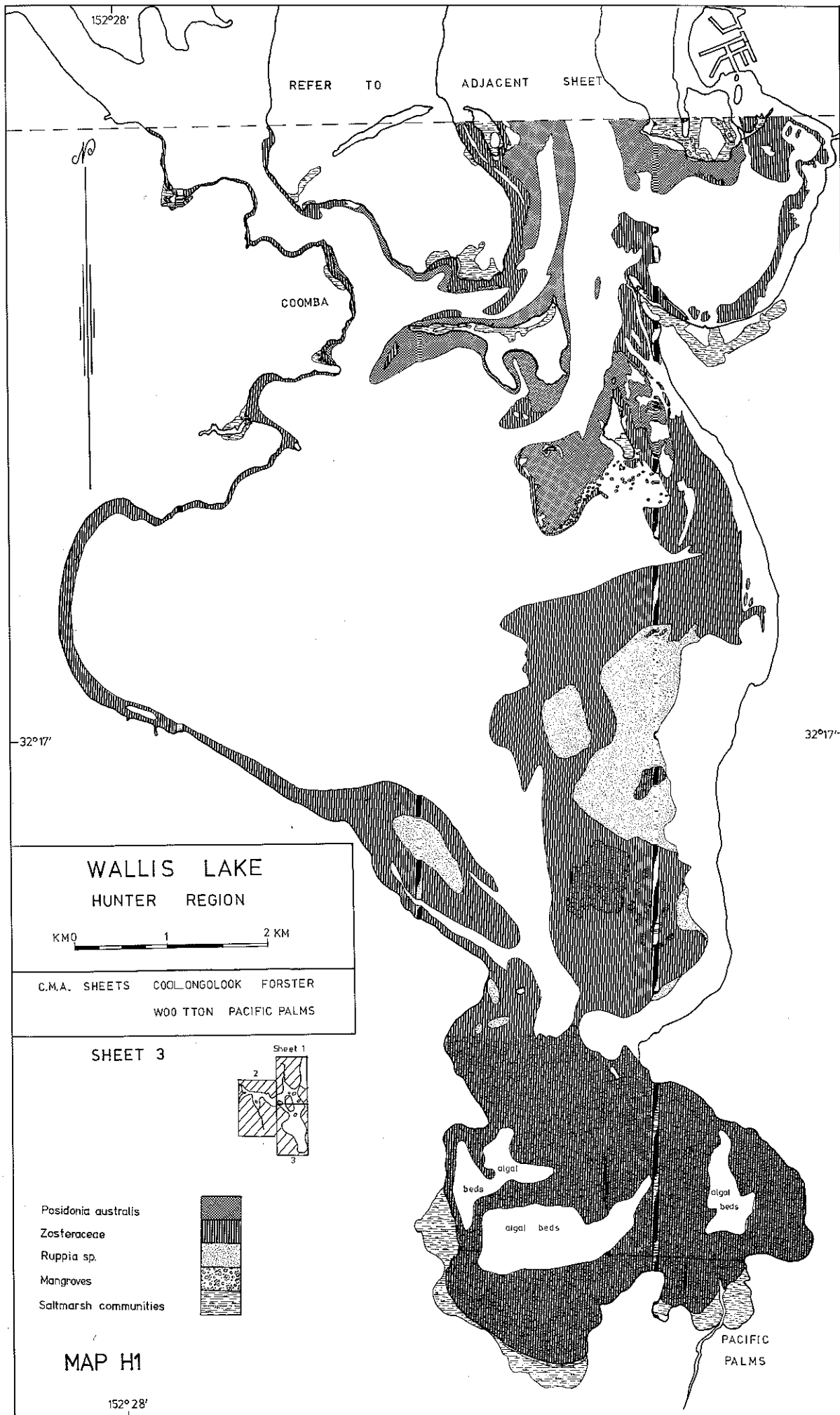
KM 0 1 2 KM

C.M.A. SHEETS COOLONGLOOK
WOOTON

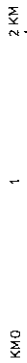
SHEET 2





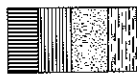


SMITHS LAKE HUNTER REGION



C.M.A. SHEETS : MYALL LAKE
SEAL ROCKS

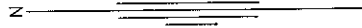
Aerial photo series N.S.W. 2936, 1961.
Field survey March 1984.
Prepared by Trudy Walford and Carol Thorogood.



Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities

MAP H2

152°30'



BALD
HEAD

SMITHS LAKE

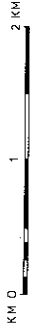
BUNGWAHL

32°25'

152°30'

32°25'

MYALL LAKES
HUNTER REGION

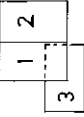


C.M.A. SHEETS : THE BRANCH, BOMBAH POINT

Aerial photo series N.S.W. 2935, 2936 & 2947
Field surveys, March 1984.
Prepared by Trudy Walford and Carol Theogood

Zosteraceae

SHEET 3.



MAP H3

152°15'



MYALL RIVER

NERONG

DIRTY CREEK

BOMBAH POINT

THE BROADWATER

MUNGO BRUSH


152°15'

32°30'

MYALL LAKES

HUNTER REGION

KM 0 1 2 KM

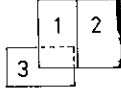


C.M.A. SHEETS : BULADELAH, MYALL LAKE
THE BRANCH

Aerial photo series N.S.W. 2935, 2936 & 2937
Field surveys March 1984
Prepared by Trudy Walford and Carol Thorogood

MAP H3

SHEET 1



MAYERS
FLAT

N



VIOLET HILL

TICKERABIL

BOOLAMBAYTE
LAKE

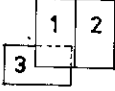
32°30'

B O M B A H P O I N T

152°25'

MAP H3

SHEET 2.



BUNGWahl

32°25'

MYALL
LAKE
(F.W.)

KATAWAY

32°30'

152°25'

KARUAH RIVER HUNTER REGION

0 1 2 KM

CMA SHEETS : CLARENCE TOWN
THE BRANCH
KARUAH

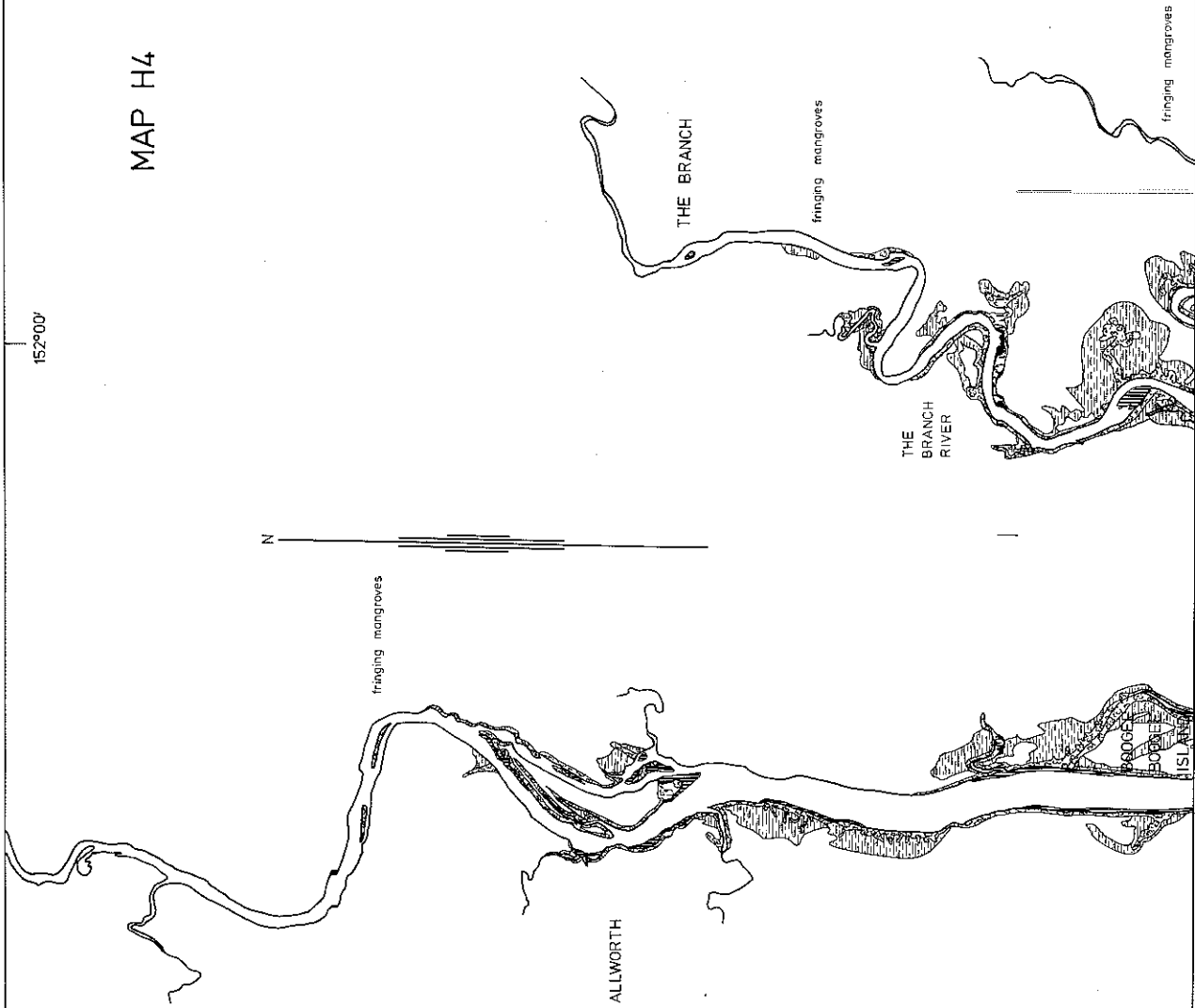
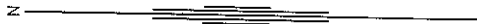
Aerial photo series N.S.W. 2938 1981.
Field surveys February 1984.
Prepared by Trudy Walford and Ron West.



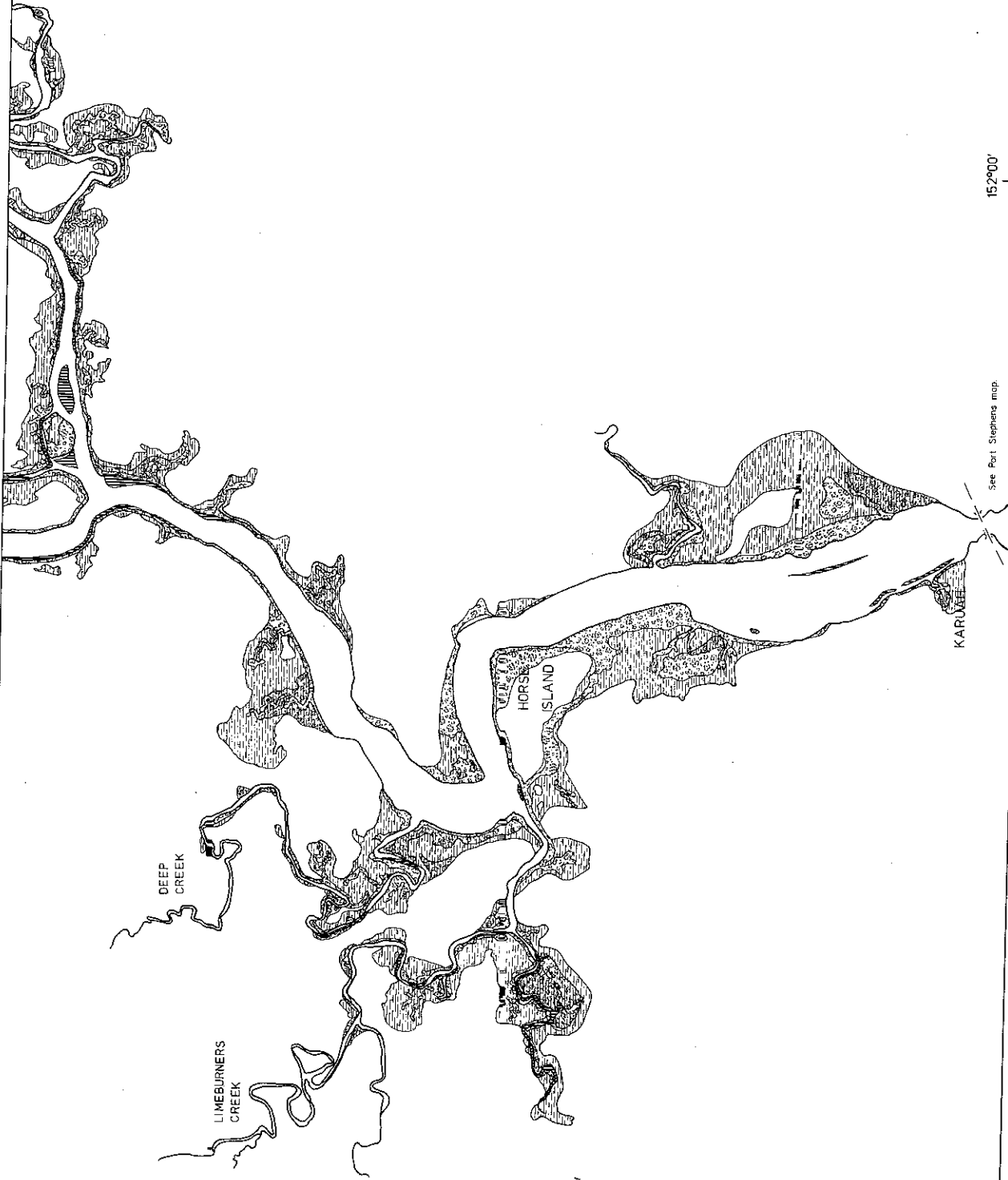
Zosteraceae
Mangroves
Saltmarsh communities

MAP H4

152°00'



MAP H4



32°37'

32°37'

See Port Stephens map.

152'00"

MYALL RIVER
HUNTER REGION

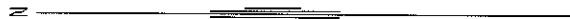


M.A. SHEETS: THE BRANCH
BOMBAH POINT
PORT STEPHENS

Aerial photo series Port Stephens (Qascol 1979 &
NSW Coastline, Newcastle 1:25000 1976-77
Field surveys November 1991
Prepared by Ron West and Trudy Watford



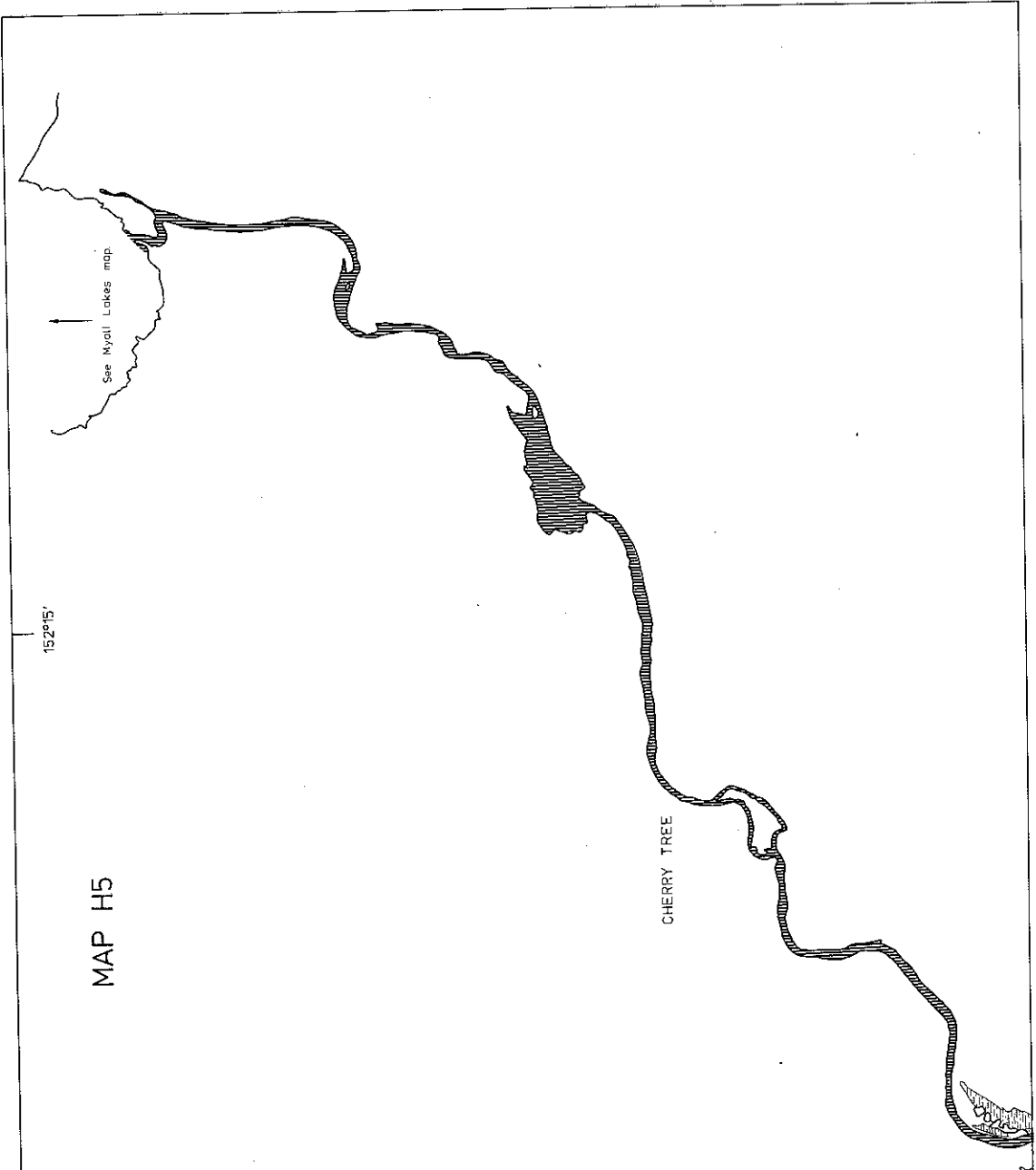
Zosteraceae
Mangroves
Saltmarsh communities



MAP H5

152°15'

See Myall Lakes map.



MAP H5



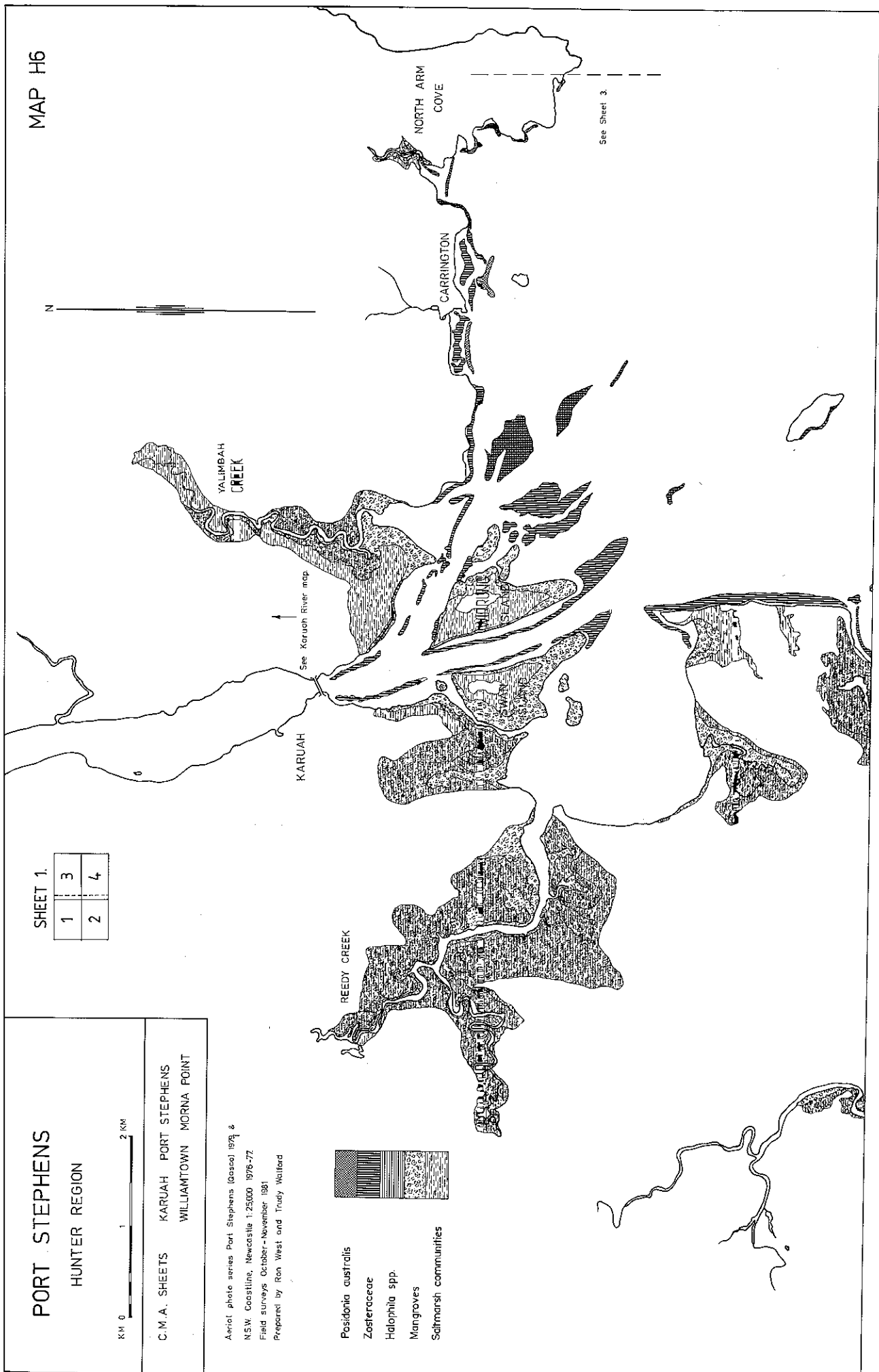
32°40'

152°15'

32°40'

152°10'

See Part Stephens map



SHEET 1.

1	3
2	4

PORT STEPHENS
HUNTER REGION

KM 0 1 2

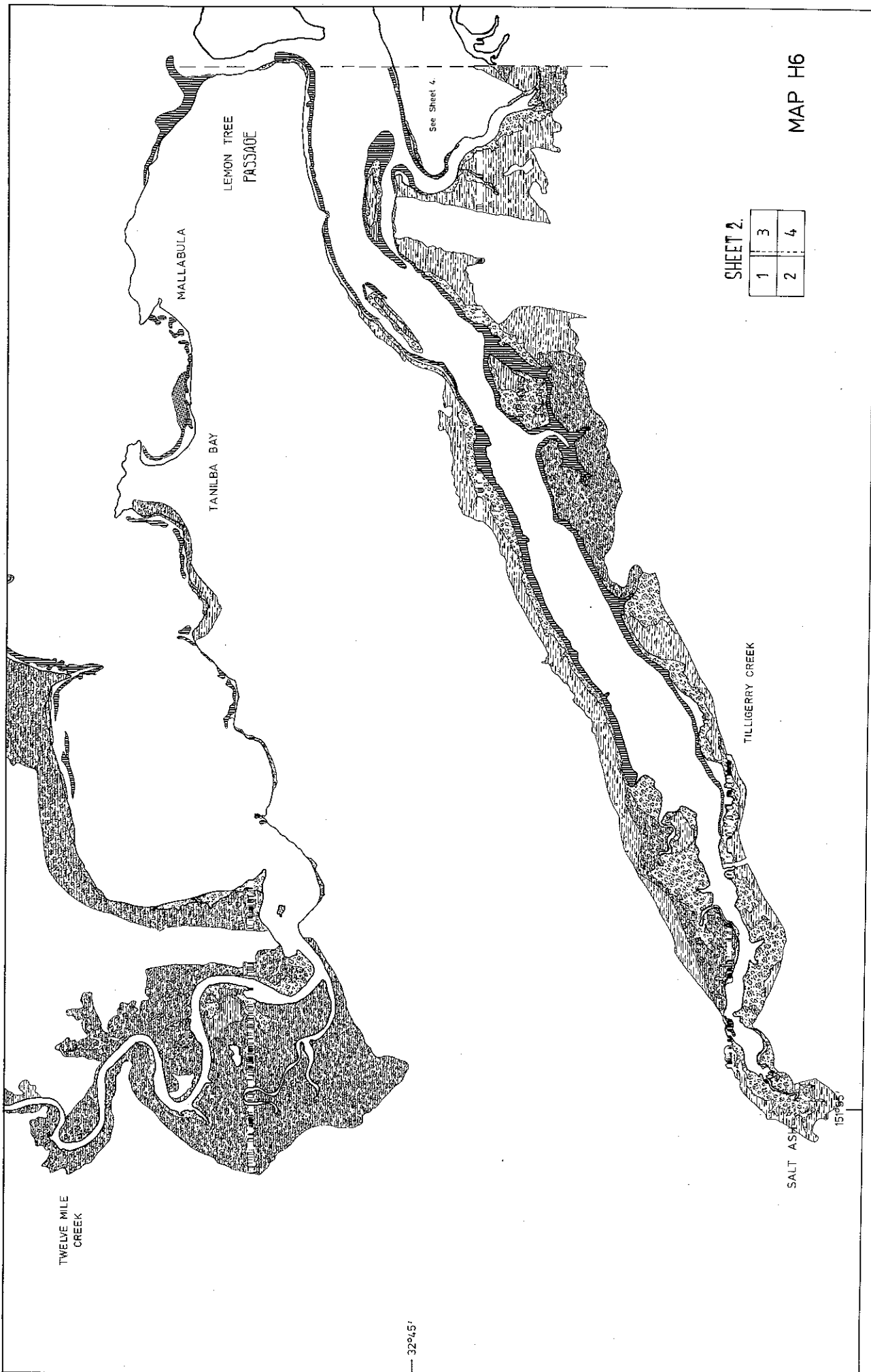
C.M.A. SHEETS KARUAH PORT STEPHENS
WILLIAMTOWN MORNA POINT

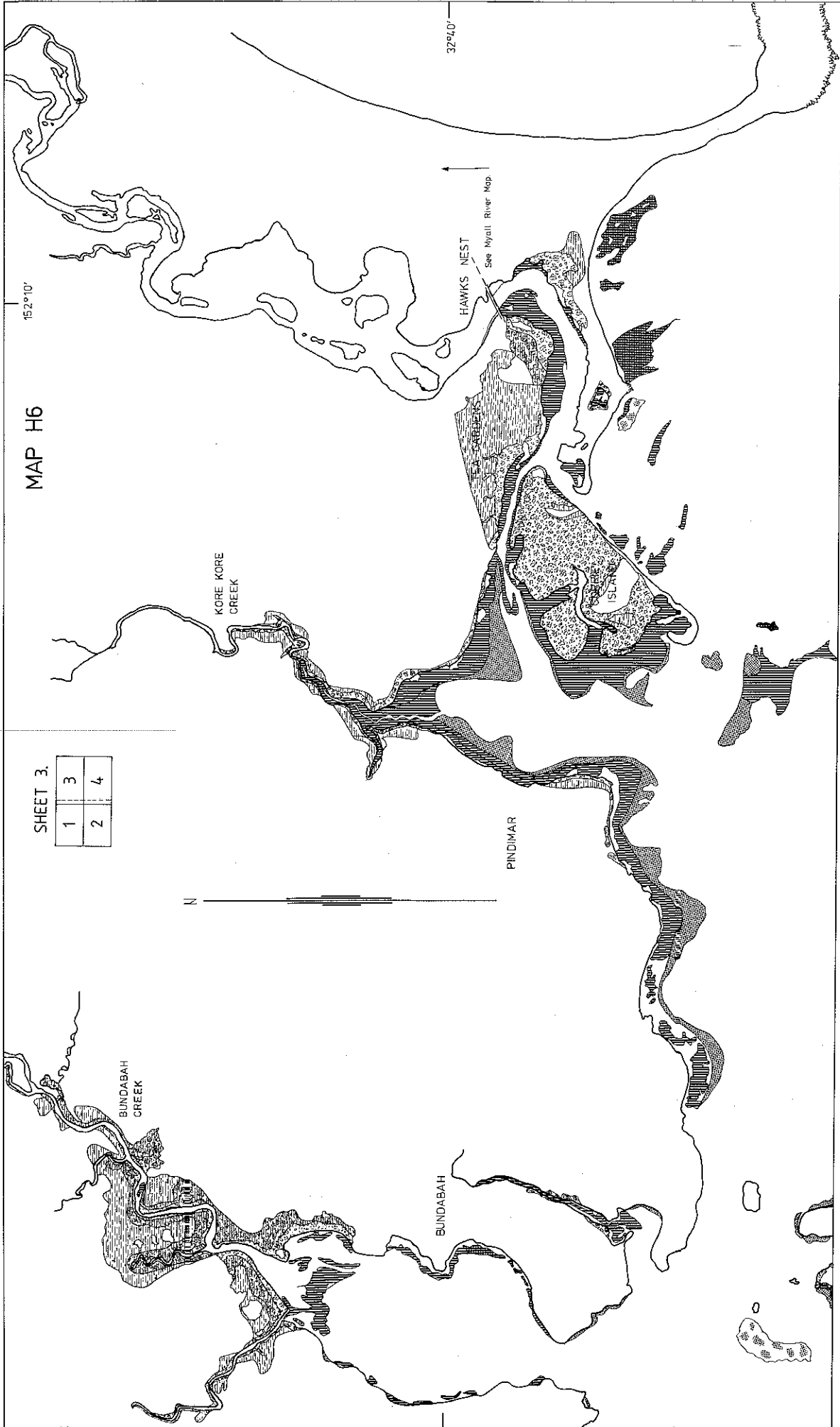
Aerial photo series Port Stephens (Gosco) 1973 &
N.S.W. Coastline, Newcastle 1:25000 1976-77
Field surveys October-November 1981
Prepared by Ron West and Trudy Walford

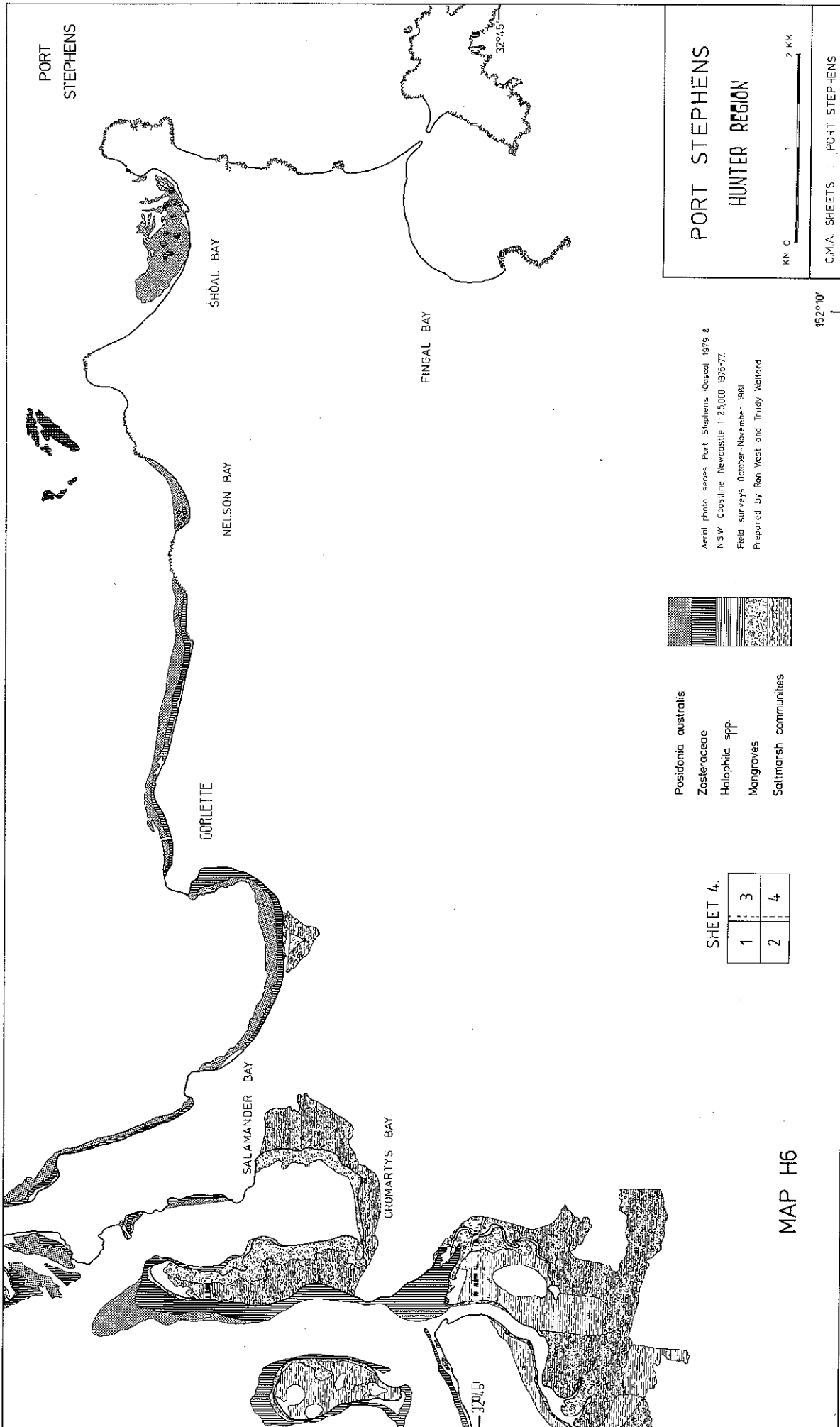


- Posidonia australis
- Zosteraceae
- Halophila spp.
- Mangroves
- Saltmarsh communities

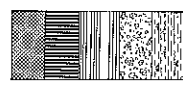
See Sheet 3.







- Posidonia australis
- Zosteraceae
- Halophila spp
- Mangroves
- Saltmarsh communities



Aerial photo series Port Stephens (Kessell 1975 & NSW Coastline Newcastle 1:25,000 1976-77)
 Field Surveys October-November 1981
 Prepared by Ron West and Trudy Watford

PORT STEPHENS

HUNTER REGION



C.M.A. SHEETS : PORT STEPHENS

SHEET 4.

1	3
2	4

MAP H6

HUNTER RIVER
HUNTER REGION



C.M.A. SHEETS : BERESFIELD, NEWCASTLE
 WALLSEND, WILLIAMTOWN

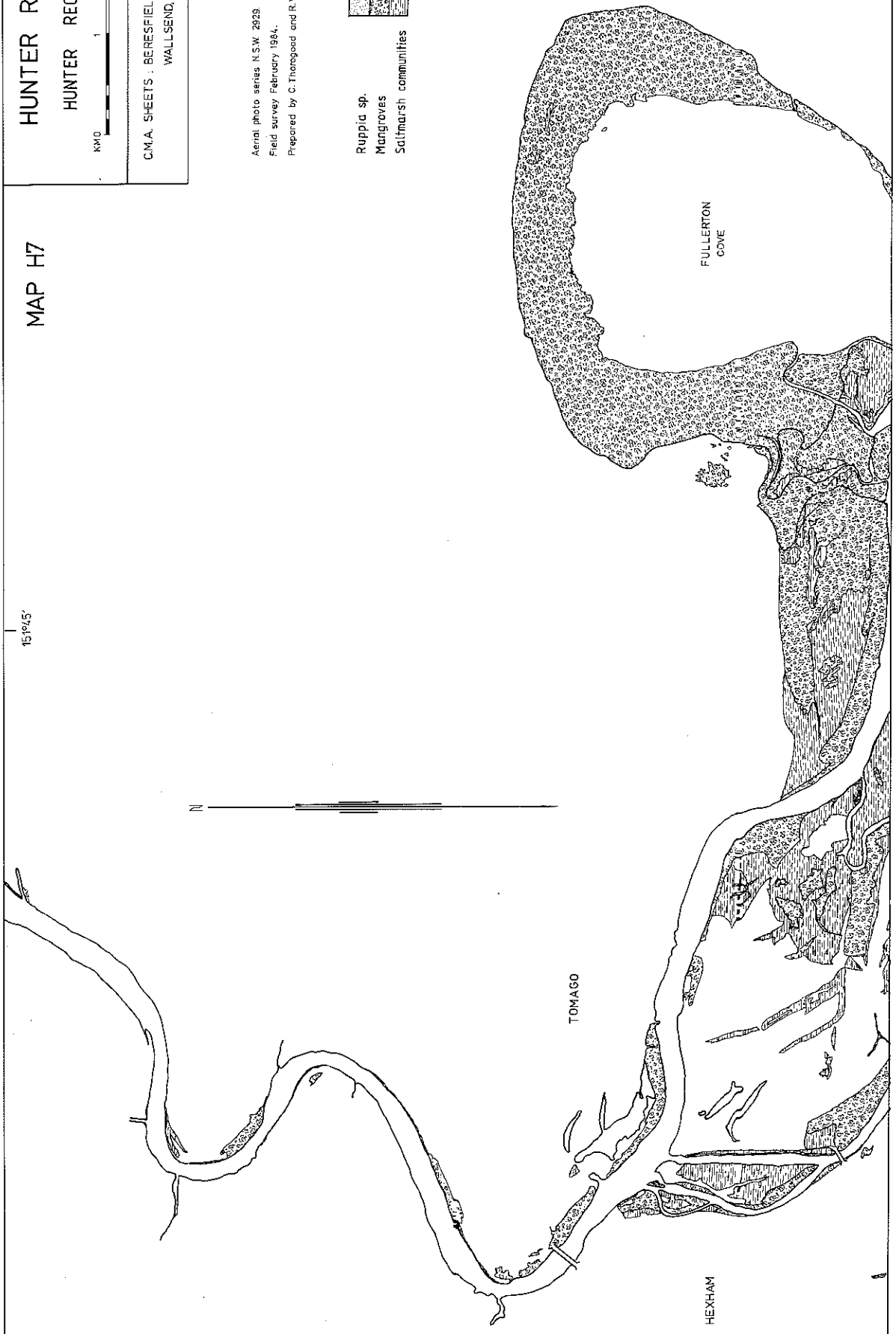
Aerial photo series N.S.W. 2929 - 981.
 Field survey February 1984.
 Prepared by C. Thorpe and R. West.

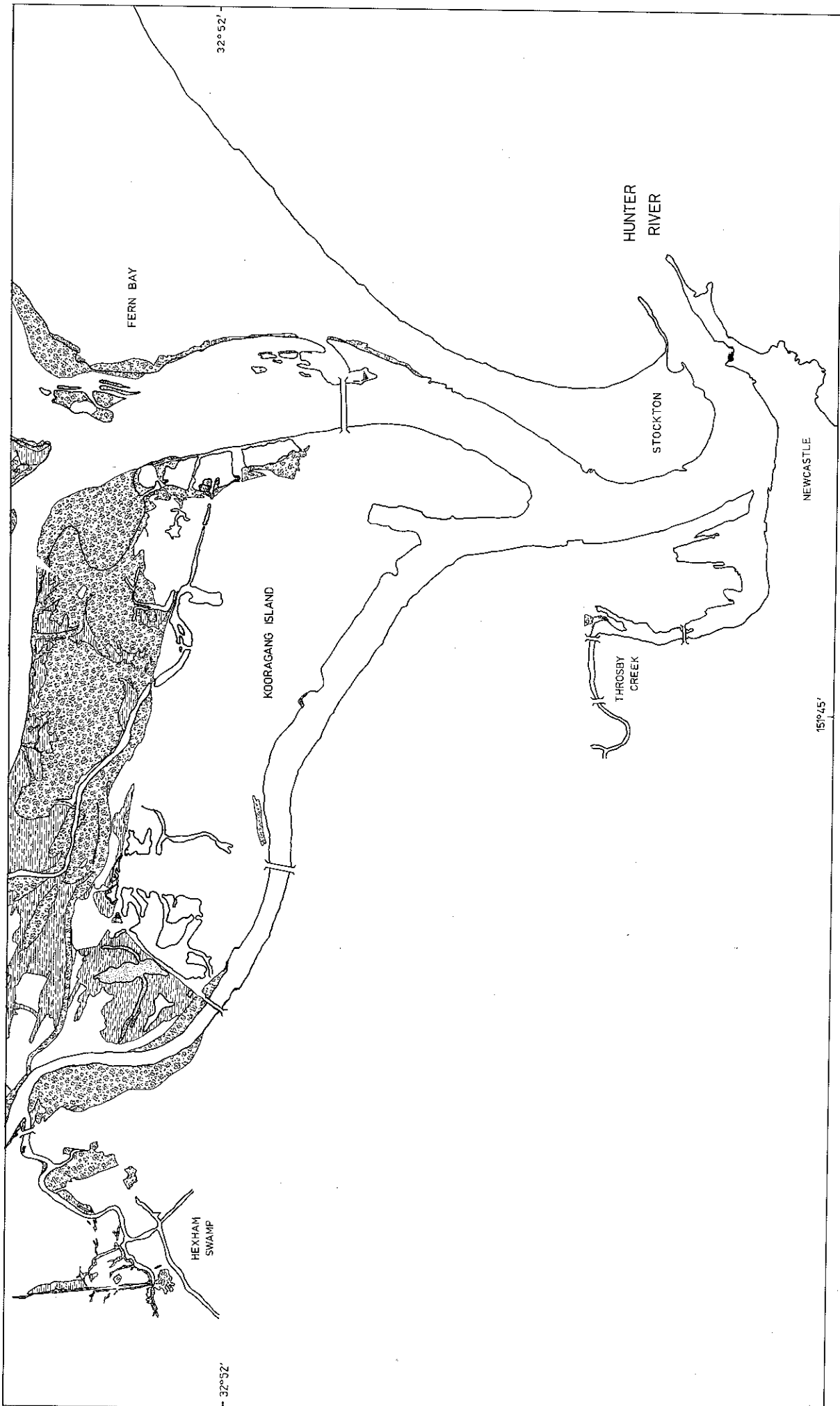


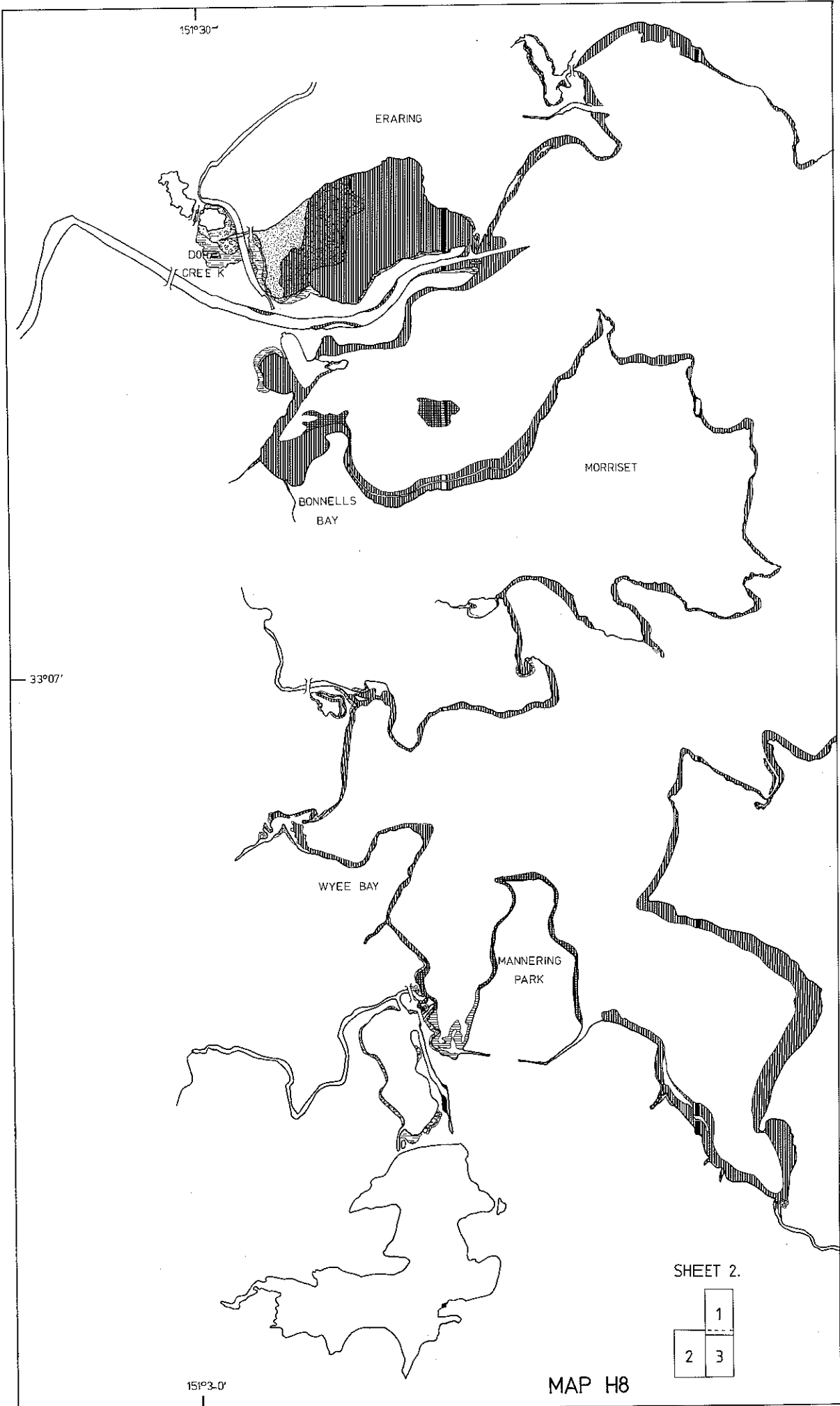
Ruppia sp.
 Mangroves
 Saltmarsh communities

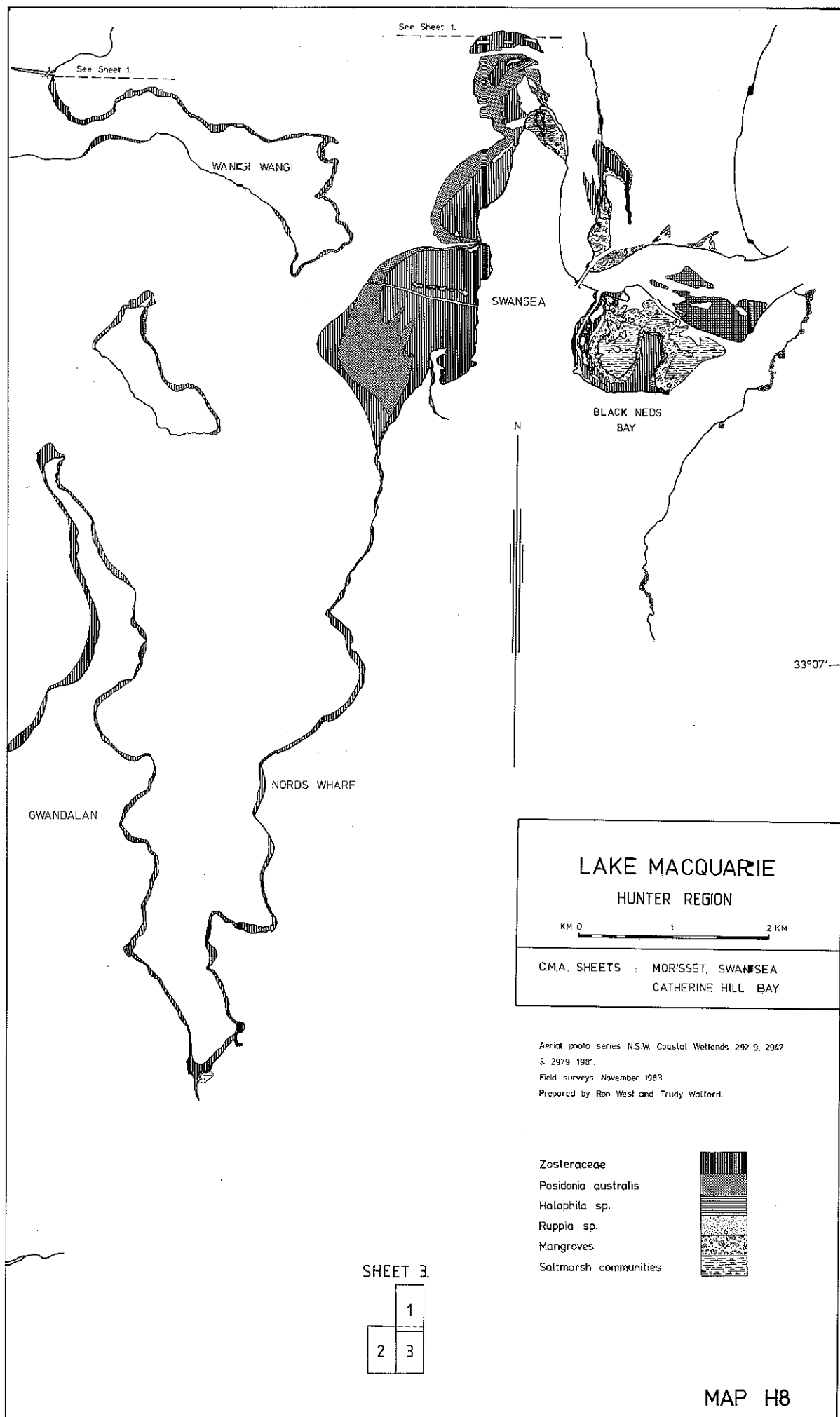
MAP H7

151°45'









See Sheet 1.

See Sheet 1.

WANGI WANGI

SWANSEA

BLACK NEDS BAY

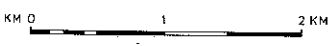
GWANDALAN

NORDS WHARF



33°07'

LAKE MACQUARIE
HUNTER REGION



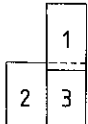
C.M.A. SHEETS : MORISSET, SWANSEA
CATHERINE HILL BAY

Aerial photo series N.S.W. Coastal Wetlands 292 9, 2947
& 2979 1981.
Field surveys November 1983
Prepared by Ron West and Trudy Walford.

- Zosteraceae
- Posidonia australis
- Halophila sp.
- Ruppia sp.
- Mangroves
- Saltmarsh communities

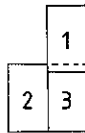


SHEET 3.



MAP H8

SHEET 1.



LAKE MACQUARIE HUNTER REGION

KM 0 1 2 KM

C.M.A. SHEETS : WALLSEND, SWANSEA

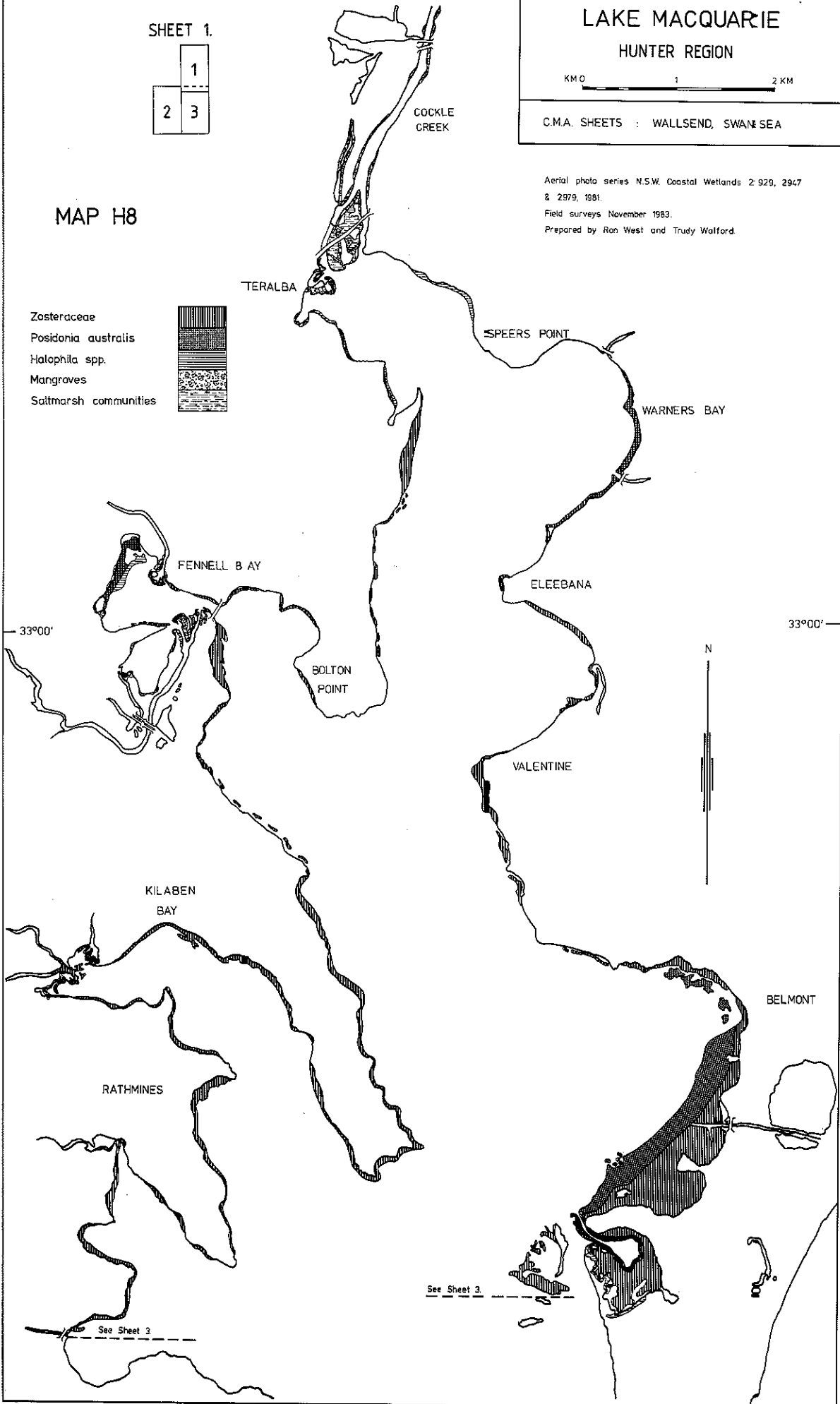
Aerial photo series N.S.W. Coastal Wetlands 2-929, 2947 & 2979, 1981.

Field surveys November 1983.

Prepared by Ron West and Trudy Walford.

MAP H8

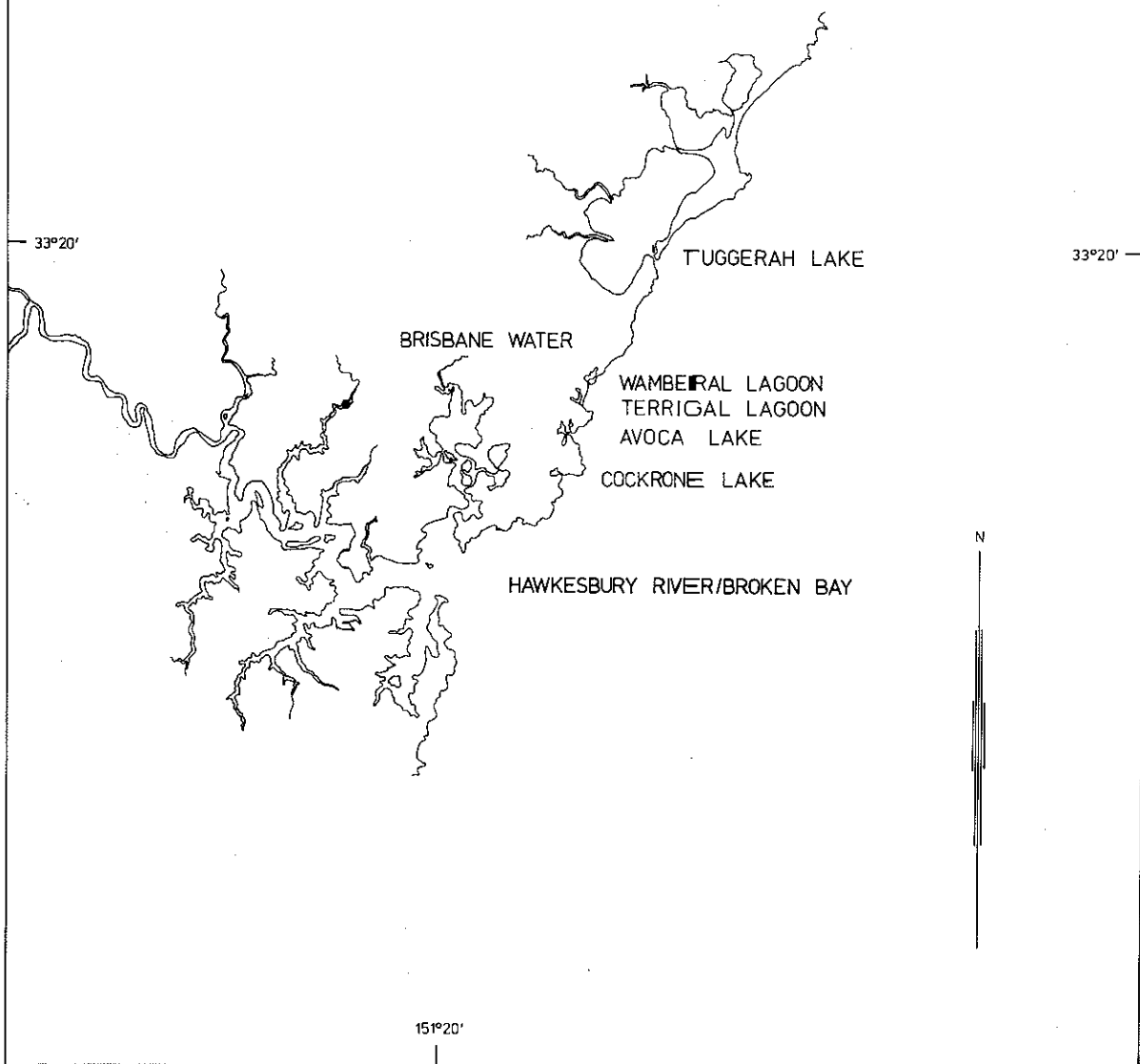
- Zosteraceae
- Posidonia australis
- Halophila spp.
- Mangroves
- Saltmarsh communities



GOSFORD/WYONG REGION
ESTUARIES AND LAGOONS

0 10 20 KM

C.M.A. 1:250 000 SHEETS : SYDNEY



TUGGERAH LAKE
GOSFORD/WYONG REGION

151°35'

MAP GW1

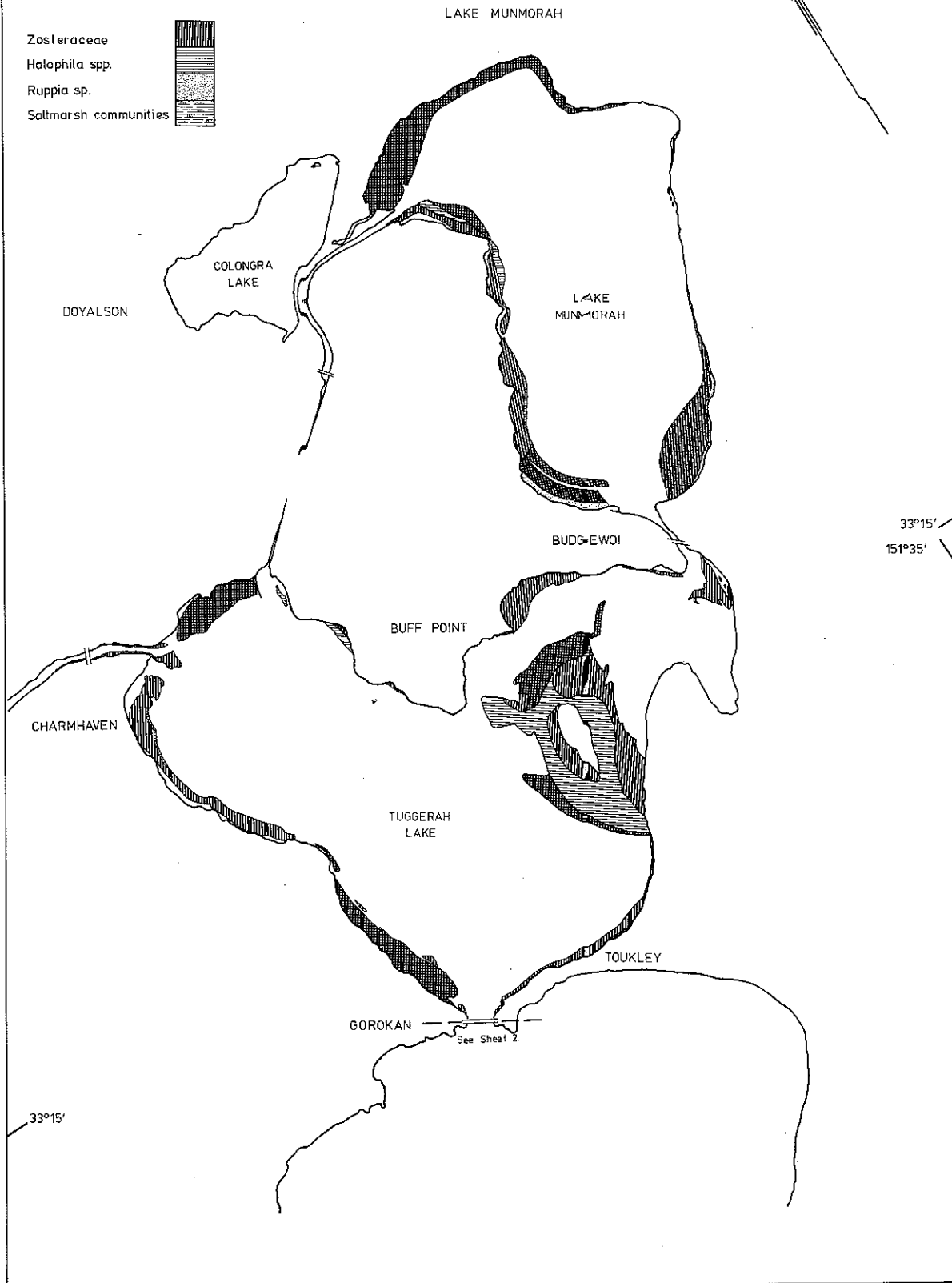
SHEET 1.

KM 0 1 2 KM

C.M.A. SHEETS : CATHERINE HILL BAY
TOUKLEY

Aerial photo series N.S.W. 2765, 2787 & 2806
Field survey December 1983
Prepared by C.Thorogood and R.West.

Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities



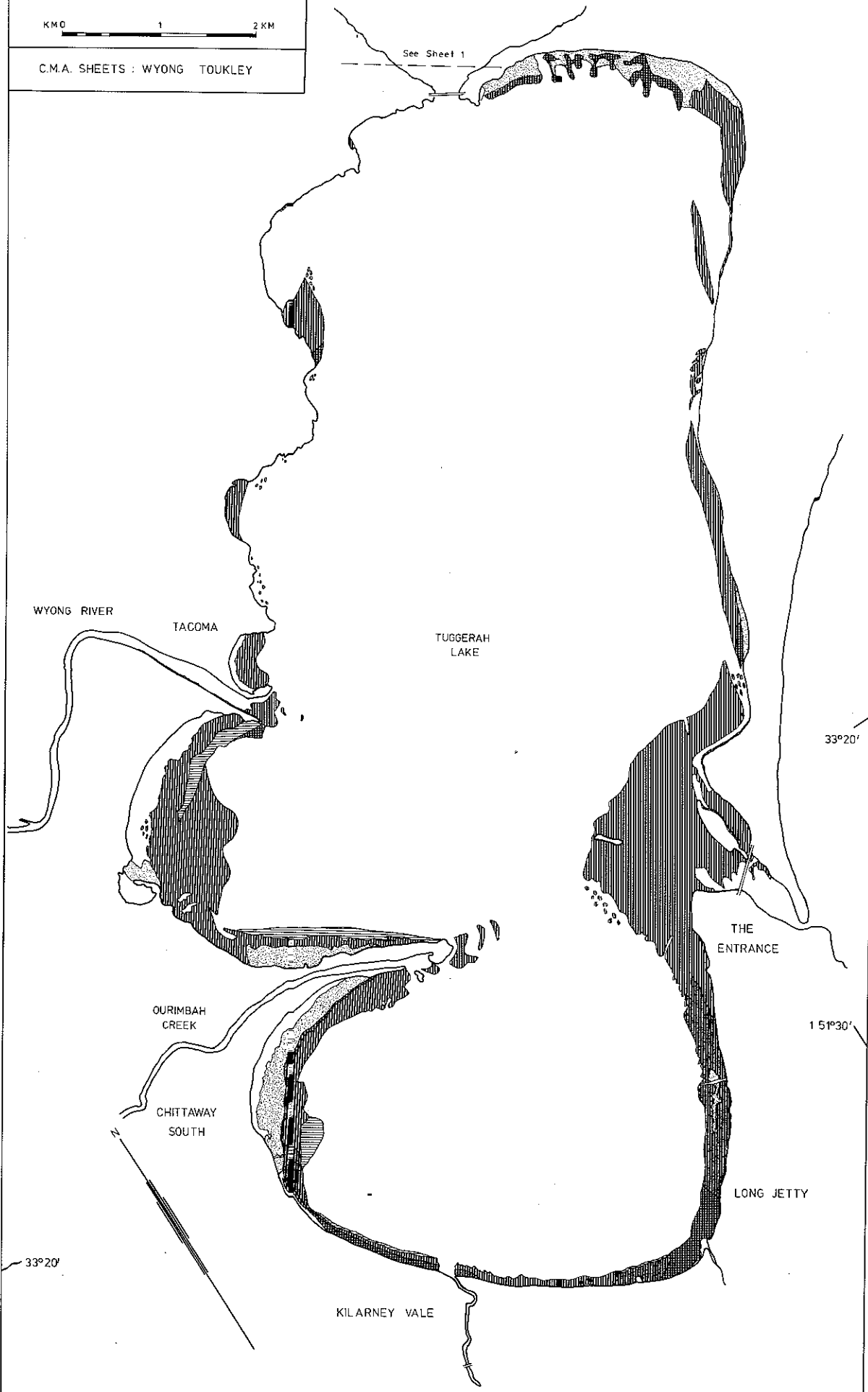
TUGGERAH LAKE
GOSFORD/WYONG REGION

SHEET 2.

MAP GW1



C.M.A. SHEETS : WYONG TOUKLEY



GOSFORD LAGOONS

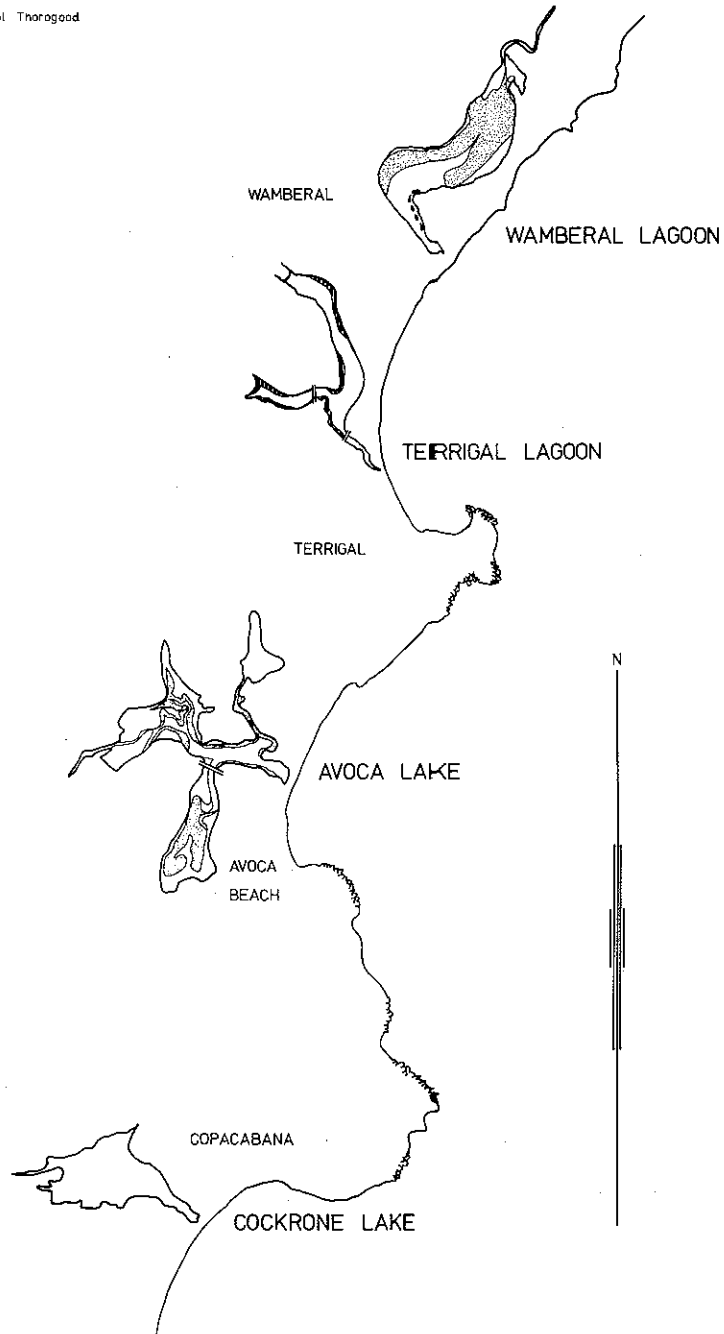
GOSFORD / WYONG REGION

KM 0 1 2 KM

C.M.A. SHEETS : GOSFORD

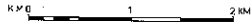
Aerial photo series N.S.W. 2944.
Field survey January 1984.
Prepared by Trudy Walford and Carol Thorogood

Zosteraceae
Ruppia sp.



BRISBANE WATER
GOSFORD/WYONG REGION

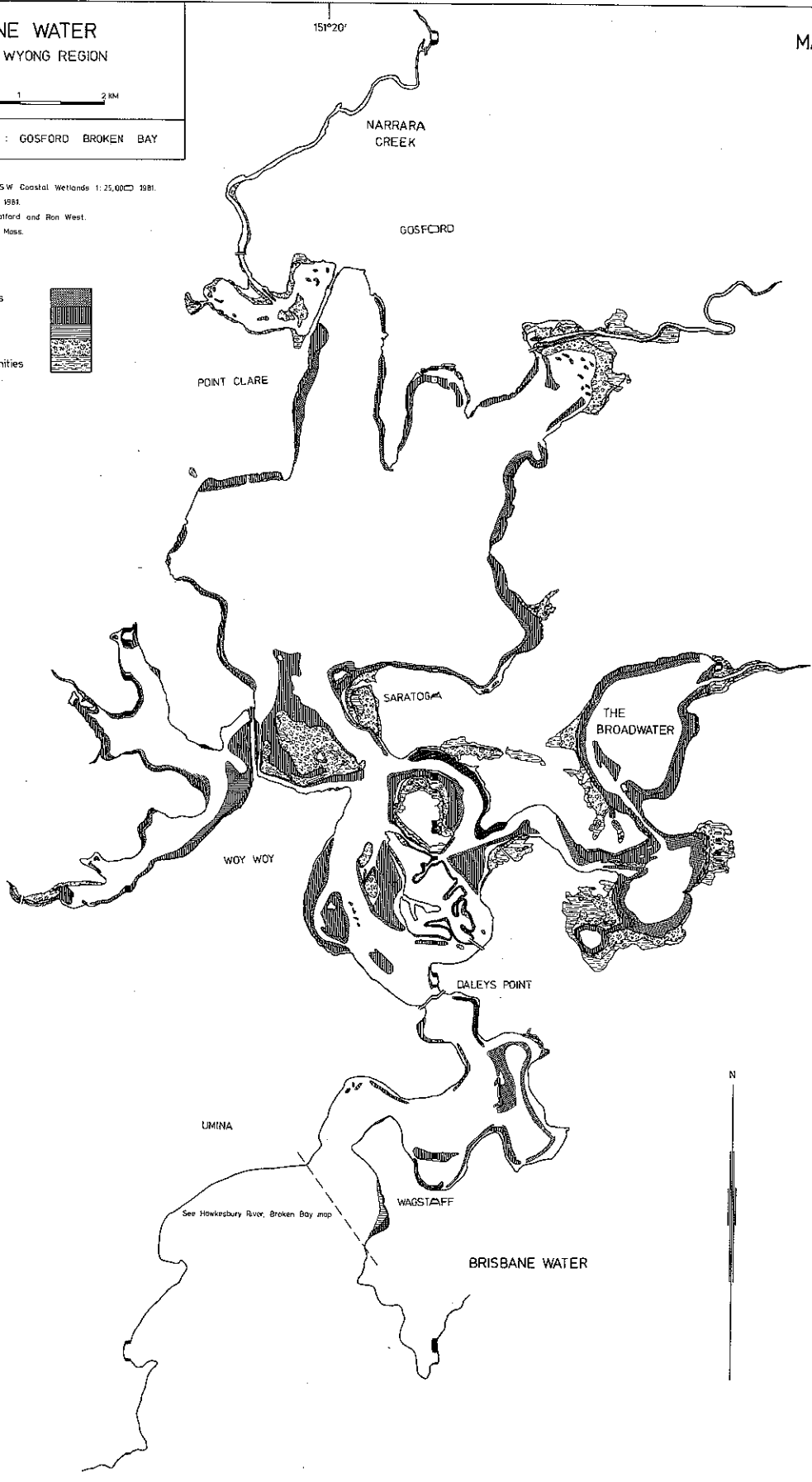
MAP GW3



C.M.A. SHEETS : GOSFORD BROKEN BAY

Aerial photo series N.S.W. Coastal Wetlands 1:25,000 1981.
Field surveys August 1981.
Prepared by Trudy Watford and Ron West.
Acknowledgements: Jo Mass.

- Posidonia australis
- Zosteraceae
- Halophila spp.
- Mangroves
- Saltmarsh communities



33°30'

33°30'

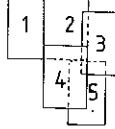
151°20'

151°20'



MAP GW4

SHEET 1



HAWKESBURY RIVER

MANGROVE CREEK

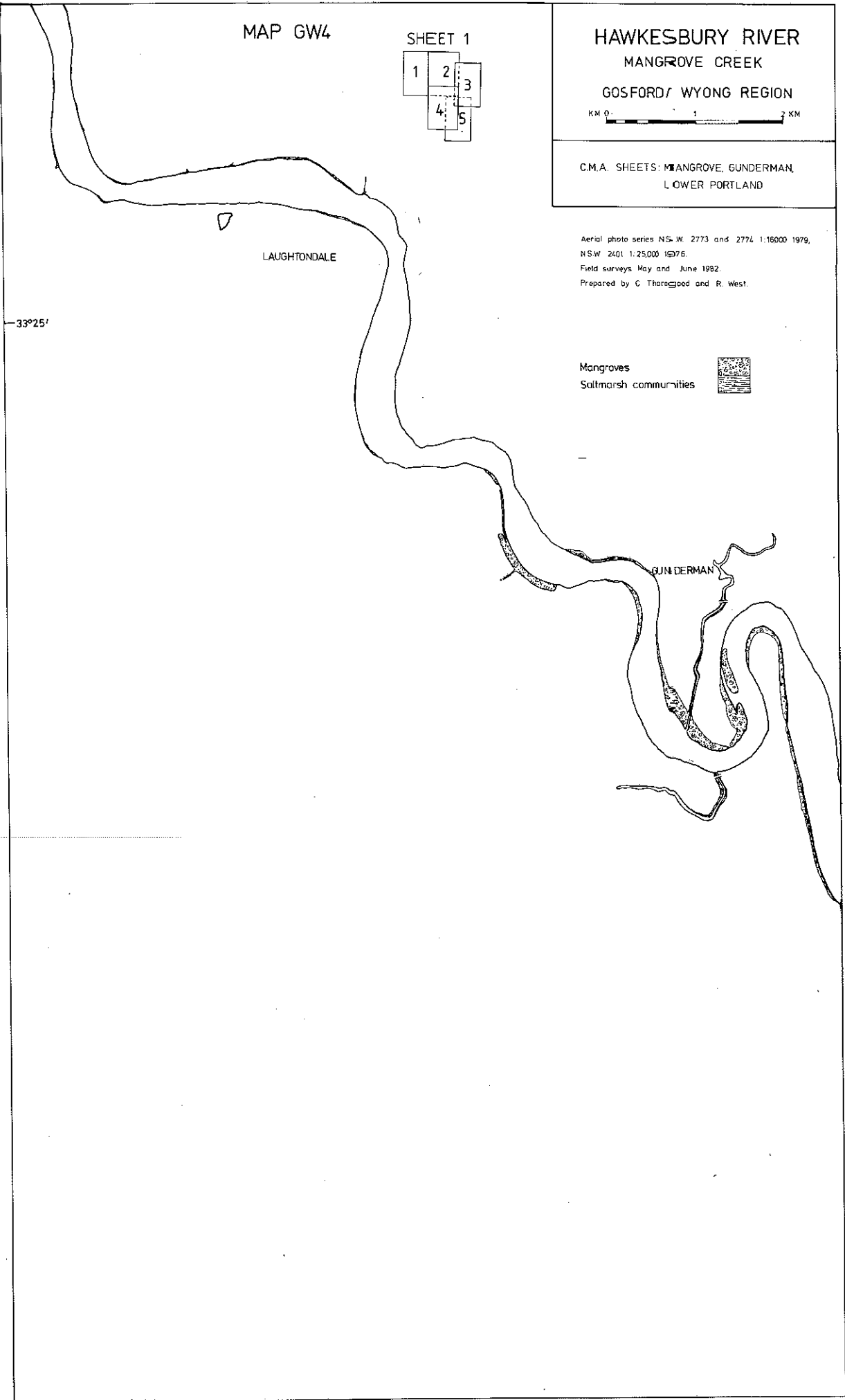
GOSFORD/ WYONG REGION



C.M.A. SHEETS: MANGROVE, GUNDERMAN,
LOWER PORTLAND

Aerial photo series NSW W. 2773 and 2774 1:16000 1979,
NSW 2401 1:25,000 1976.
Field surveys May and June 1982.
Prepared by C. Thorpe and R. West.

Mangroves
Saltmarsh communities



MAP GW4

GREENGROVE

SHEET 2



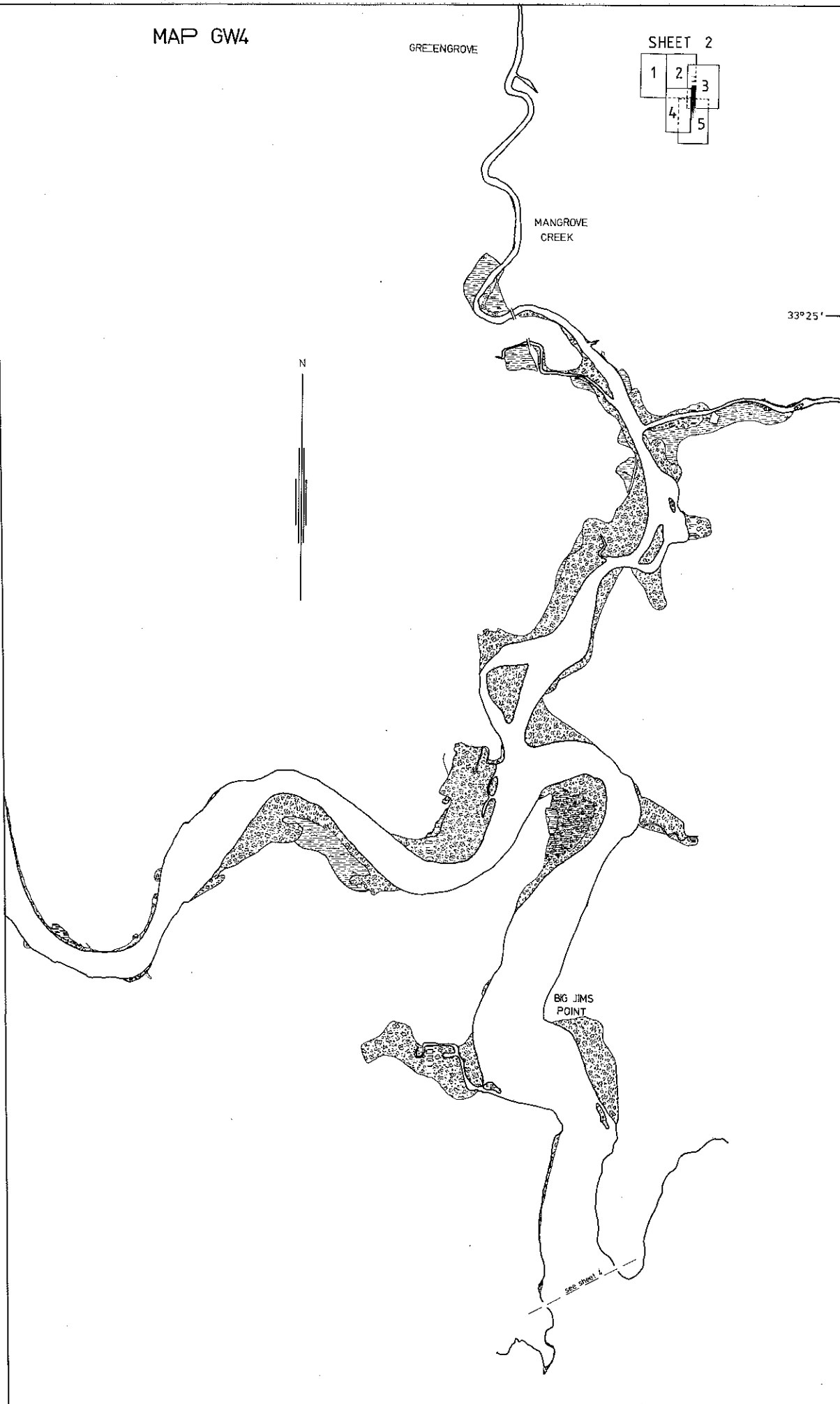
MANGROVE
CREEK

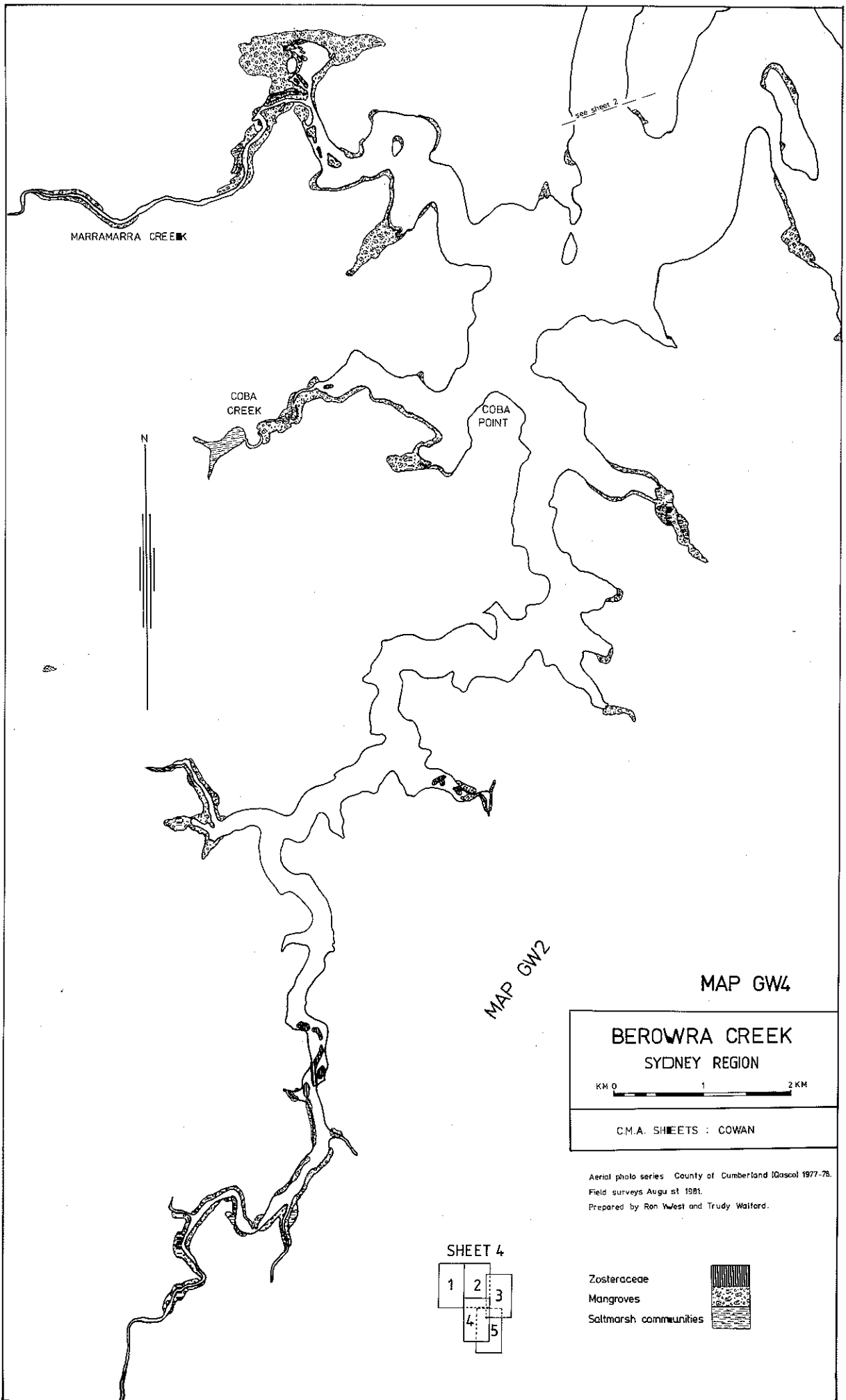
33° 25'

N

BIG JIMS
POINT

SEE SHEET 1





BROKEN BAY
HAWKESBURY RIVER

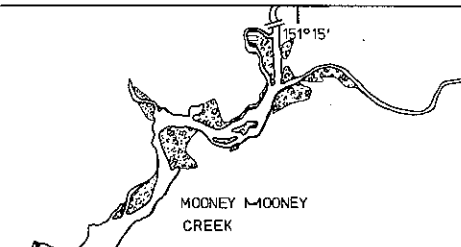
GOSFORD / WYONG REGIO N

KM 0 1 2

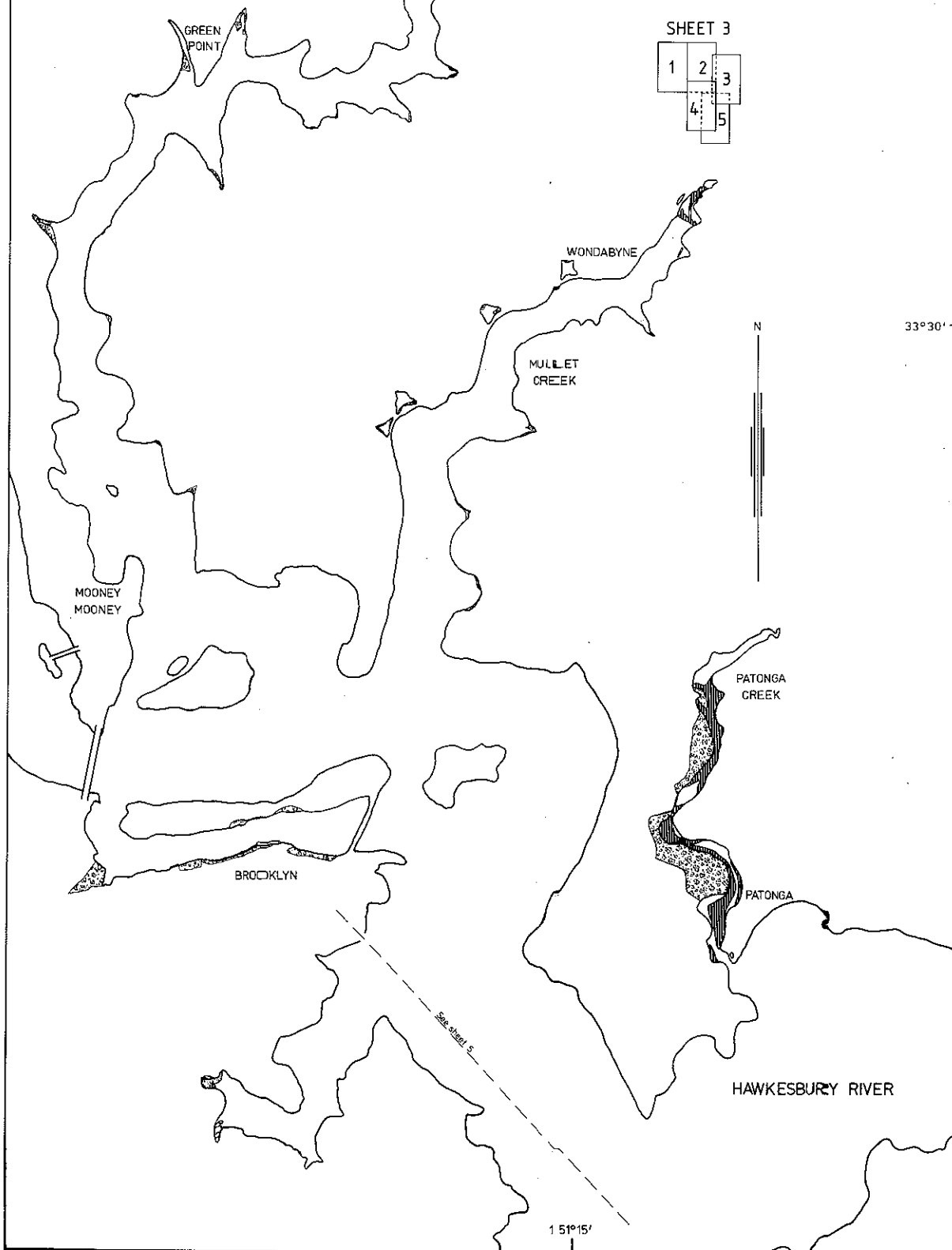
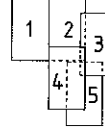
C.M.A. SHEETS : GOSFORD, GUNDER MAN
BROKEN BAY, COWAN

Aerial photo series N.S.W. 2799 1:40,000 1979
N.S.W. 2401 1:25,000 1976
Field surveys May 1982.
Prepared by Carol Thorogood and Ron West

MAP GW4



SHEET 3



COWAN CREEK
SYDNEY REGION

MAP GW4

KM 0 1 2 KM

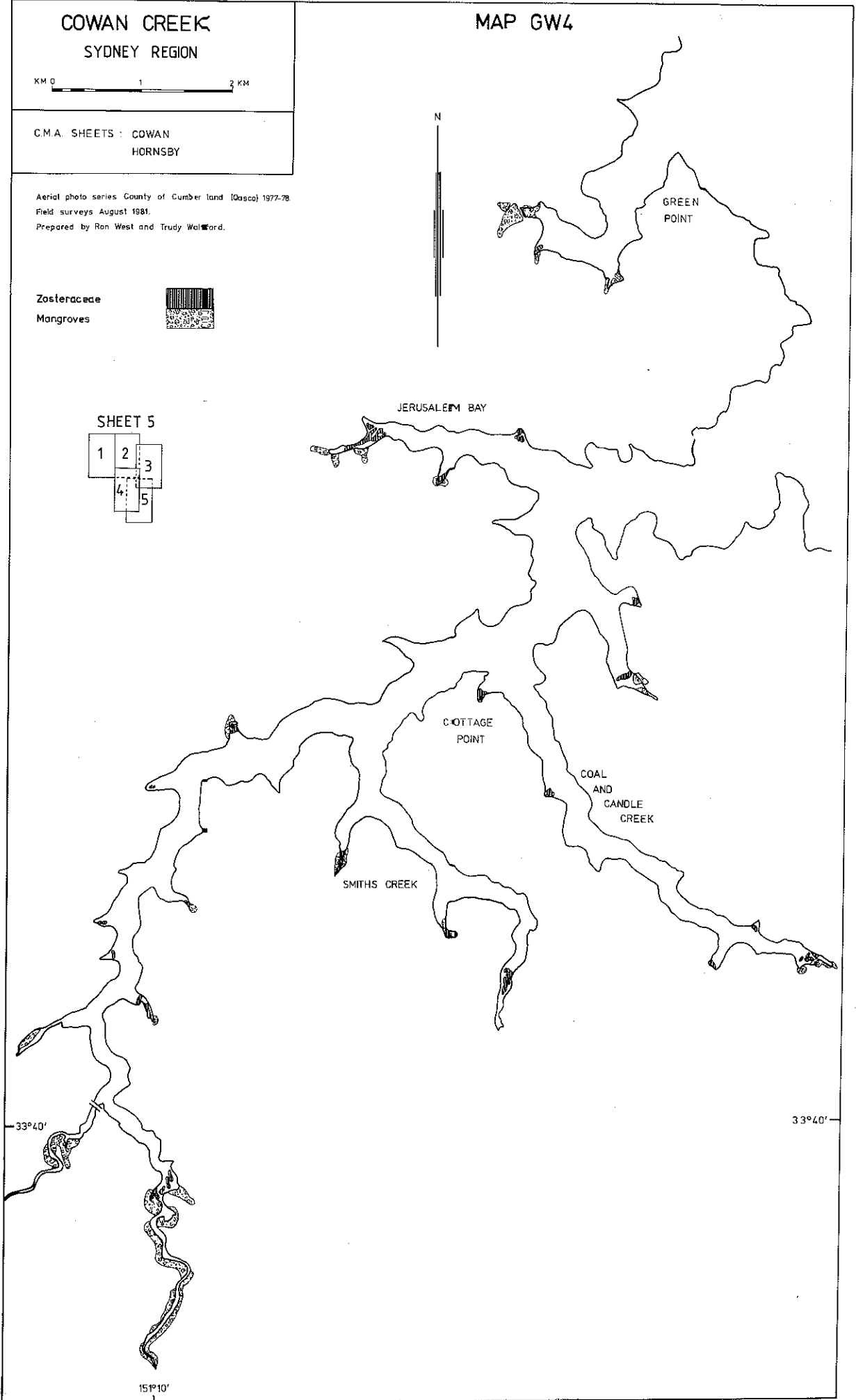
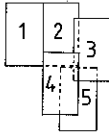
C.M.A. SHEETS : COWAN
HORNSBY

Aerial photo series County of Cumberland (Qasco) 1977-78
Field surveys August 1981.
Prepared by Ron West and Trudy Walford.

Zosteraceae
Mangroves



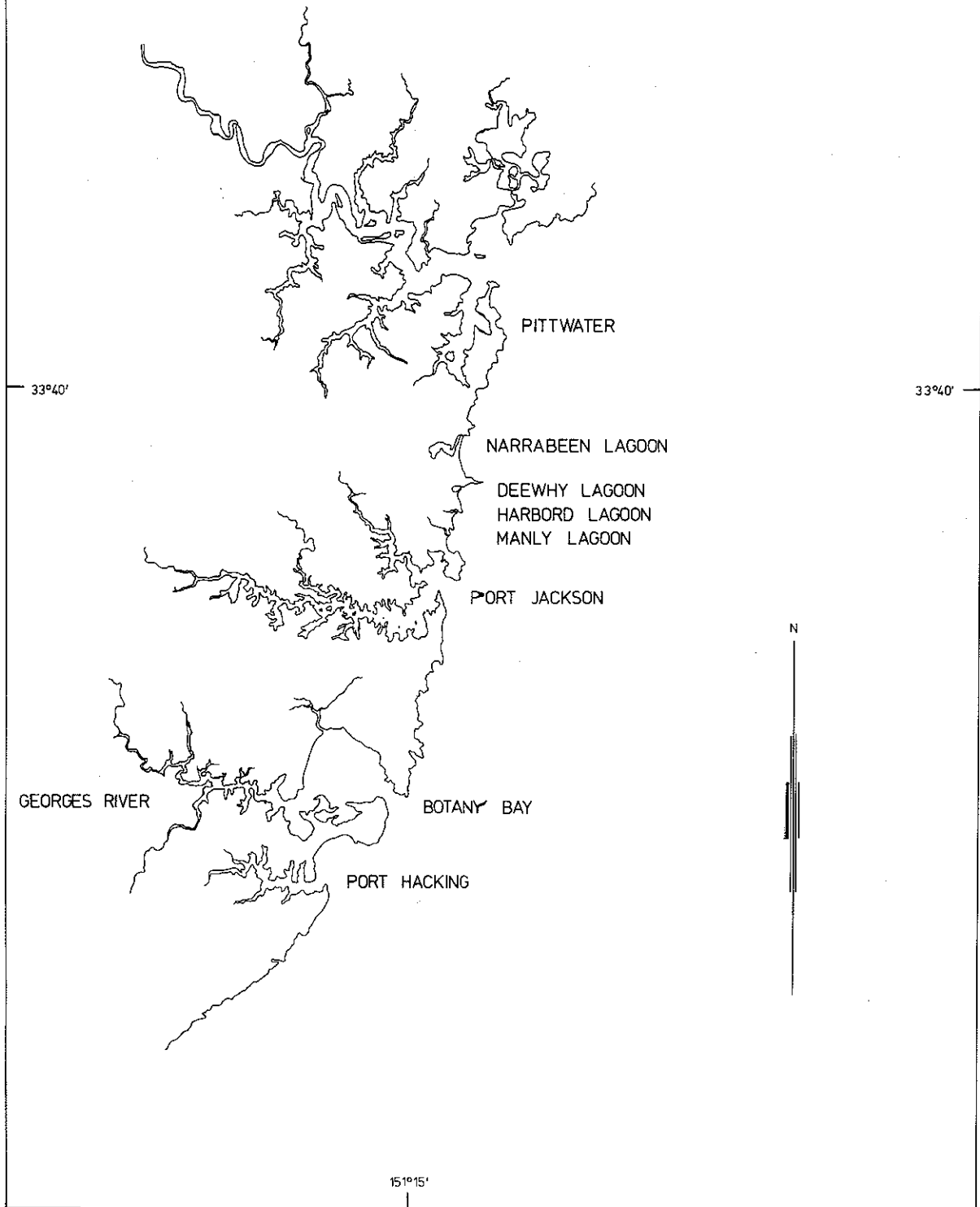
SHEET 5



SYDNEY REGION ESTUARIES AND LAGOONS

0 10 20 KM

C.M.A. 1:250 000 SHEETS : SYDNEY WOLLONGONG



PITTWATER R

SYDNEY REGION

KM 0 1 2

151°20'

MAP SY1

C.M.A. SHEETS : BROKEN BAY
MONA VALE

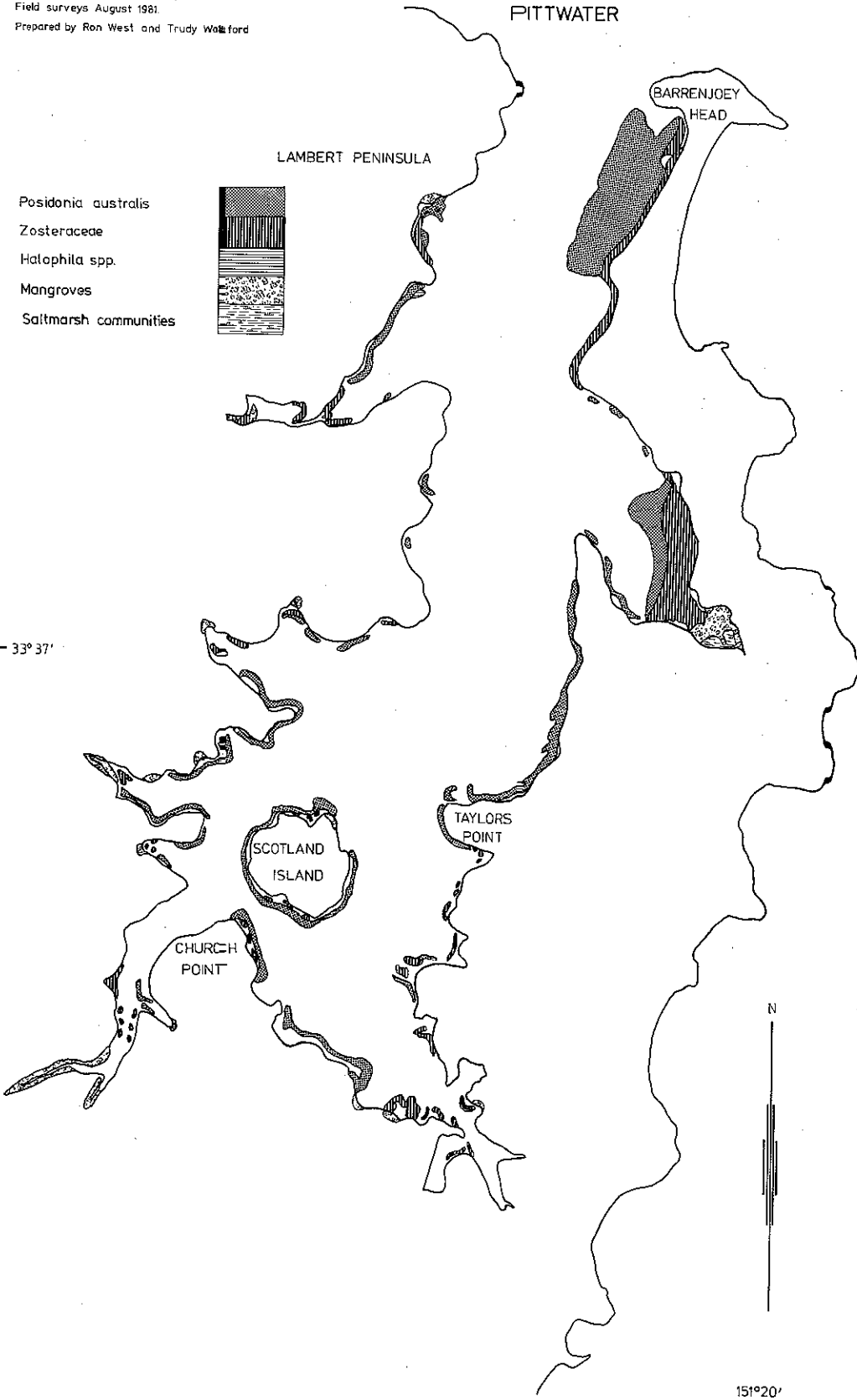
Aerial photo series County of Cumberland (Gasco) 1977-78.
Field surveys August 1981.
Prepared by Ron West and Trudy Wolford

PITTWATER

LAMBERT PENINSULA

BARRENJOEY HEAD

Posidonia australis
Zosteraceae
Halophila spp.
Mangroves
Saltmarsh communities



33° 37'



151°20'

NORTHERN LAGOONS

SYDNEY REGION

KM 0 1 2 KM

C.M.A. SHEETS : MONA VALE
SYDNEY HEADS

151°20'

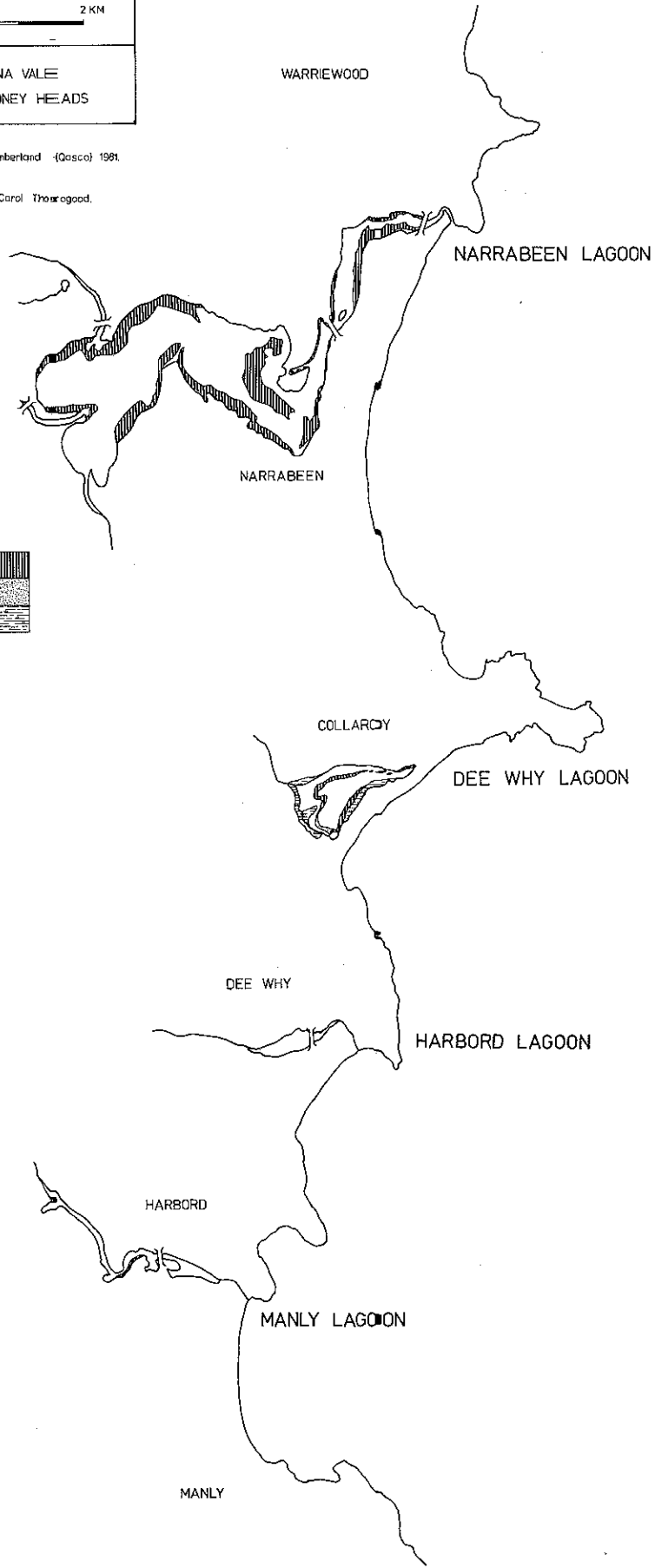
MAP SY2.

Aerial photo series County of Cumberland (Gasco) 1981.
Field surveys September 1983.
Prepared by Trudy Walford and Carol Thorogood.

Zosteraceae

Ruppia spp.

Saltmarsh communities



33°45'

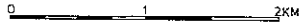
33°45'

151°20'

PORT JACKSON
SYDNEY REGION

151°03'

MAP SY3.



C.M.A. SHEET : PARRAMATTA
RIVER

SHEET 1

1	2	3
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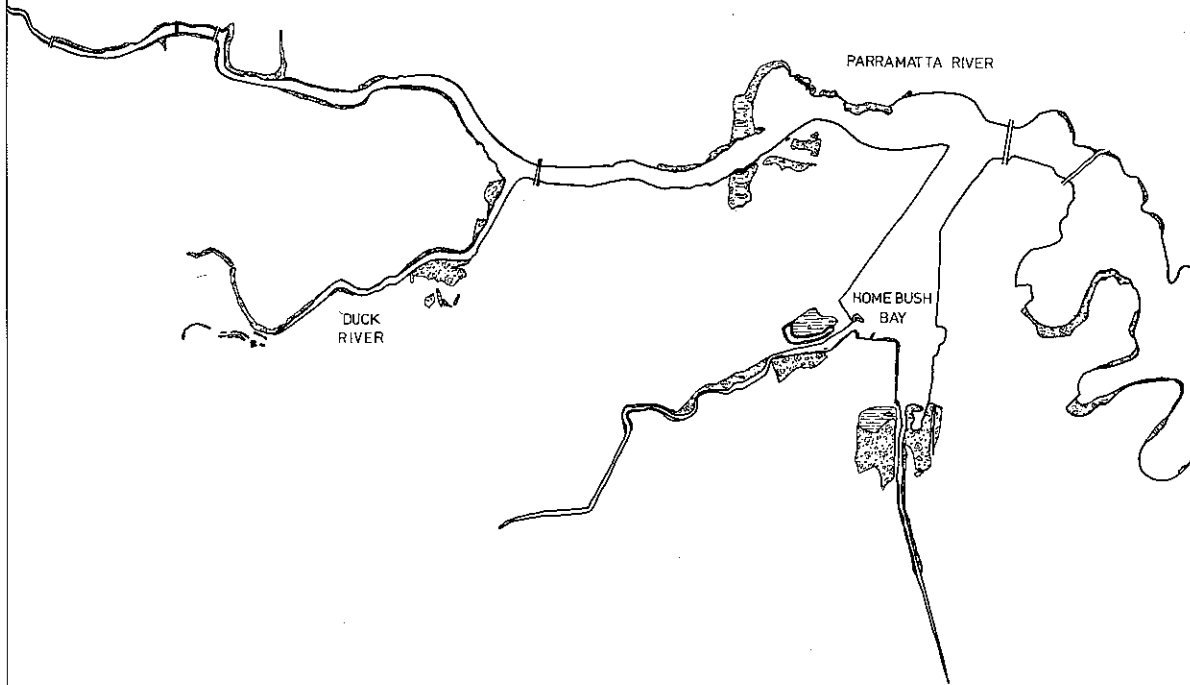
Aerial photo series N.S.W. 3240, 3241 & 3242.
Field survey January 1981.
Prepared by C. Therogood.
Acknowledgments: P. Evans and J. Messersmith

Mangroves
Saltmarsh communities



33°48'

33°48'



151°03'

PORT JACKSON
SYDNEY REGION

0 1 2KM

C.M.A. SHEETS: BOTANY BAY
SYDNEY HEADS, PARRAMATTA RIVER

Aerial photo series N.S.W. 3240, 3241, 3242

Field survey January 1981.

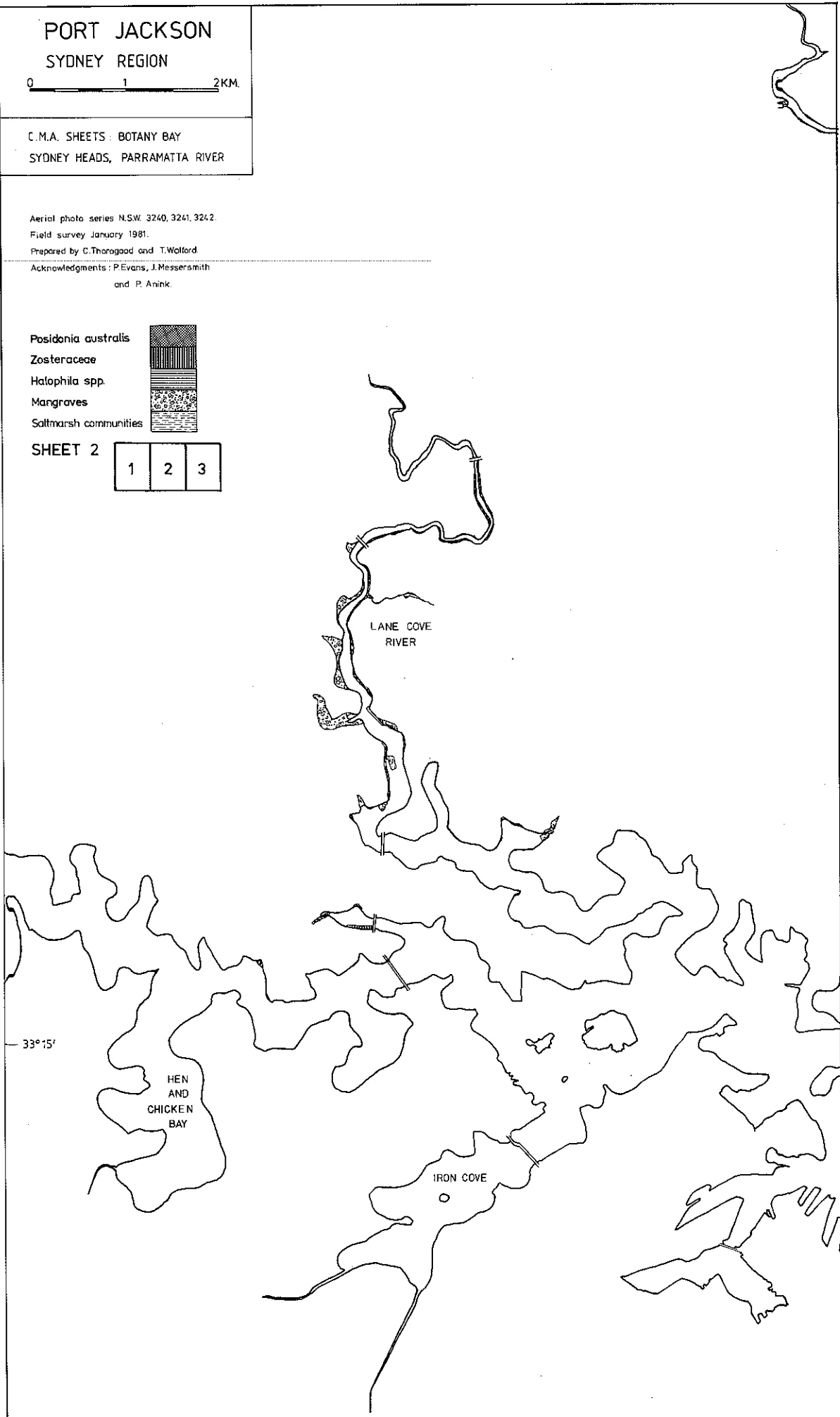
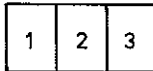
Prepared by C.Thorogood and T.Wallford

Acknowledgments: P.Evans, J.Messersmith
and P. Anink

Posidonia australis
Zosteraceae
Halophila spp.
Mangroves
Saltmarsh communities



SHEET 2

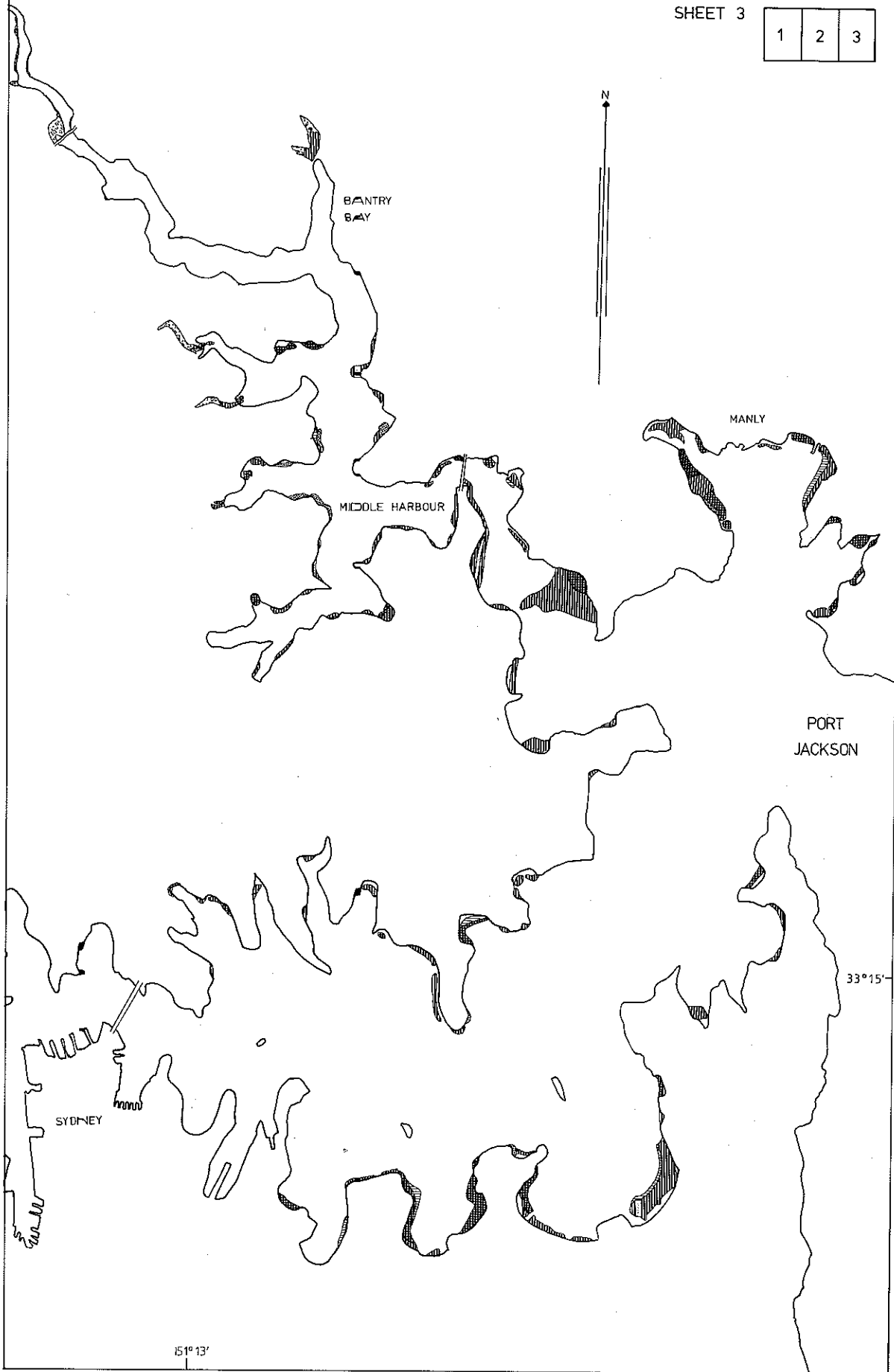


151°13'

MAP SY3.

SHEET 3

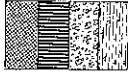
1	2	3
---	---	---



151°13'

33°15'

MAP SY4.



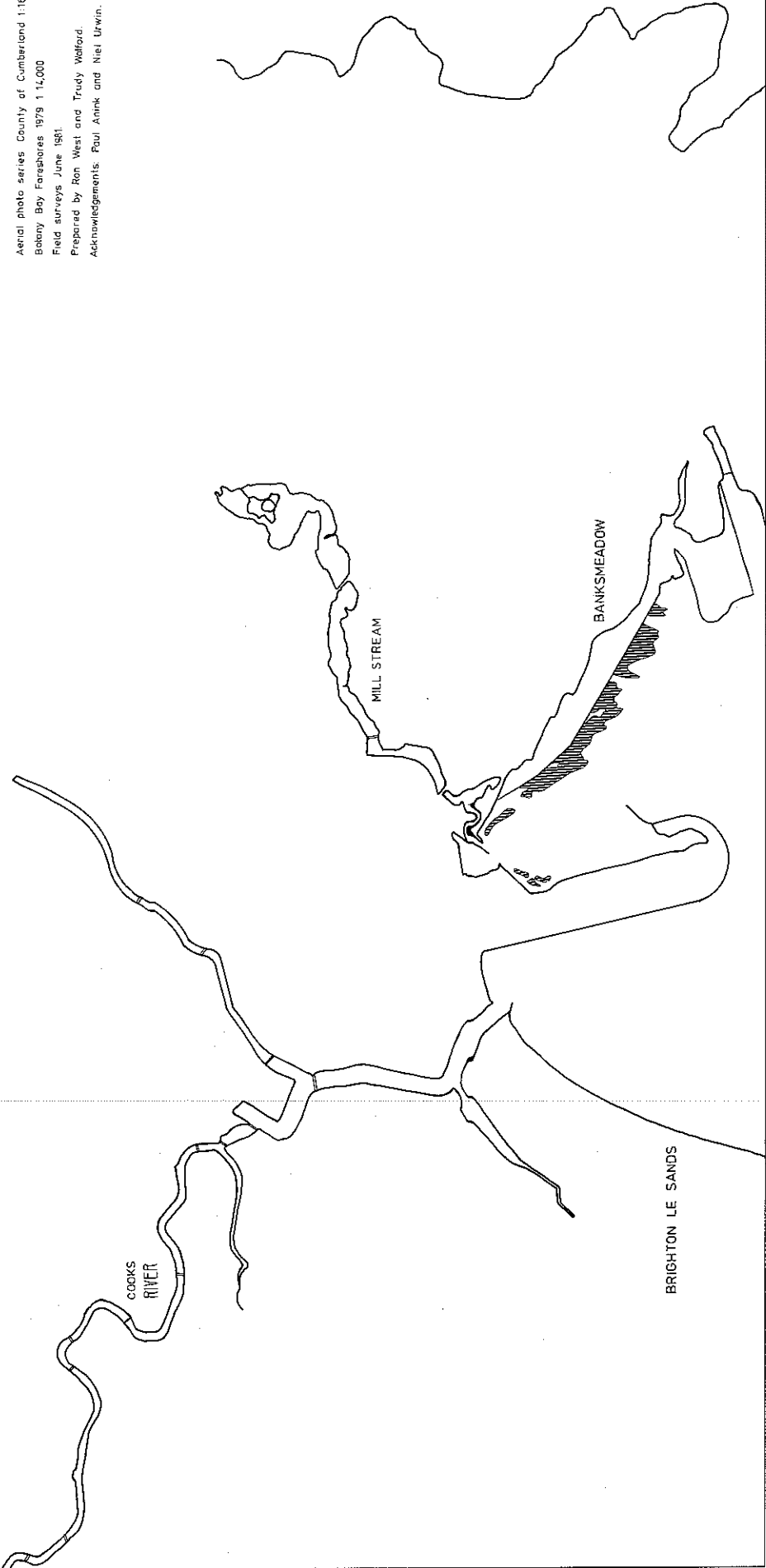
- Posidonia australis
- Zosteraceae
- Mangroves
- Saltmarsh communities

BOTANY BAY
SYDNEY REGION

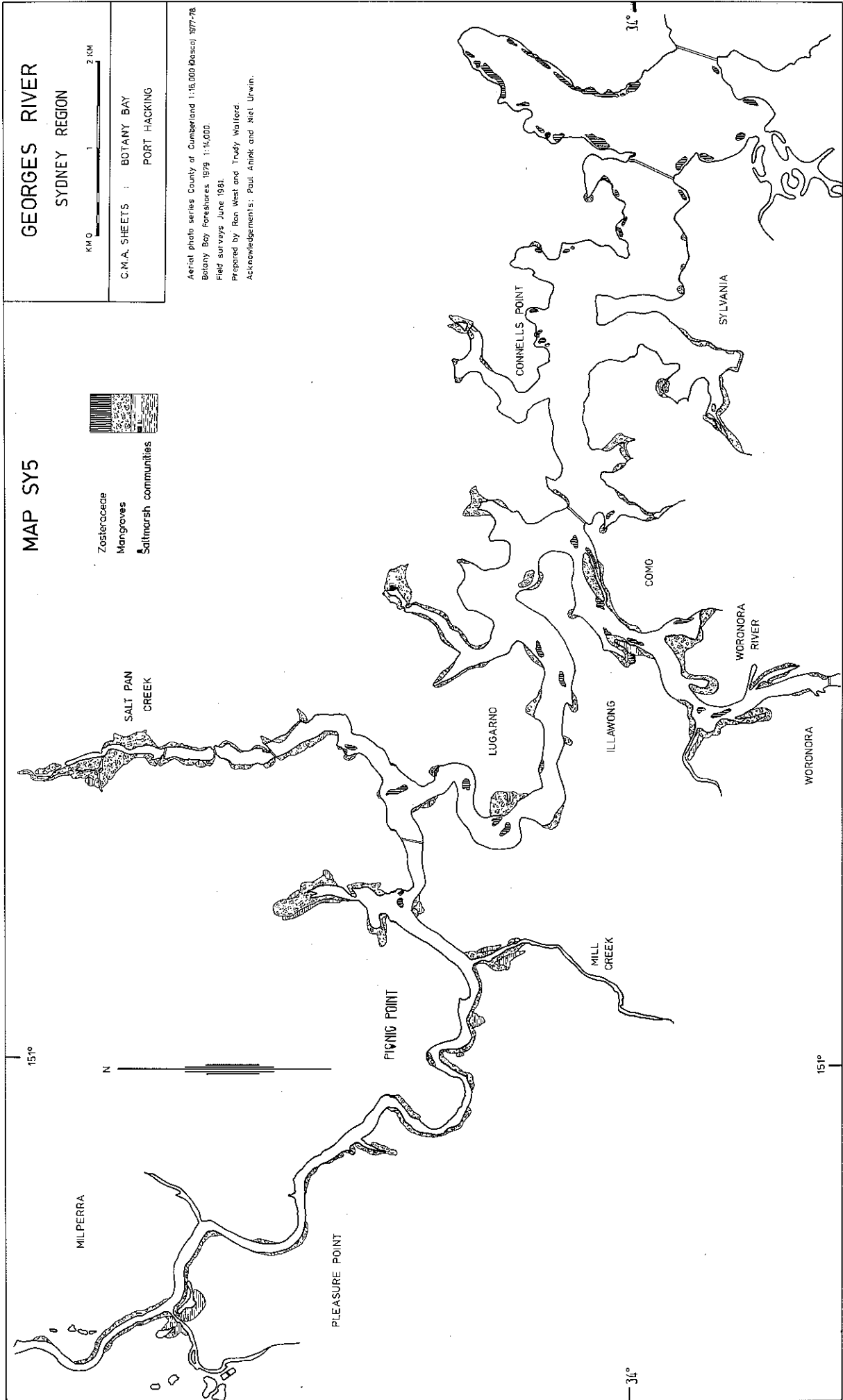


C.M.A. SHEETS : BOTANY BAY
PORT HACKING

Aerial photo series County of Cumberland 1:18,000 (Daseol 1977-78)
 Botany Bay Foreshores 1979 1:14,000
 Field surveys June 1981
 Prepared by Ron West and Trudy Walford.
 Acknowledgements: Paul Anink and Niel Urwin.











PORT HACKING
SYDNEY REGION

KM 0 1 2

C.M.A. SHEETS : PORT HACKING

Aerial photo series County of Cumberland (Gasco) 1977-78.
 Field surveys July 1981.
 Prepared by **Ron West** and **Trudy Walford**.

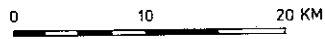
-  *Posidonia australis*
-  Zosteraceae
-  Mangroves
-  Saltmarsh communities



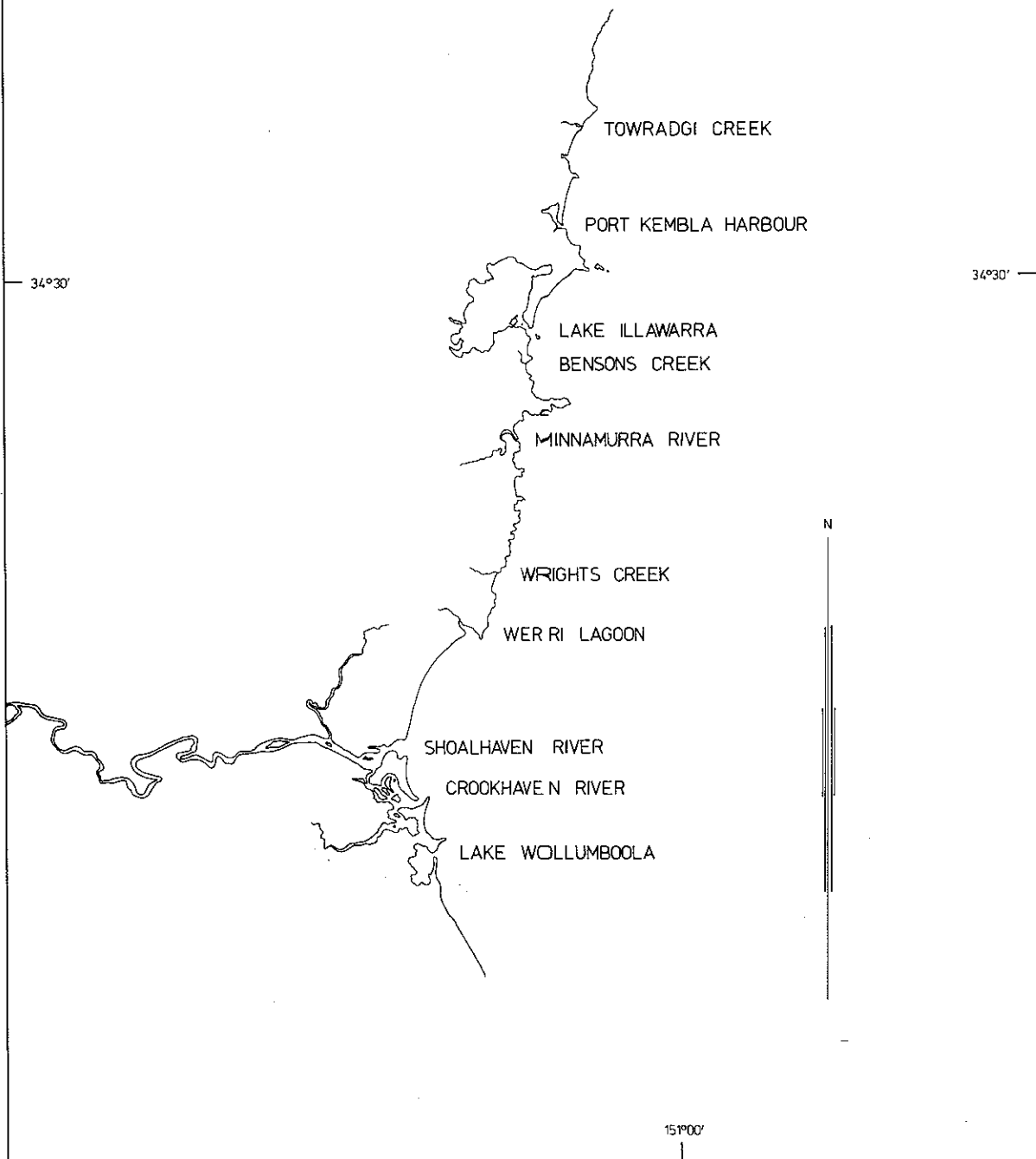
MAP SY6

ILLAWARRA REGION
ESTUARIES AND LAGOONS

SHEET 1

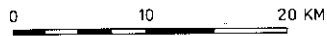


C.M.A. 1:250 000 SHEETS : WOLLONGONG

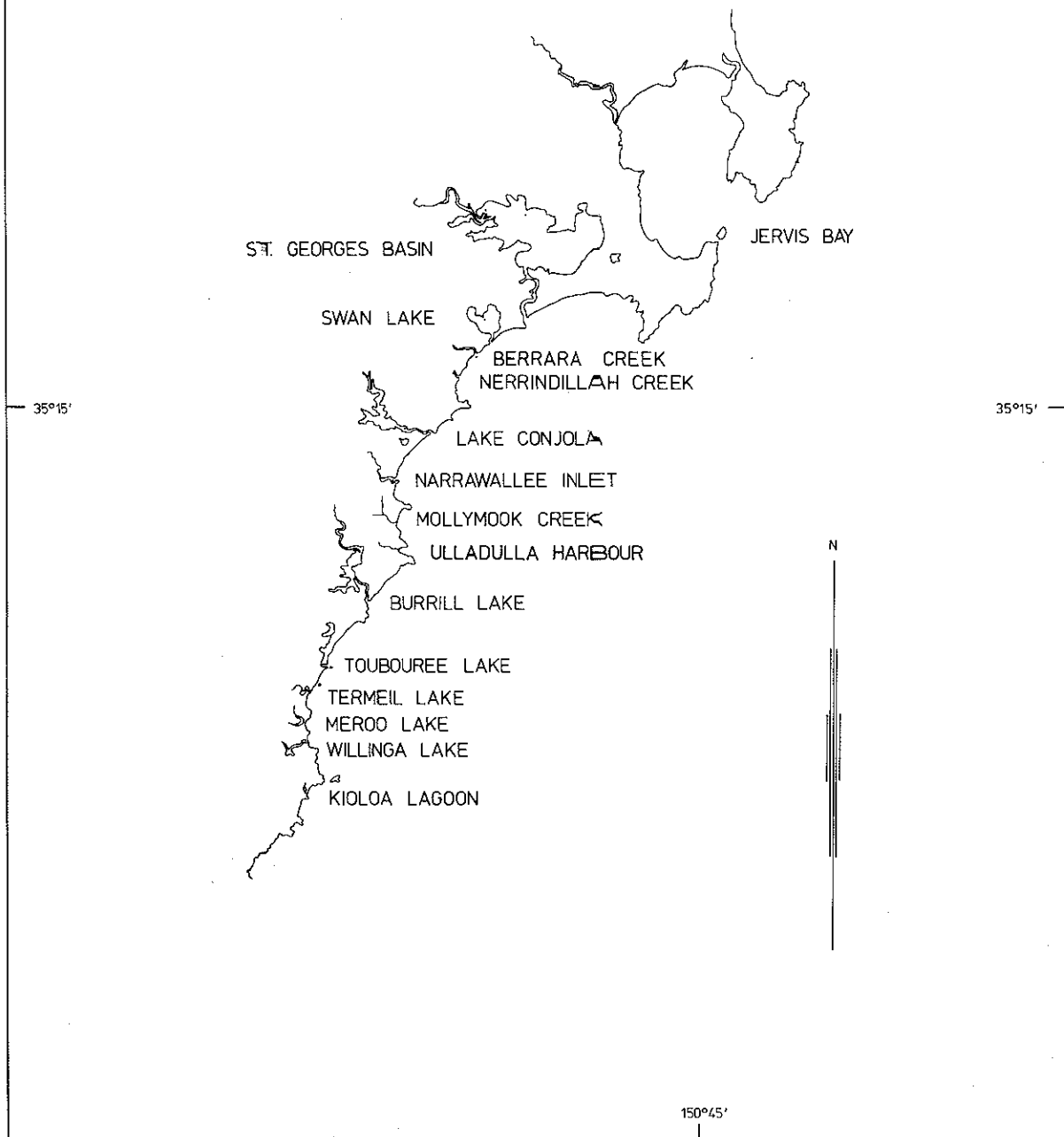


ILLAWARRA REGION
ESTUARIES AND LAGOONS

SHEET 2



C.M.A. 1:250 000 SHEETS : ULLADULLA



WOLLONGONG
ILLAWARRA REGION

KM 0 1 2

C.M.A. SHEETS BULLI
WOLLONGONG

Aerial photo series NSW 2784
Field survey February 1982
Prepared by Carol Thorogood

Zosteraceae 

MAP I1

150° 55'

BELAMBI

CORRIMAL

TOWRADGI
CREEK

34° 25'

N

WOLLONGONG

34° 25'

PORT KEMBLA
HARBOUR

PORT KEMBLA NORTH

150° 55'

150°50'

MAP 12

LAKE ILLAWARRA

ILLAWARRA REGION

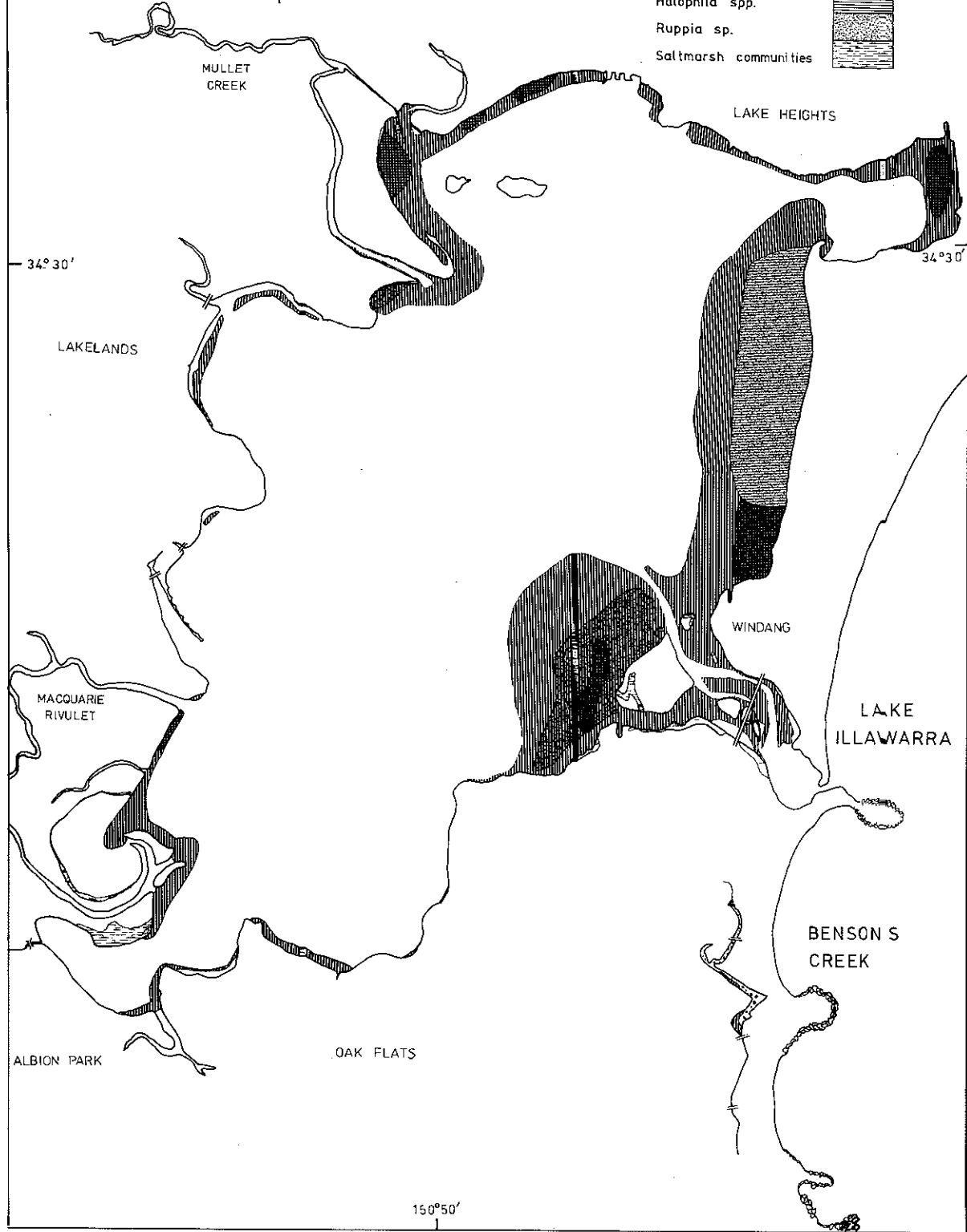
KM 0 1 2 KM

C.M.A. SHEETS WOLLONGONG
ALBION PARK

Aerial photo series NSW 2785 1979 & QUAS 443c 1971.
Field surveys Nov. 1981 & April 1982.
Prepared by Carol Thorood & Ron West.



Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities



MINNAMURRA RIVER
ILLAWARRA REGION

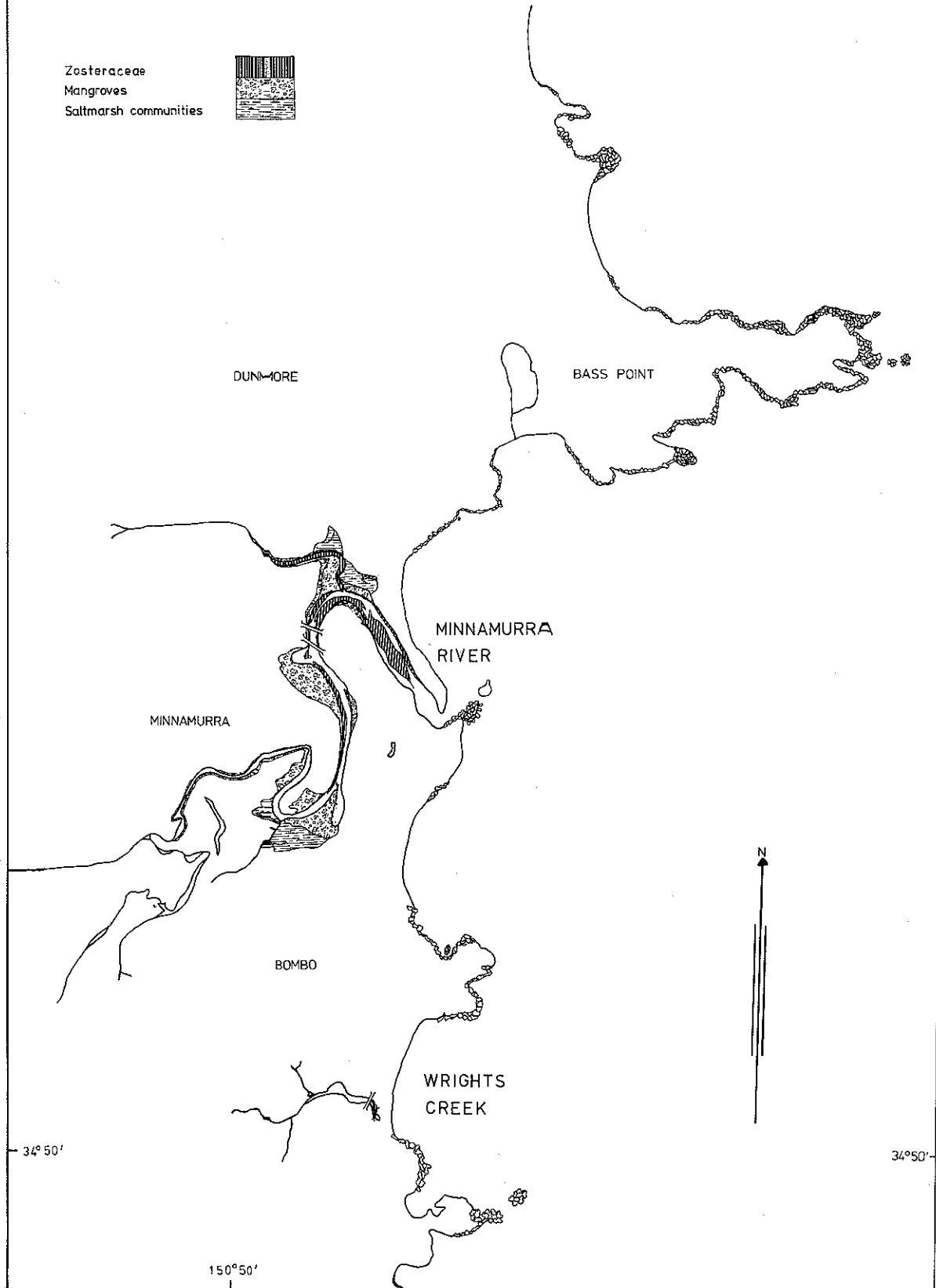
KM 0 1 2 KM

MAP I3

C.M.A. SHEETS : ALBION PARK
KIAMA

Aerial photo series N.S.W. 2014(1972), 275 9(1979).
Field survey March 1982.
Prepared by C.Thorogood & R.West.

Zosteraceae
Mangroves
Saltmarsh communities



CROOKED RIVER

ILLAWARRA REGION

KM 0 1 2 KM

C.M.A. SHEETS : KIAMA

GERRONG

Aerial photo series N.S.W. 2928, 1981 and
2783, 1979.
Field surveys September 1982 and January 1983
Prepared by C.Thorogood and R.West.

Zosteraceae
Ruppia sp.



150°50'

MAP 14

KIAMA

WERRI LAGOON

WERRI BEACH

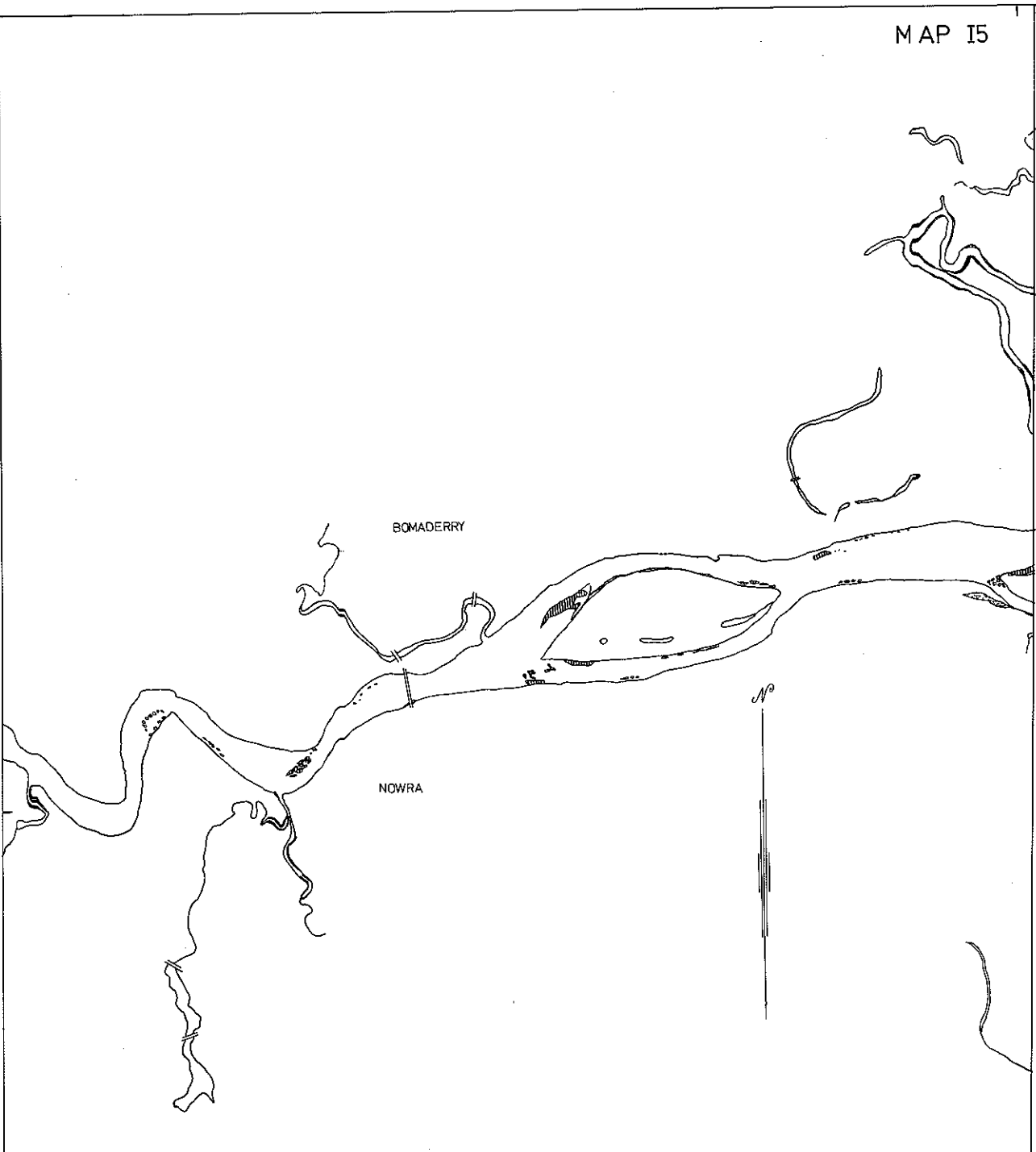
34°45'

34°45'

GERRINGONG

CROOKED RIVER

150°50'



SHOALHAVEN RIVER
ILLAWARRA REGION

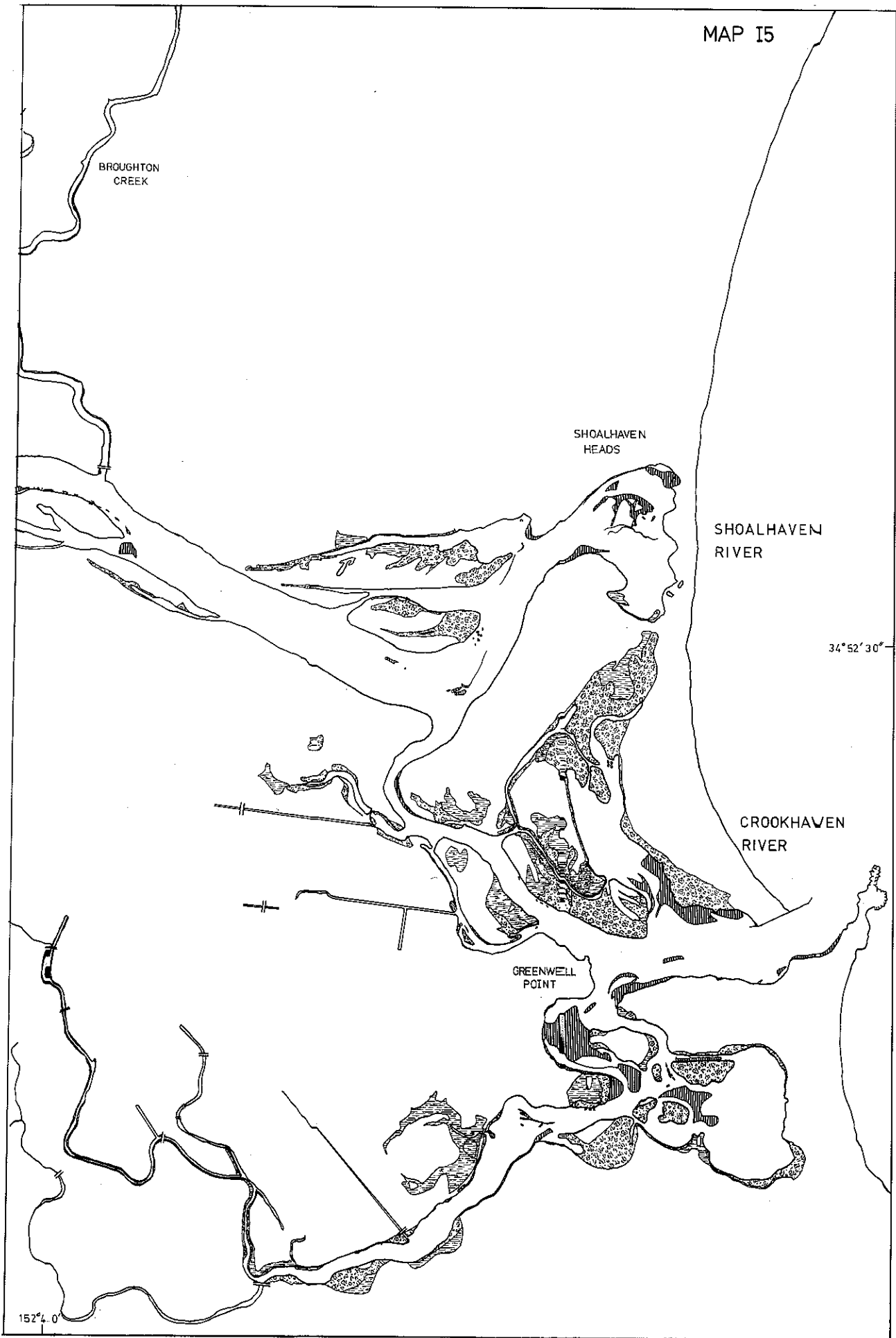


C.M.A. SHEETS BERRY CROOKHAVEN
GERROA NOWRA

- Zosteraceae
- Halophila spp
- Mangroves
- Saltmarsh communities



Aerial photo series N.S.W. 2759 1:16000 1979
2783 1:40 000 1979 3037
Field survey September 1982
Prepared by C.Thorogood and R.West



LAKE WOLLUMBOOLA

IL LAWARRA REGION

0 1 2 KM

150° 45'

MAP I6

C.M. A. SHEETS : NOWRA
CROOKHAVEN

Aerial photo series 2464 1:40 000 1976-77
Field survey November 1981
Prepared by C. Thorogood and R. West

Ruppia sp.



WOLLUMBOOLA

COONEMIA
CREEK

BEECROFT

LAK E
WOLLUMBOOLA

35° 0'

35° 0'

150° 45'

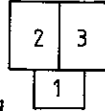
JERVIS BAY ILLAWARRA REGION

0 1 2 KM

MAP 17

C. M.A. SHEETS : HUSKISSON,
CURRARONG, SUSSEX INLET

SHEET 1



Zosteraceae

Posidonia australis

Mangroves



Aerial photo series NSW. 2464 1976 72

Field survey November 1981

Prepared by C.Thorogood and R.West.



35° 05'

See sheet 2

35° 05'

JERVIS BAY

150° 45'

JERVIS BAY
ILLAWARRA REGION

0 1 2 KM

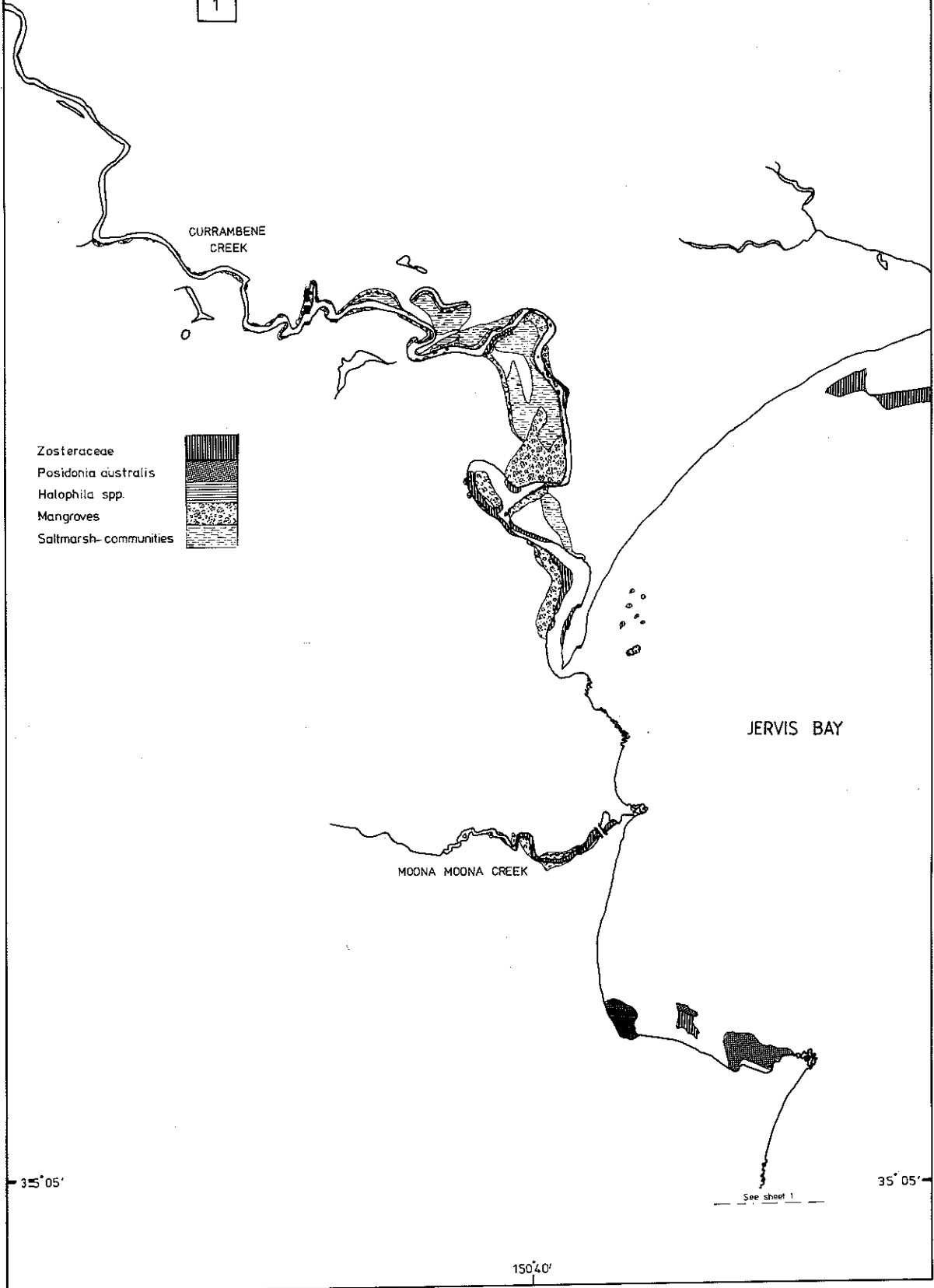
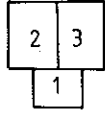
150°40'

MAP I7

C.M.A. SHEETS: HUSKISSON
NOWRA

Aerial photo series N.S.W. 2464 1976-77
Field surveys November 1981
Prepared by C.Thorogood and R.West

SHEET 2



JERVIS BAY
ILLAWARRA REGION

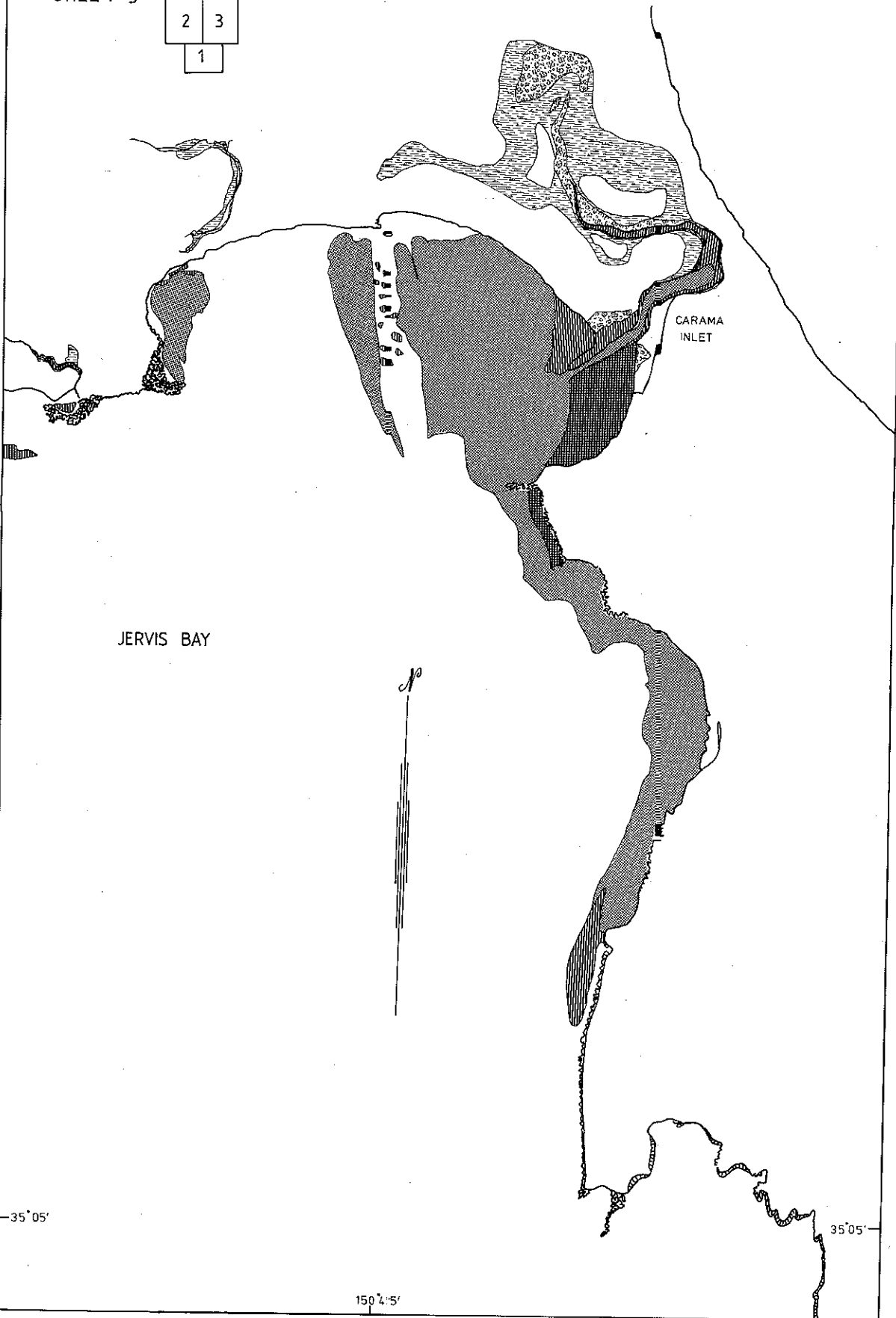
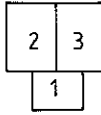
15 0' 45"

MAP I7

0 1 2 KM

C.M.A. SHEET S : CROOKHAVEN, NOWRA
HUSKISSON, CURRARONG

SHEET 3



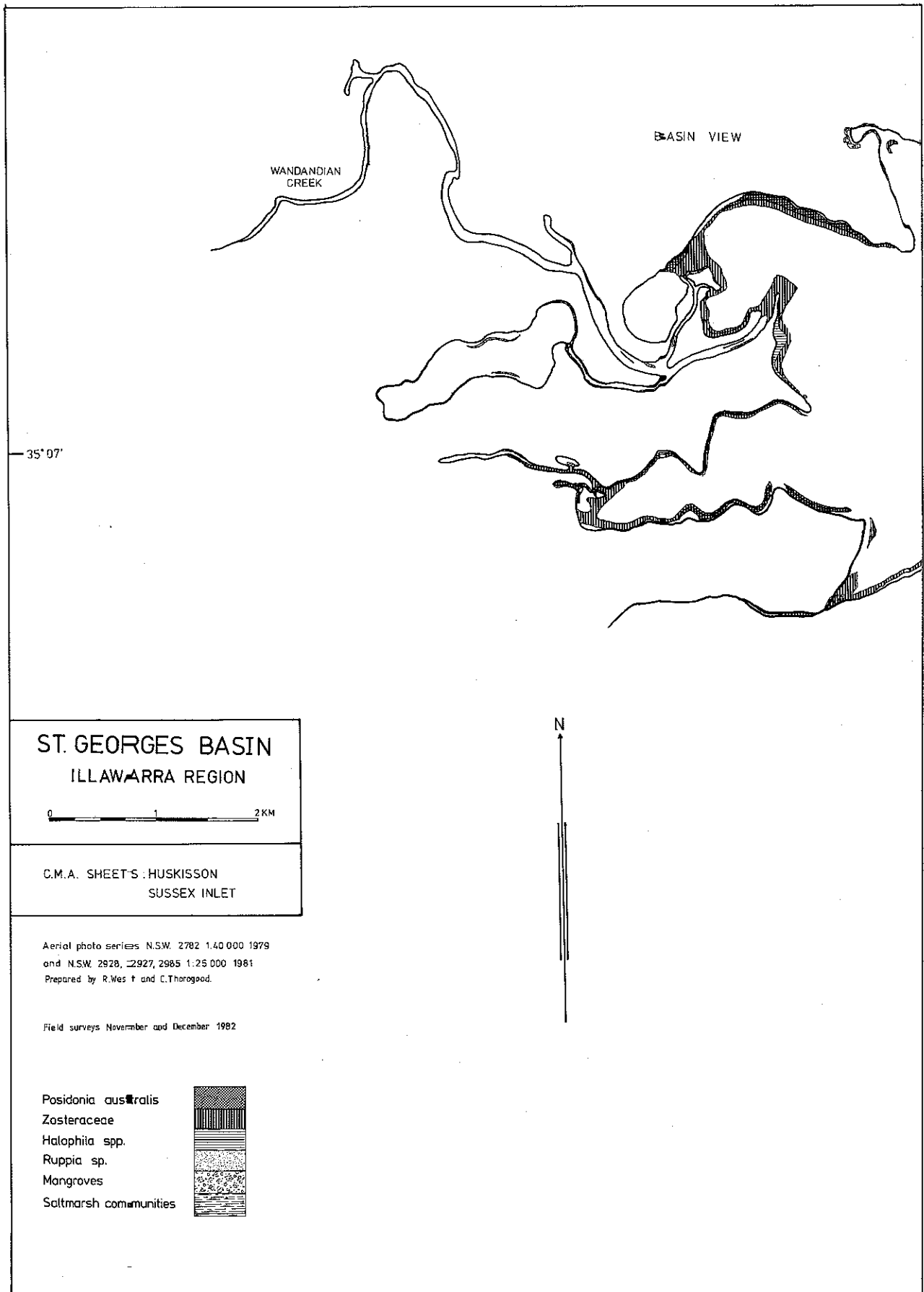
JERVIS BAY

CARAMA
INLET

35 0' 5"

35 0' 5"

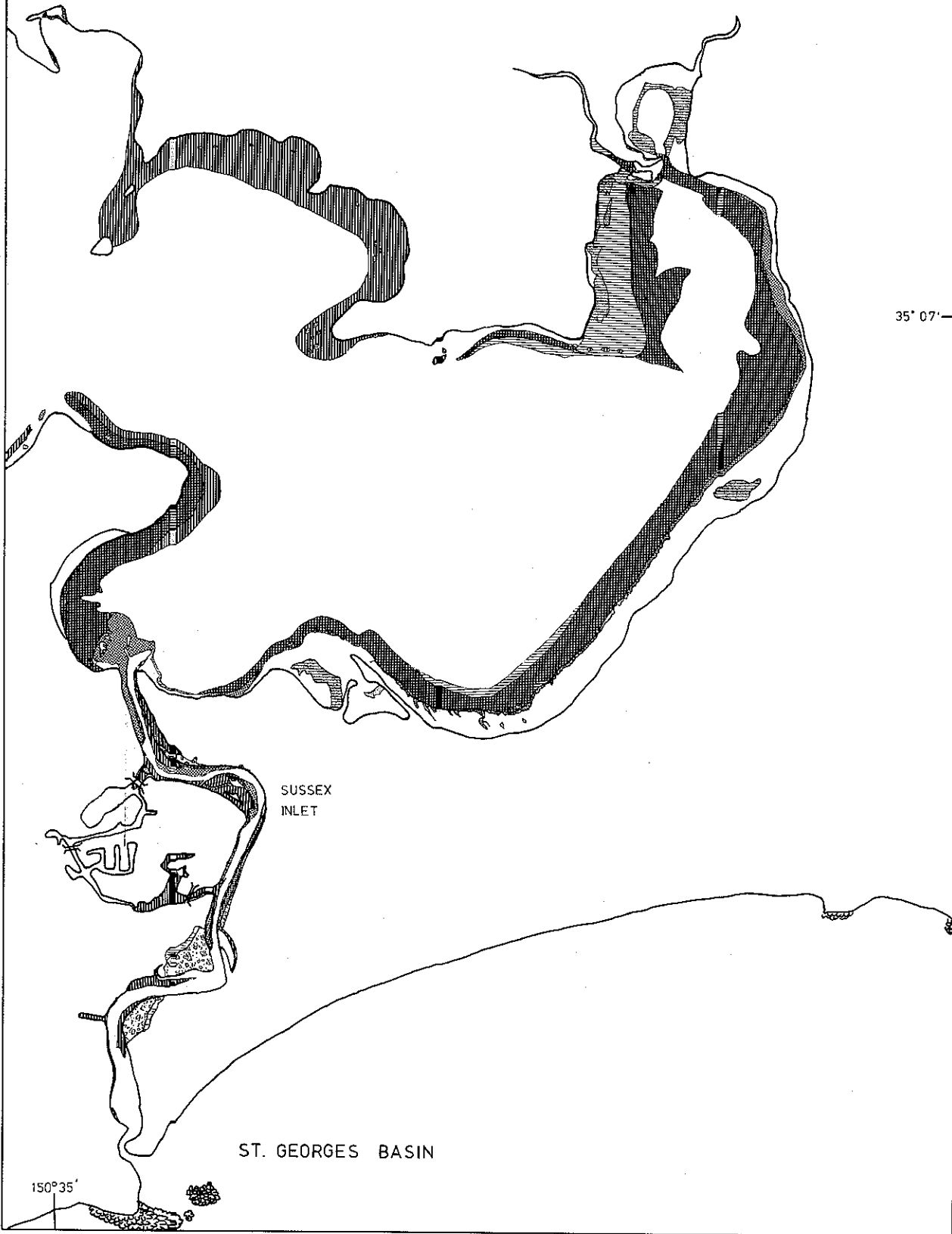
150 4' 5"



150°35'

MAP I8

35° 07'



SWAN LAKE



ILLAWARRA REGION

MAP 19

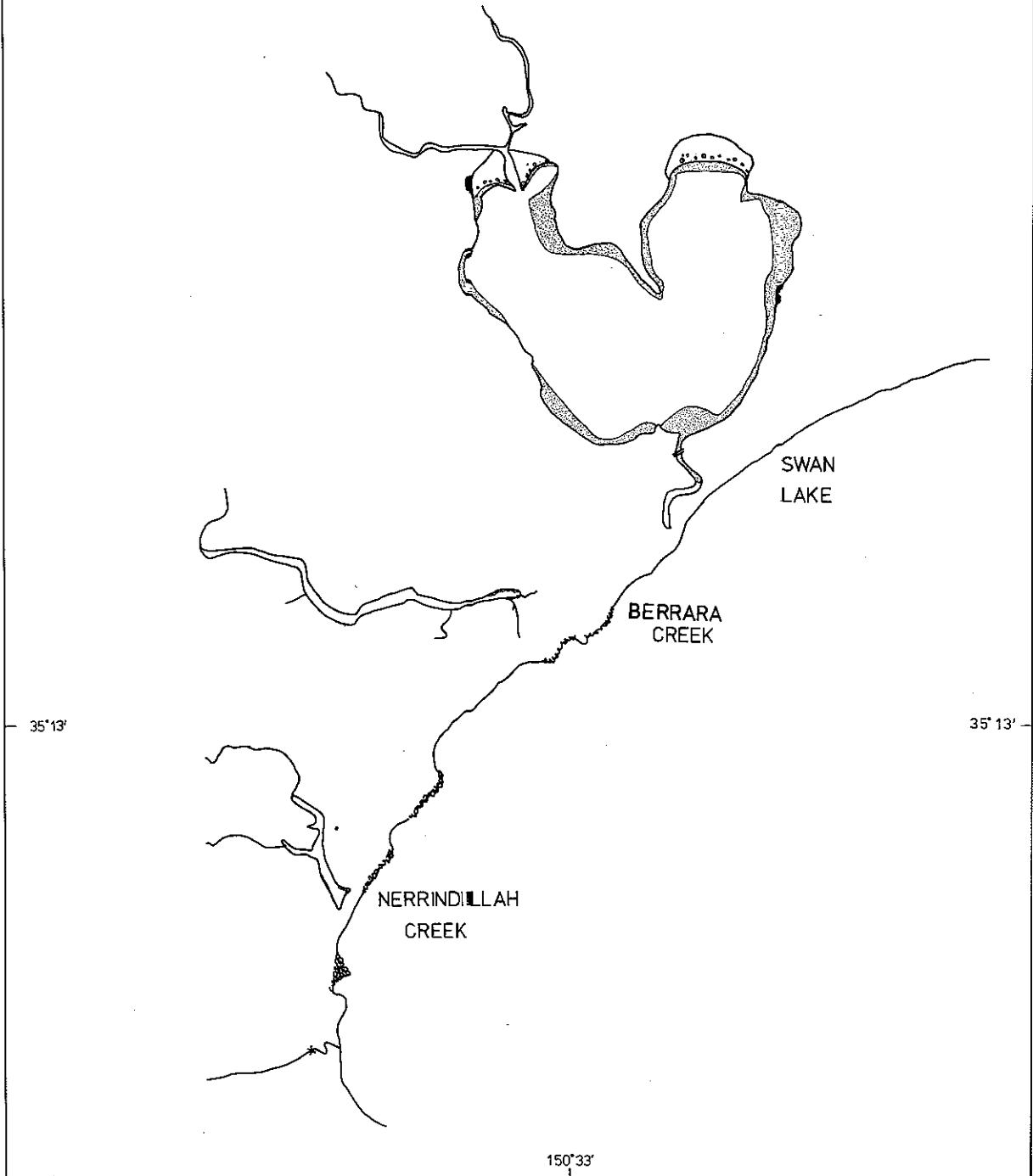
0 1 2 KM

C.M.A. SHEET : SUSSEX INLET

Aerial photo series N.S.W. 2782 1:40 000 1979
Field survey September 1982
Prepared by C. Thorgood and R. West

Ruppia sp. 
Zosteraceae 

N



LAKE CONJOLA
ILLAWARRA REGION

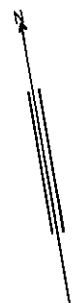
MAP I10

0 1 2KM

C.M.A. SHEET : TIANJARA and
also Parish of Conjola map

Aerial photo series N.S.W. 2754 1979
Field survey November 1982
Prepared by C. Thorogood and R. Chvejka

Zosterac eae
Halophila spp.
Saltmarsh communities



NARRAWALLEE INLET
BURRILL LAKE

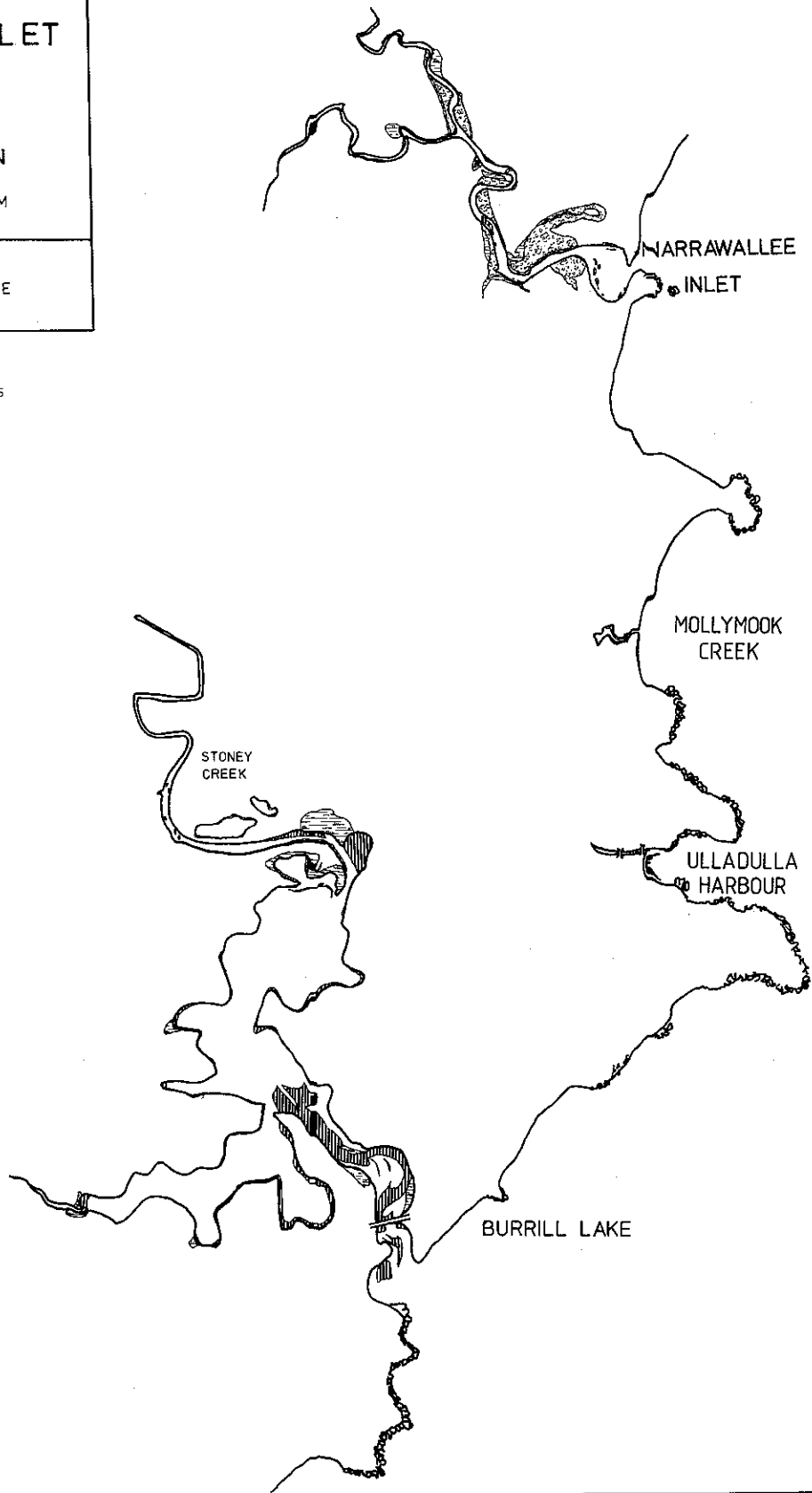
ILLAWARRA REGION

KM 0 1 2 KM

C.M.A. SHEETS : MILTON
TOUBOUREE

Aerial photo series N.S.W. 2016 1972, 2331 1975
and 2754 1979
Field surveys July, August and November 1982
Prepared by C.Thorogood and R.West

Halophila spp.
Ruppia sp.
Zosteraceae
Mangroves
Saltmarsh communities



TOUBOUREE LAKE

TERMEIL LAKE

MEROO LAKE

ILLAWARRA REGION

0 1 2 KM

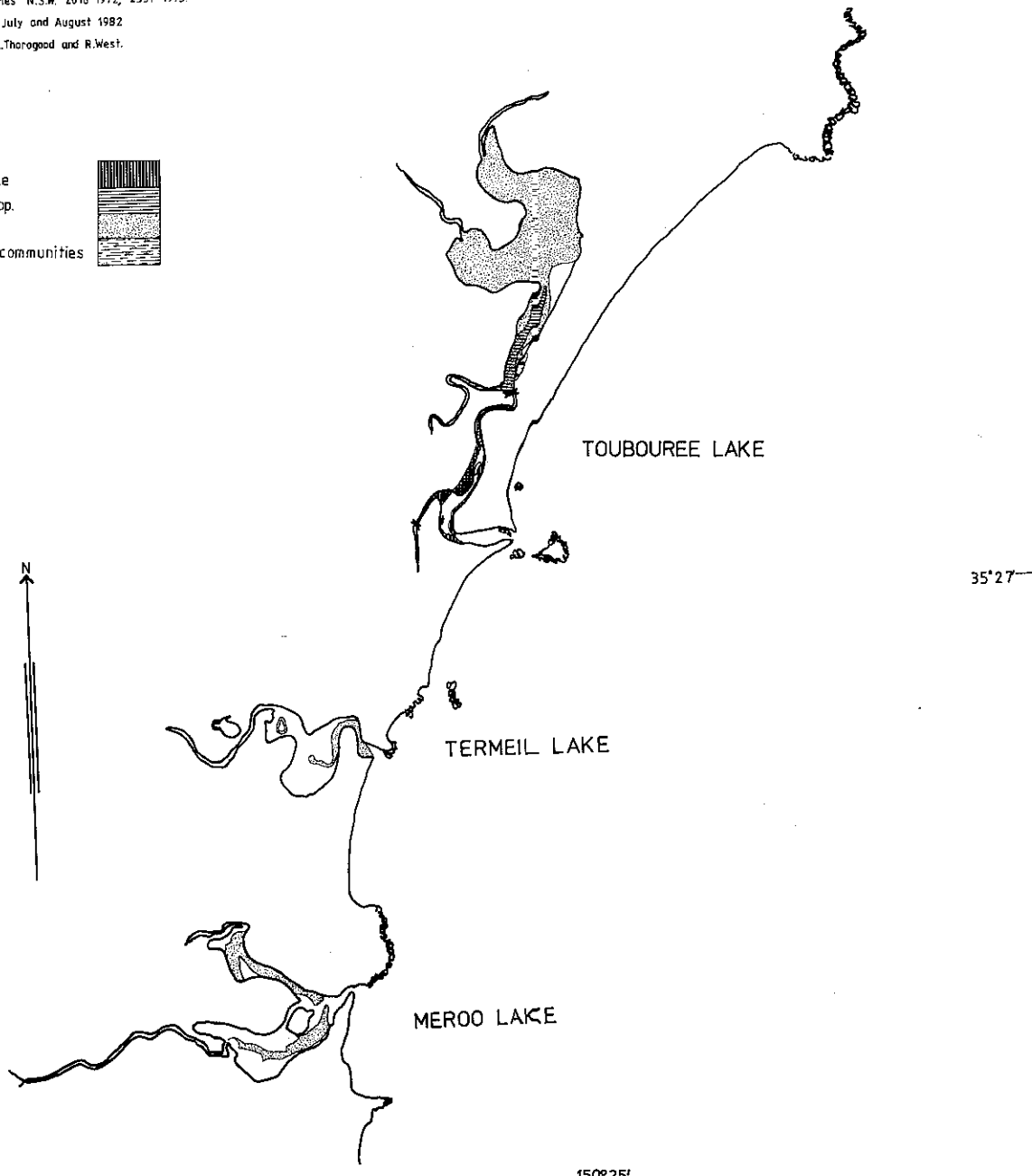
C.M.A. MAP SHEET: TOUBOUREE

N.S.W. STATE FISHERIES.

MAP I12

Aerial photo series N.S.W. 2016 1972, 2331 1975.
Field surveys July and August 1982
Prepared by C.Thorogood and R.West.

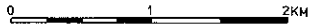
Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities



WILLINGA LAKE
KIOLOA LAGOON
ILLAWARRA REGION

115°25'

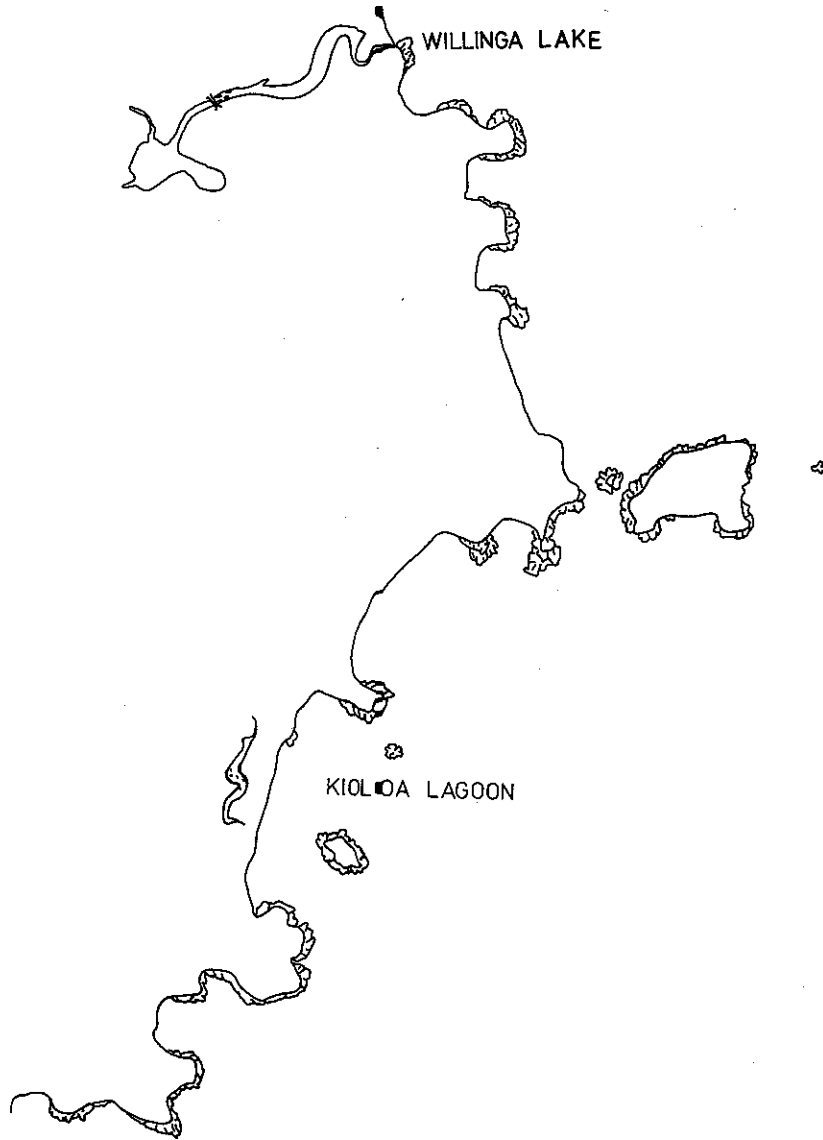
MAP I13



C.M.A. SHEET: KIOLOA

Aerial photo series N.S.W. 2331 1975
Field survey July 1982
Prepared by C.Thorogood and R.West

Zosteraceae
Ruppia sp.
Saltmarsh communities

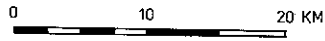


35°35'

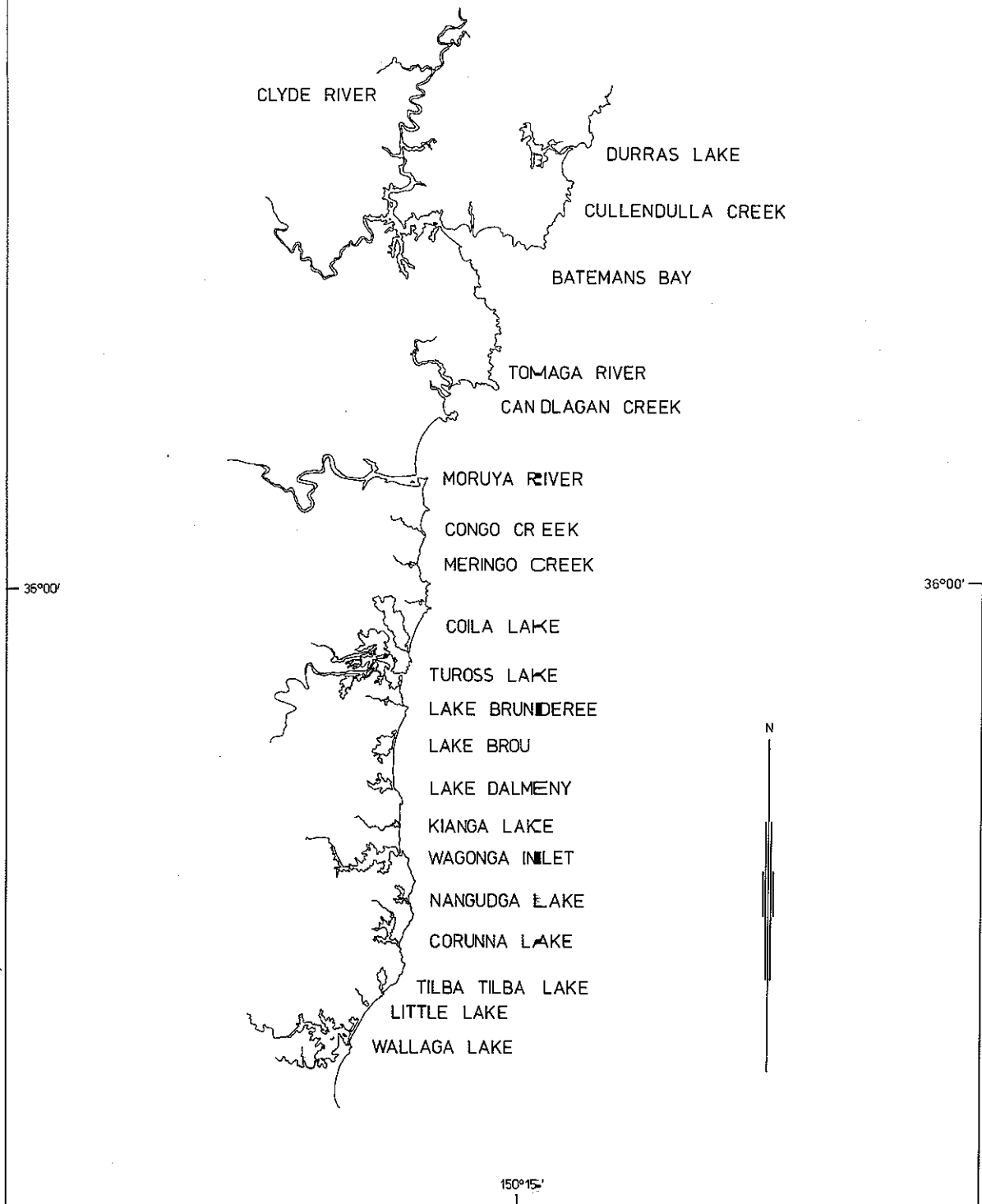
35°35'

115°25'

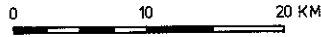
EUROBODALLA SHIRE - SOUTHERN REGION ESTUARIES AND LAGOONS



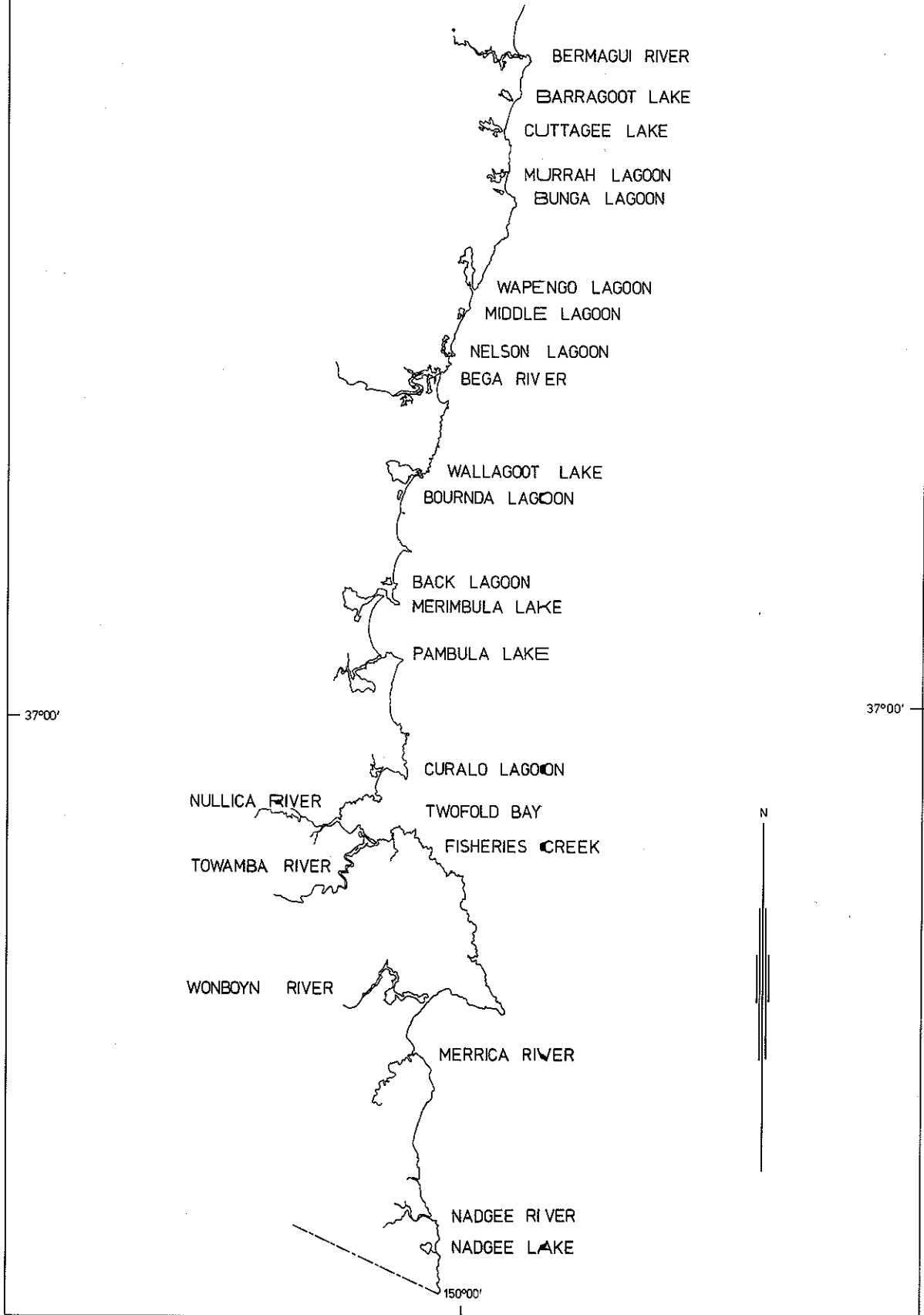
C.M.A. 1:250 000 SHEETS : BEGA ULLADULLA



**BEGA SHIRE - SOUTHERN REGION
ESTUARIES AND LAGOONS**



C.M.A. 1:250 000 SHEETS : BEGA MALLACOOTA



150°15'

MAP S1

KIOLOA

DURRAS LAKE

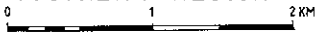
DURRAS

35°40'



DURRAS LAKE

SOUTHERN REGION



C.M.A. SHEETS : KIOLOA, DURRAS

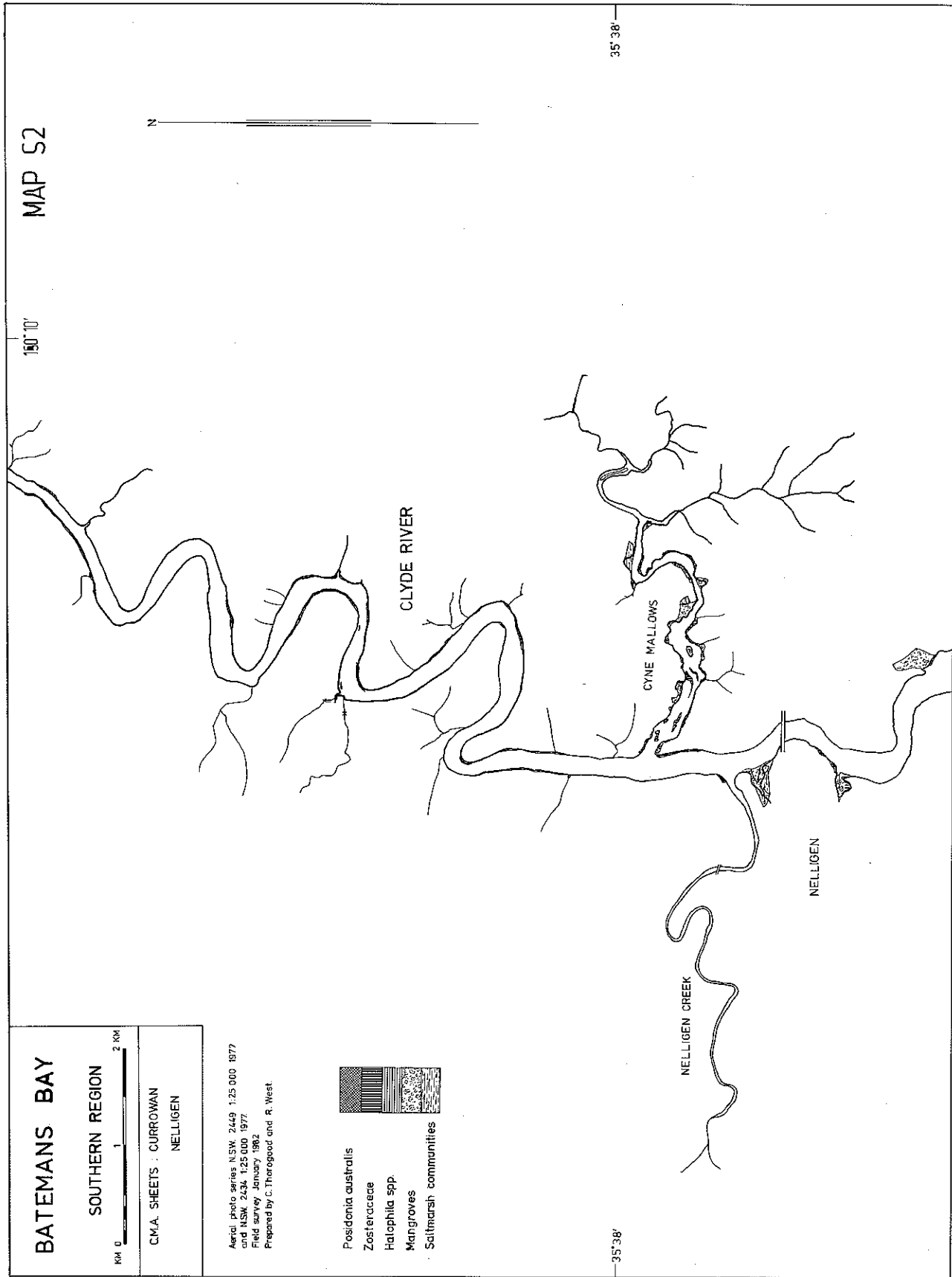
Aerial photo series N.S.W. 2449 1977 and 2434 1977
Field survey January 1982
Prepared by C. Thorogood and R. West

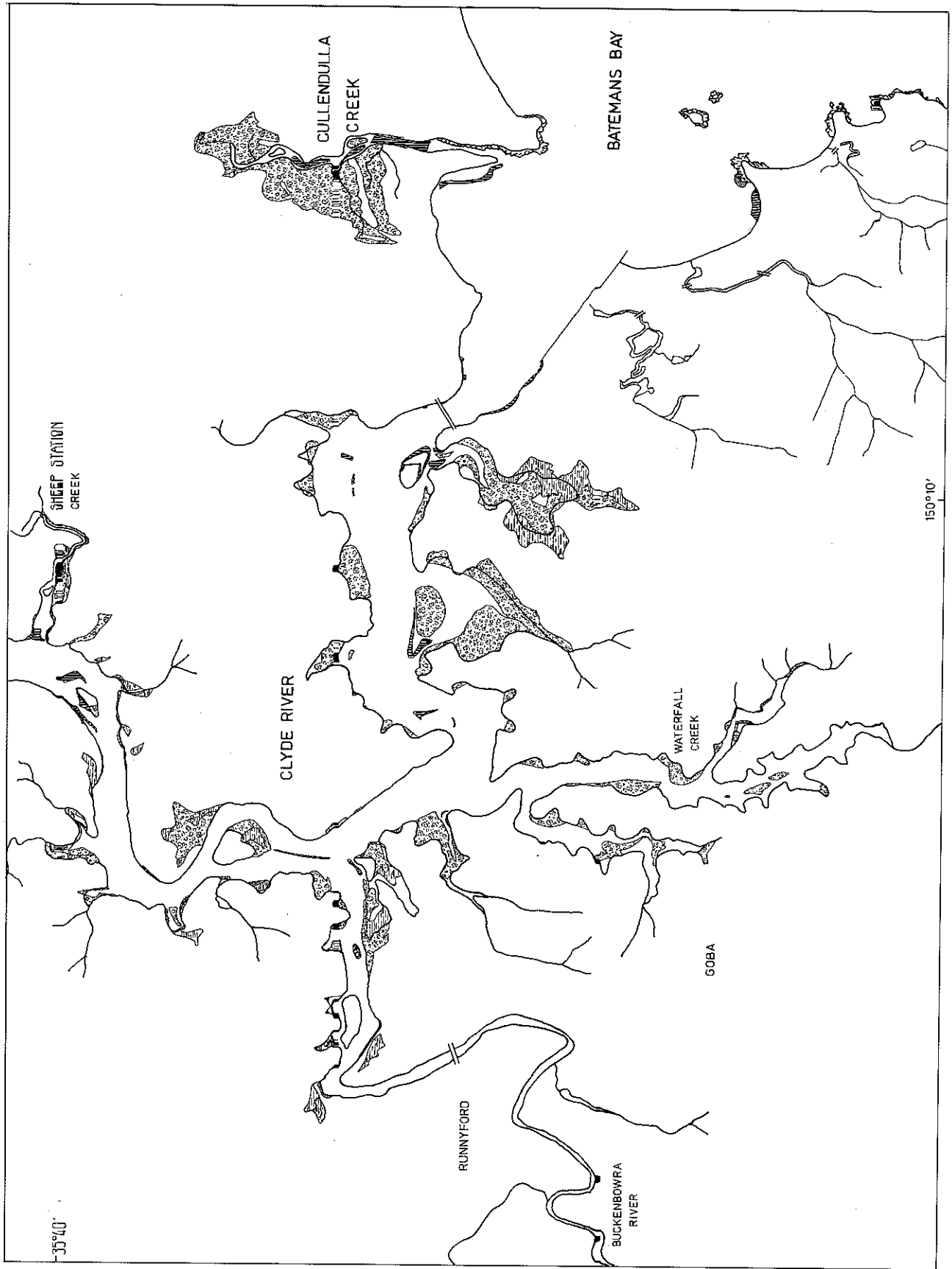
Zosteraceae

Halophila sp.

Saltmarsh communities







**TOMAGA RIVER
SOUTHERN REGION**

KM 0 1 2 KM

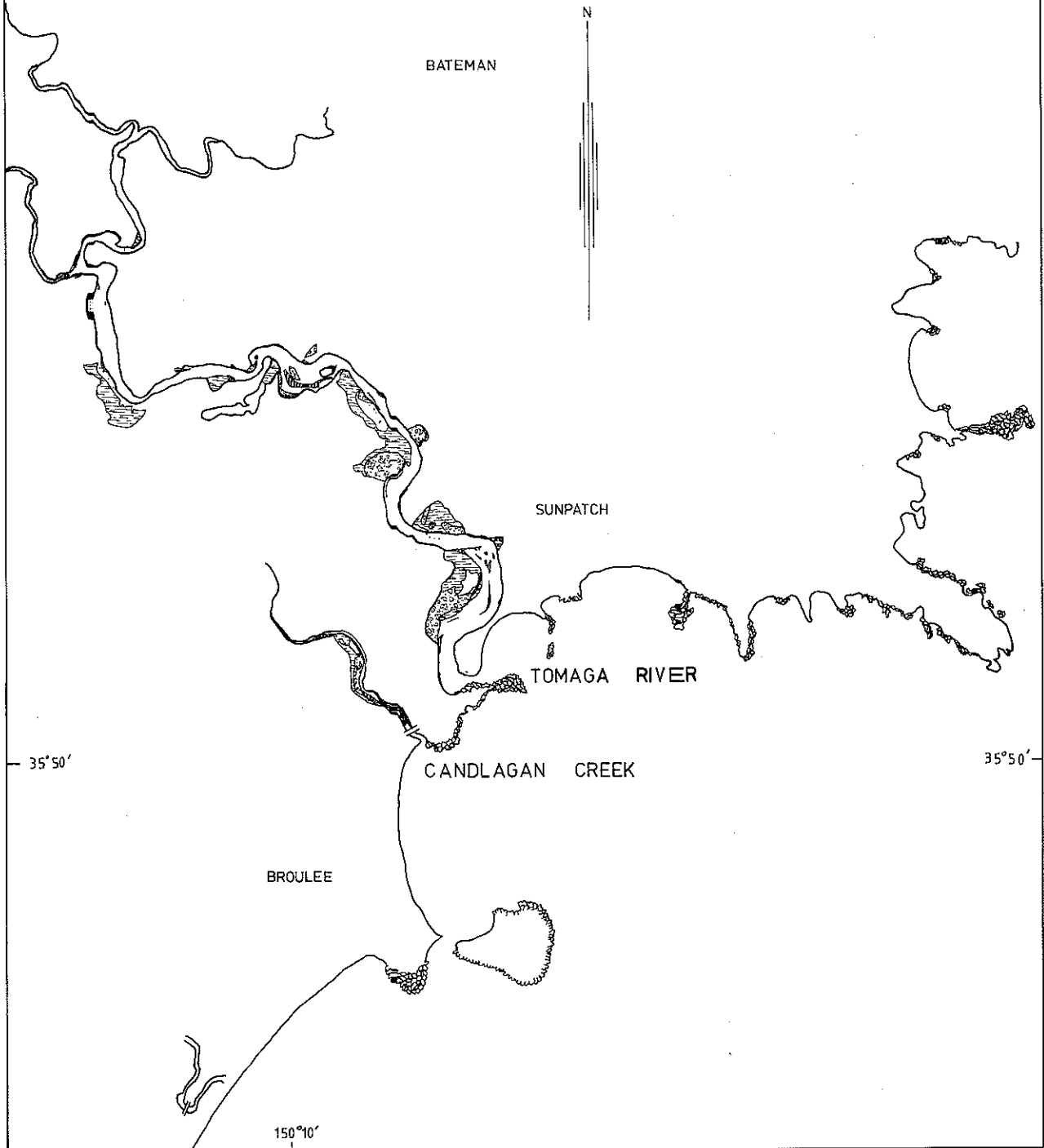
C.M.A. SHEET : MOGO

MAP S3

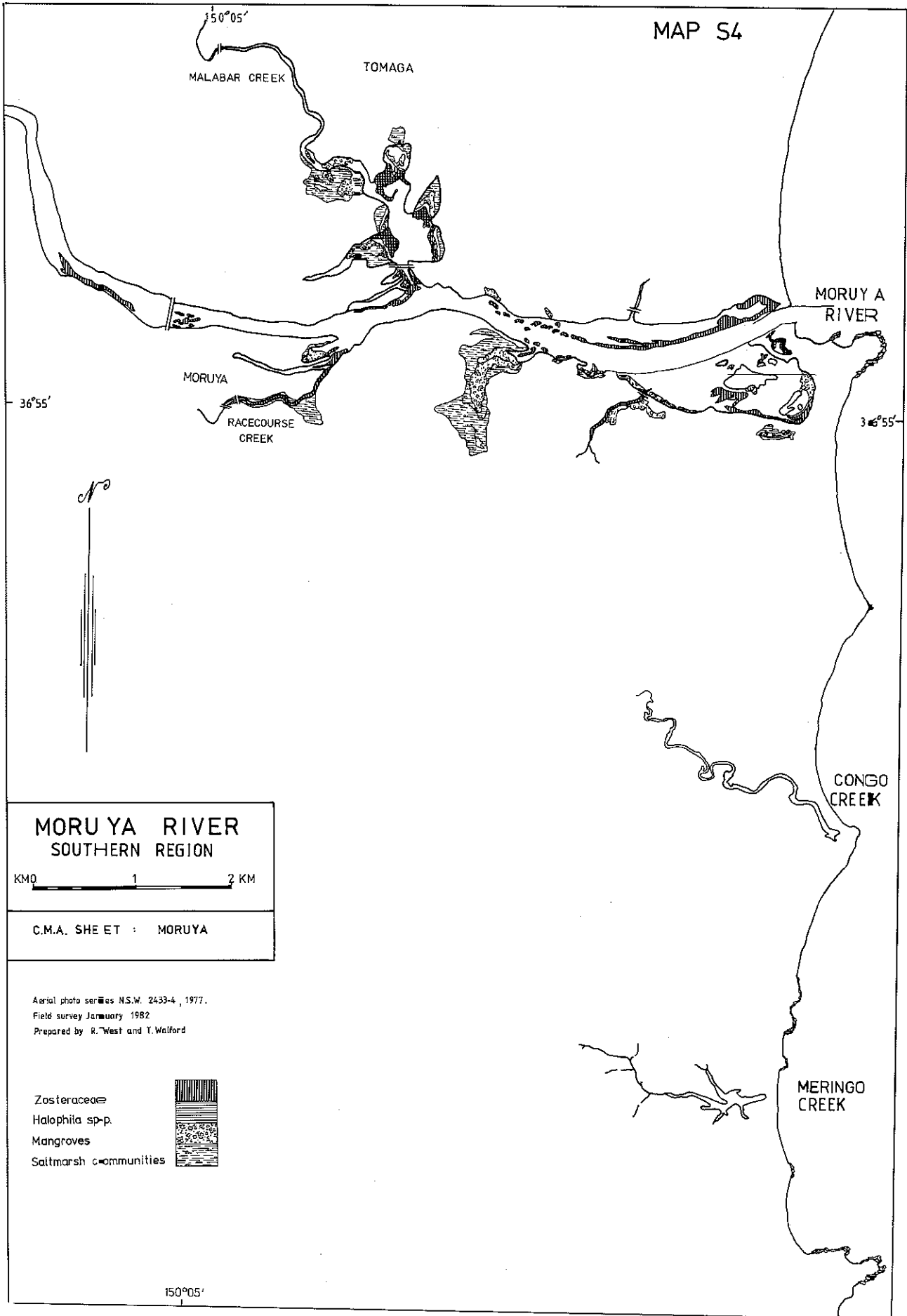
Zosteraceae
Mangroves
Saltmarsh communities



Aerial photo series N.S.W. 2433 2450, 1977.
Field survey July 1982.
Prepared by Carol Thorgood & Ron West.



MAP S4



MORUYA RIVER
SOUTHERN REGION

KM 0 1 2 KM

C.M.A. SHEET : MORUYA

Aerial photo series N.S.W. 2433-4, 1977.
Field survey January 1982
Prepared by R. West and T. Walford

Zosteraceae
Halophila sp-p.
Mangroves
Saltmarsh communities



150°05'

TUROSS LAKE SOUTHERN REGION

150°05'

MAP S5

0 1 2 KM

C.M.A. SHEET : BODALLA

Aerial photo series N.S.W. 2757 1979.

Field surveys January 1982

Prepared by R. West and T. Walford

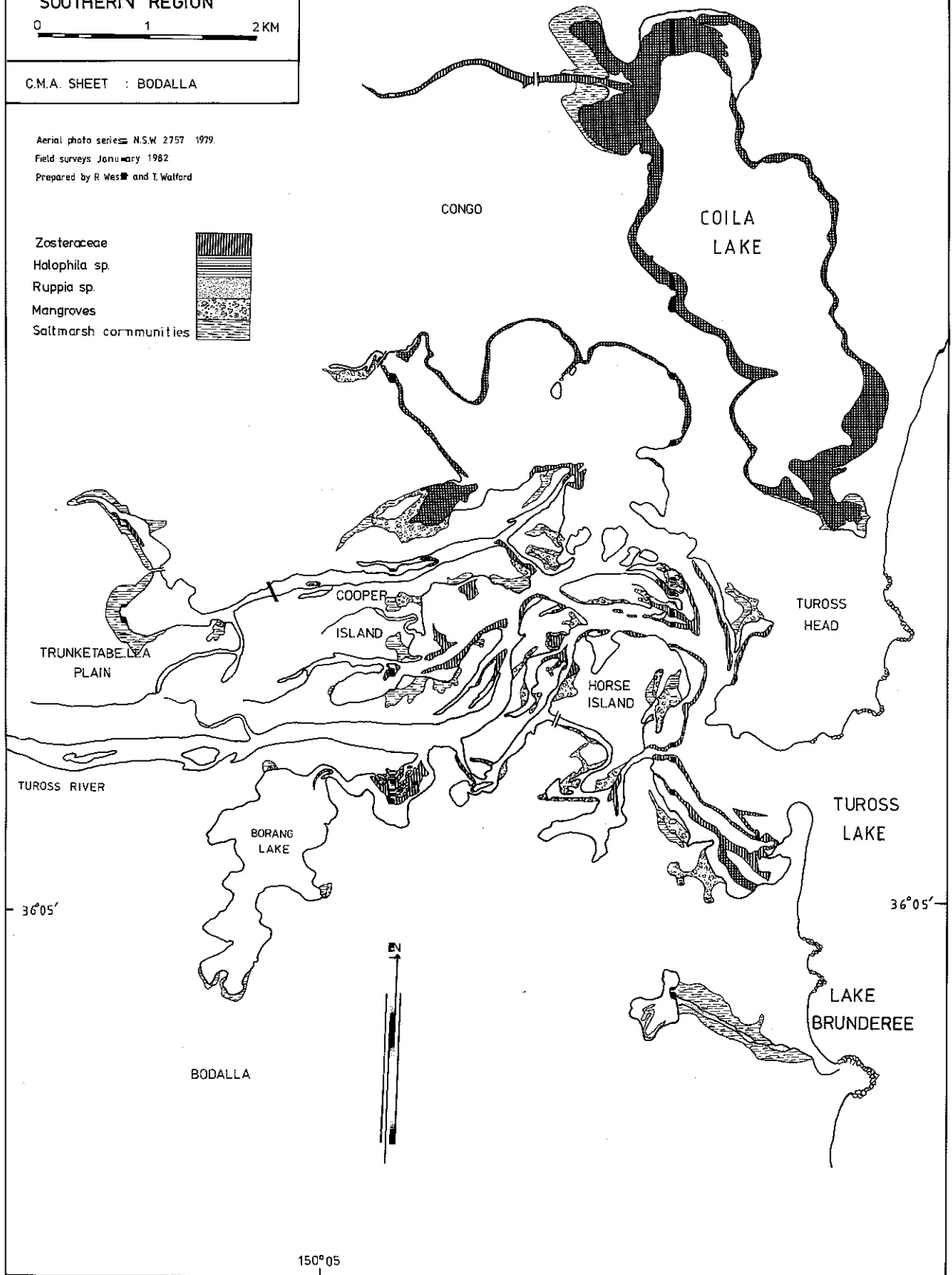
Zosteraceae

Halophila sp.

Ruppia sp.

Mangroves

Saltmarsh communities



LAKE BROU
WAGONGA INLET

SOUTHERN REGION



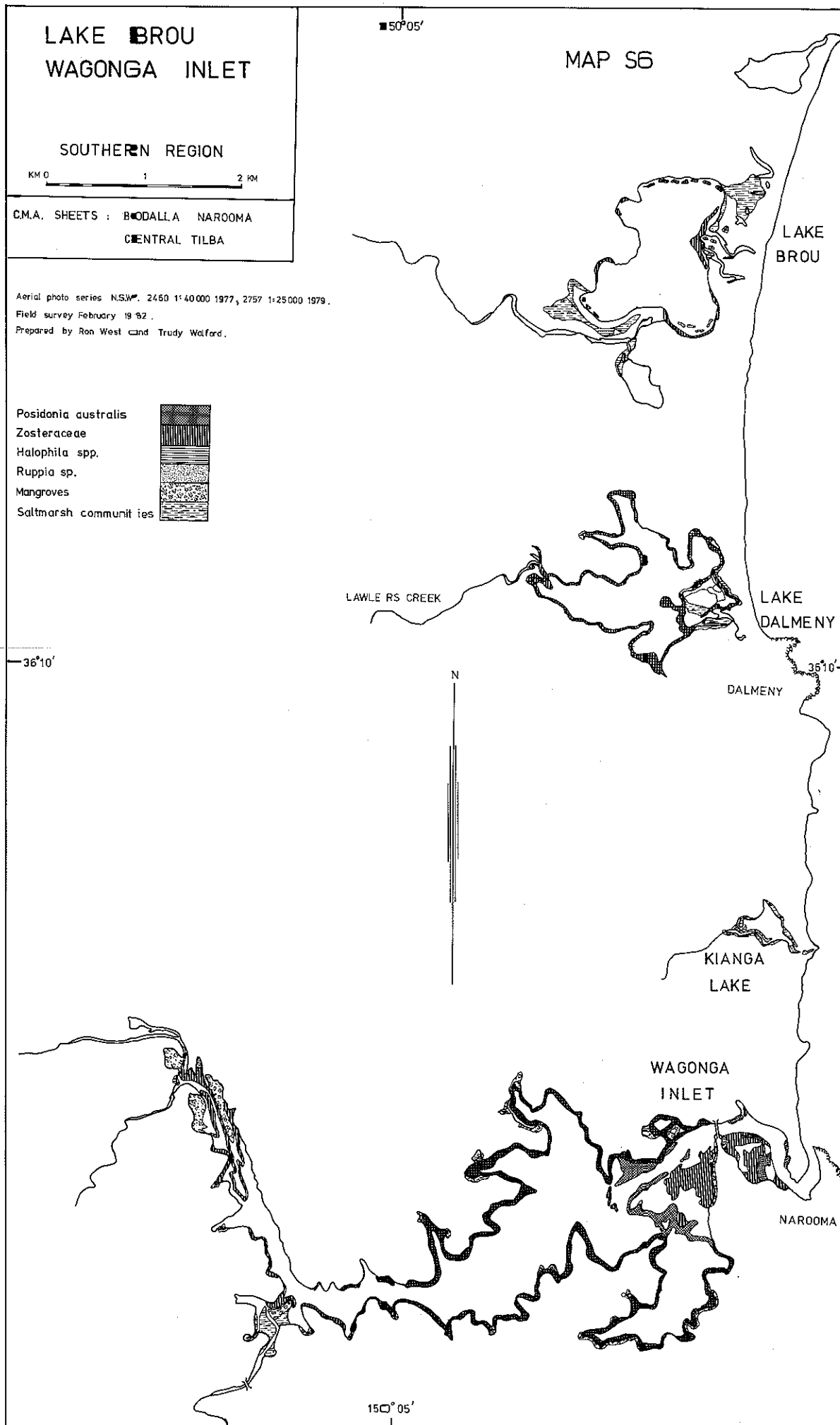
C.M.A. SHEETS : BODALLA NAROOMA
CENTRAL TILBA

Aerial photo series N.S.W. 2450 1:40 000 1977, 2757 1:25 000 1979.
Field survey February 1982.
Prepared by Ron West and Trudy Walford.

Posidonia australis
Zosteraceae
Halophila spp.
Ruppia sp.
Mangroves
Saltmarsh communities



MAP S6



NANGUDGA LAKE
CORUNNA LAKE
SOUTHERN REGION

MAP S7

0 1 2 KM

C.M.A. SHEETS : CENTRAL TILBA
NAROOMA

Aerial photo series N.S.W. 2757 1979
Field survey February 1982
Prepared by T. Walford and R. West

Zosteraceae
Ruppia sp.
Saltmarsh communities



36°16'

N



36°16'

CORUNNA LAKE

NANGUDGA LAKE

TILBA TILBA LAKE

LITTLE LAKE

150°05'

WALLAGA LAKE

MAP S8

150°05'

SOUTHERN REGION

KMO 1 2KM

C.M.A. SHEETS : CENTRAL TILBA
BERMAGUI

Aerial photo series N.S.W. 2757, 2758 1:25,000 1979
and N.S.W. 2460 1:40,000 1977
Field survey February 1982

Prepared by C.Thorood and R.West.

Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities



CENTRAL
TILBA

TILBA
TILBA

DIGNAM
CREEK

36°22'

WALLAGA
LAKE

36°22'

CAMEL ROCK

NARIRA
CREEK

150°05'

BERMAGUI RIVER
CUTTAGEE LAKE
SOUTHERN REGION

MAP S9

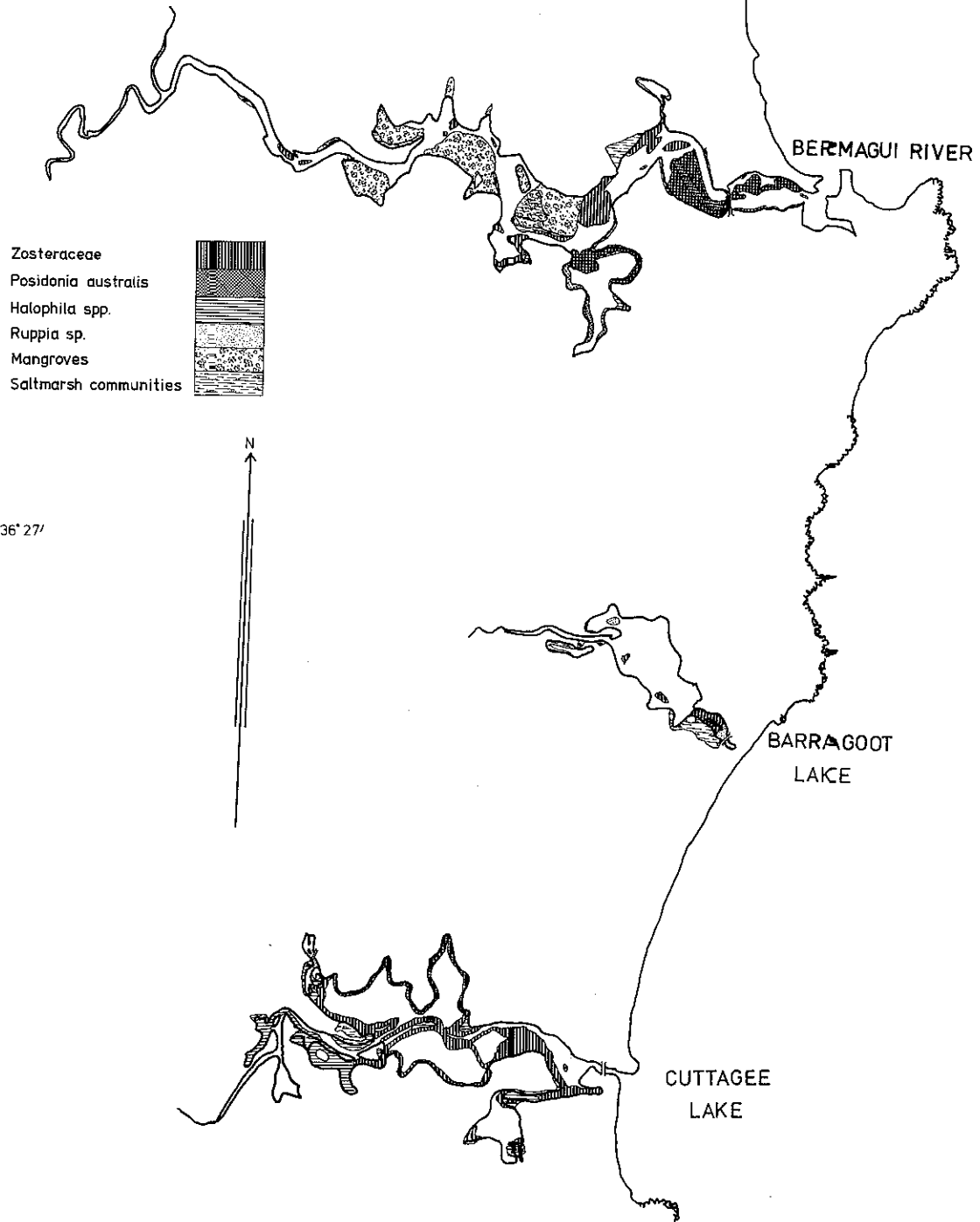
0 1 2KM

C.M.A. SHEET : BERMAGUI

Aerial photo series 2460 1976-1977 and
2750 1979

Field survey February 1982

Prepared by C. Thorogood and R. West



MURRAH LAGOON
WAPENGO LAGOON
SOUTHERN REGION

MAP S10

0 1 2KM

C.M.A. SHEETS : BROGO BERMAGUI
BEGA MURRAH

Aerial photo series N.S.W. 2460 1976-1977
Field survey February 1982

Prepared by C.Thorogood and R.West.

Zosteraceae
Halophila spp.
Mangroves
Saltmarsh communities



36°35'

36°35'

WAPENGO
LA GOON

150°00'



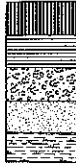
NELSON LAGOON
 BEGA RIVER
 SOUTHERN REGION

0 1 2 KM

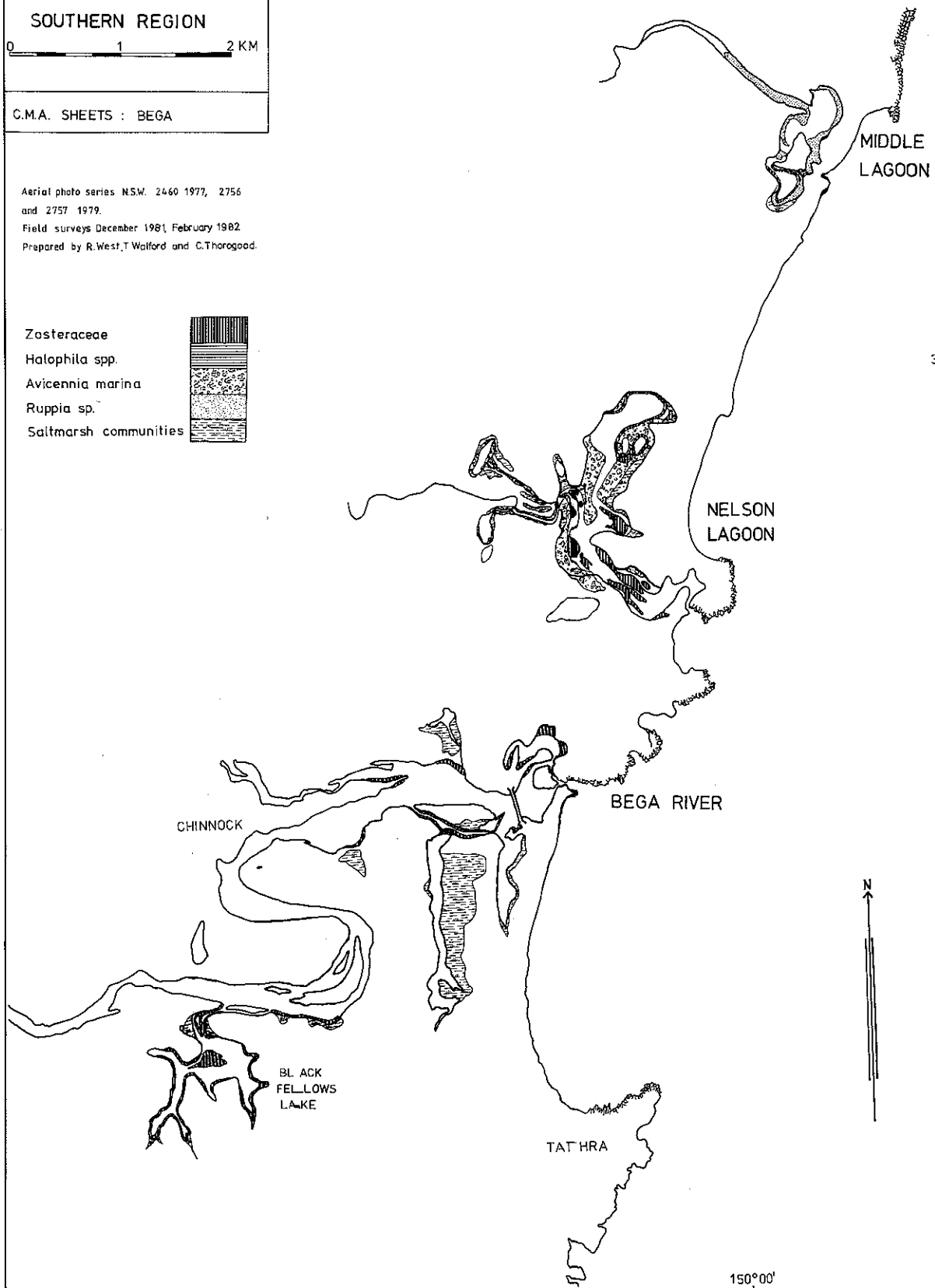
C.M.A. SHEETS : BEGA

Aerial photo series N.S.W. 2460 1977, 2756
 and 2757 1979.
 Field surveys December 1981, February 1982
 Prepared by R.West, T.Walford and C.Thorogood.

Zosteraceae
 Halophila spp.
 Avicennia marina
 Ruppia sp.
 Saltmarsh communities



150°00' MAP S11



36°40'

150°00'

WALLAGOOT LAKE

SOUTHERN REGION

MAP S12

KM 0 1 2 KM

C.M.A. SHEETS : WOLLJMLA

Aerial photo series N.S.W. 2756 1:25,000 1979
Field survey February 1982
Prepared by Carol Thorogood and Ron West

Zosteraceae
Halophila spp.
Ruppia sp.
Saltmarsh communities



BOURDA

N

NATURE

RESERVE

WALLAGOOT LAKE

BOND
LAKE
(FW)

BOURDA
LAGOON

36°52'

36°52'

149°55'

MERIMBULA LAKE
PAMBULA LAKE
SOUTHERN REGION

149°55'

MAP S13

KM 0 1 2 KM

C.M.A. SHEET PAMBULA

Aerial photo series NSW. 3016, 1976, 2460, 1977.
Field survey August 1982.
Prepared by R. West and C. Thorogood.

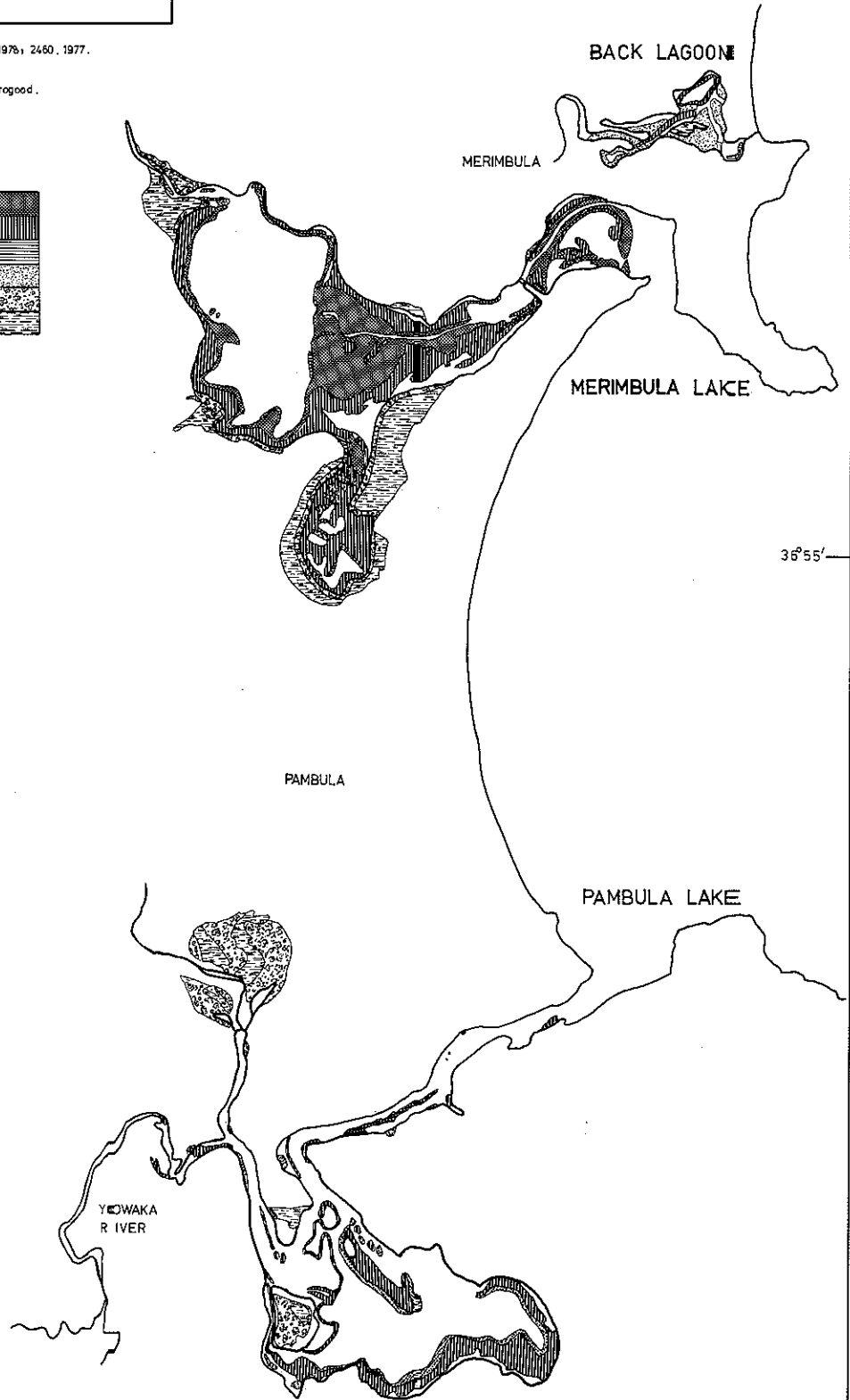
Posidonia australis
Zosteraceae
Halophila spp.
Ruppia sp.
Mangroves
Saltmarsh communities



36°55'



36°55'



149°55'

CURALO LAGOON
 NULLICA RIVER
 TOWAMBA RIVER
 SOUTHERN REGION

149° 55'

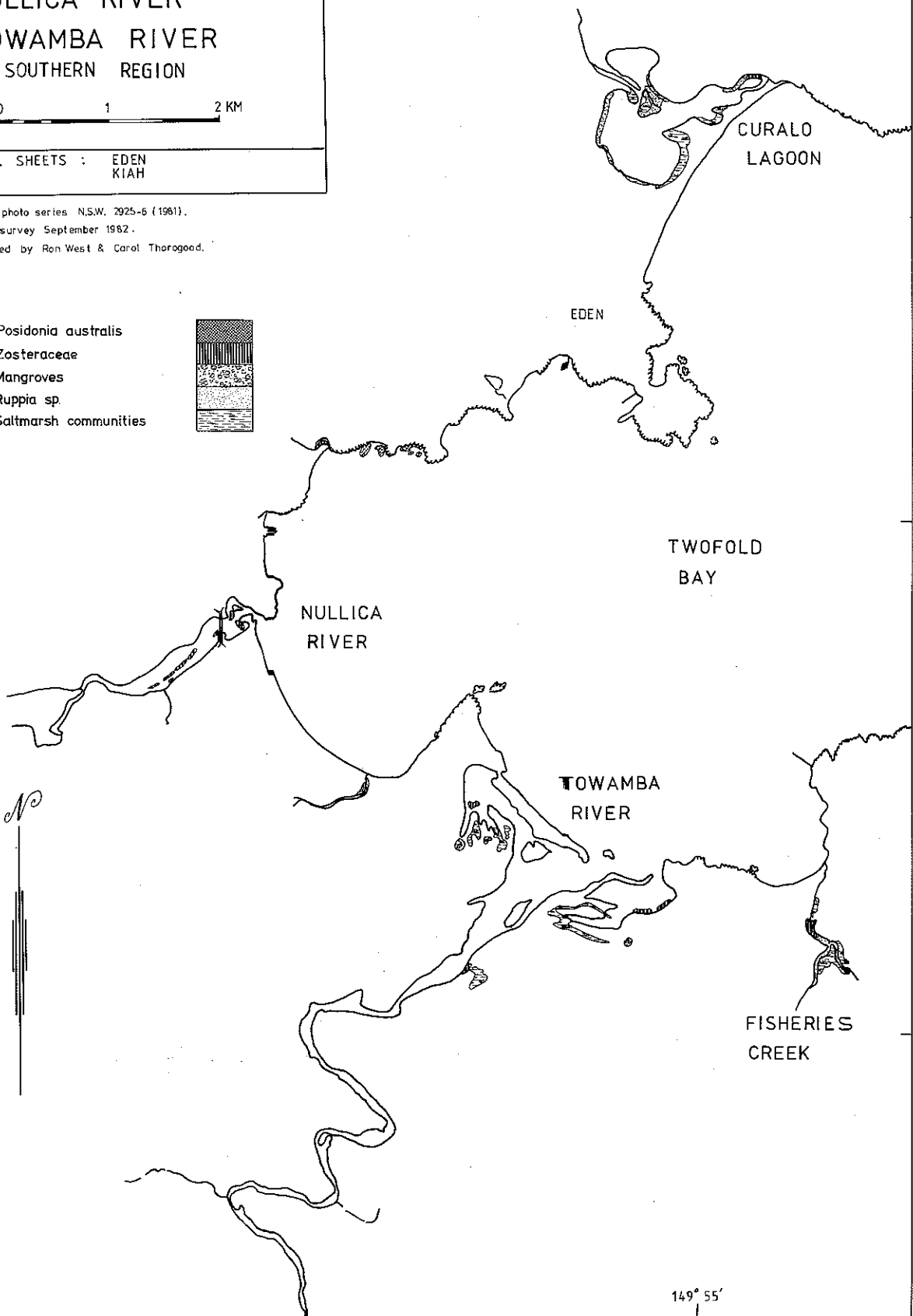
MAP S14

0 1 2 KM

C.M.A. SHEETS : EDEN
 KIAH

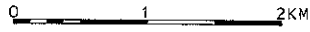
Aerial photo series N.S.W. 2925-6 (1981).
 Field survey September 1982.
 Prepared by Ron West & Carol Thorogood.

- Posidonia australis
- Zosteraceae
- Mangroves
- Ruppia sp.
- Saltmarsh communities



WONBOYN RIVER
SOUTHERN REGION

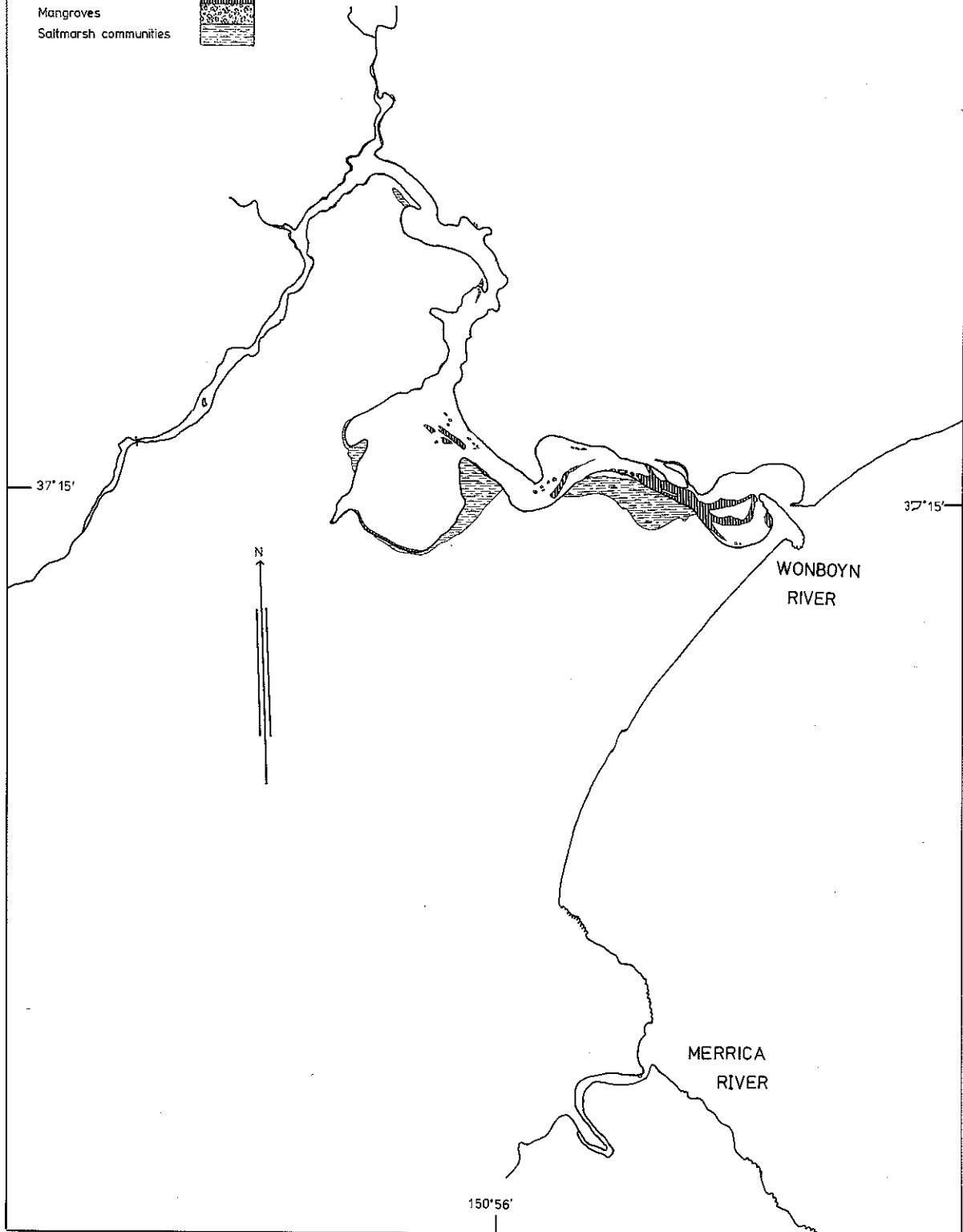
MAP S15



C.M.A. SHEETS : KIAH NARRABARBA

Aerial photo series N.S.W. 2435 1977
Field survey September 1982
Prepared by C.Thoregood and R.West.

Halophila spp.
Posidonia australis
Zosteraceae
Mangroves
Saltmarsh communities



NADGEE LAKE

SOUTHERN REGION

KM 0 1 2

C.M.A SHEETS : NADGEE

MAP S16

Aerial photo series : 2926 (1981).
Prepared by Ron West.


Ruppia sp. 

TABLE CREEK

LITTLE CREEK

NADGEE RIVER

NADGEE LAKE

37°25'

37°25'

N



150°55'

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