



# Land Management: Eurobodalla Shire NSW 2003–2004



New  
Issue

# **Land Management**

## **Eurobodalla Shire NSW**

### **2003–2004**

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**Australian Statistician**

AUSTRALIAN BUREAU OF STATISTICS

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**PREFACE** .....

**PREFACE**

These are the published results of the first Australian Bureau of Statistics (ABS) survey that has used a land parcel frame for data collection.

The land parcel survey project was undertaken to trial an alternate survey methodology for collecting data about land-based activities, especially in relation to natural resource management issues.

Land parcel frames provide a new approach to the collection of land management statistics. Digital land parcel maps provide a basic framework for land ownership. By combining this framework with land owner, land area and land use details, a land cadastre, suitable for use as a survey framework, is created.

Land parcel frames allow for the complete coverage of a region or can be tailored to provide accurate coverage of specific areas of interest within a region. Outputs are flexible and survey costs are competitive with current ABS methods of producing land management statistics.

Two trials of the land parcel frame methodology are underway. The first trial was conducted in the Eurobodalla Shire of NSW in late 2004. This publication provides the results from the trial. A second trial is currently being conducted in the Fitzroy and Livingstone Shires of Queensland. It is expected that results from the second trial will be released in early 2006.

While the ABS is satisfied that the results from the Eurobodalla trial are statistically sound, users should appreciate that the main purpose of the trial was to test the land parcel methodology.

Depending on user interest, further surveys using a land parcel methodology will be considered.

An information paper outlining the concepts, sources and methods for both trials will be released in early 2006.

The ABS invites feedback on both the land parcel methodology and the publication content in terms of its relevance, usefulness, quality and range of data presented. Please send comments to the Director, Centre of Environment and Energy Statistics, Locked Bag 10, Belconnen ACT 2616, or phone (02) 6252 7348.

Dennis Trewin  
Australian Statistician

**INTRODUCTION** .....

**INTRODUCTION**

Traditionally the ABS has collected natural resource management (NRM) data using a business-based frame for data collection. The agriculture surveys have been the vehicle for this data collection. Recent surveys conducted using this practice include the Salinity Survey (2001) and the Water Survey (2003). The information from these surveys has used ABS statistical geography to produce output at the State and statistical division (SD) level. However, this type of survey output is not useful for all land management applications, particularly at regional level.

Furthermore, for NRM purposes, the agricultural collections:

- have limited capacity to include detailed NRM survey questions;
- use businesses with agriculture as their predominant income source as the survey unit, thereby excluding all land owned by non-agricultural entities; and
- are not designed to represent all land in a given NRM area of interest.

The use of a spatial, land-based area frame for NRM surveys overcomes many of the above issues.

The land parcel methodology is based on a list of land parcels for a given region and contains both land owner information as well as the size and location of each land parcel. The methodology facilitates the release of spatial data, enabling the dissemination and mapping of small area statistics at a finer level than previously available. Flexible land related outputs, for example National Heritage Trust (NHT) and National Action Plan (NAP) areas, are also possible.

The land parcel survey methodology differs from traditional ABS survey methodologies in that it is the spatial land parcel that forms the statistical unit about which statistics are tabulated, compiled or published rather than a business unit. The methodology is therefore limited in its ability to measure the economic performance of businesses.

The land parcel methodology facilitates the presentation of statistics using maps to represent their distribution. These maps use colours to represent a range of different proportions within regions such as river basins. The legend on each map shows the values each colour represents. The maps show features such as Shire boundaries, river basin boundaries, national parks, major water features, major highways as well as regions that are not included in scope of the survey.

THE EUROBODALLA SHIRE

The Eurobodalla Shire, as with other coastal areas, has urban development adjacent to the coast, with sparsely populated private land areas further away from the coastline having native vegetation or being used for agriculture. The Eurobodalla Shire has a temperate climate, with mild to warm summers and usually uniform rainfall throughout the year. Map 1.1 shows the location of the Shire in NSW.

**1.1** LOCATION OF THE EUROBODALLA SHIRE



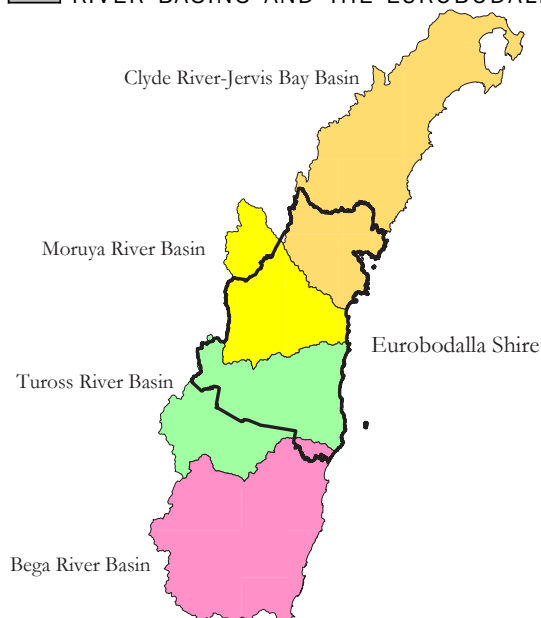
Significant areas of the coast are formed over geologies of marine and estuarine origin, which contain high levels of connate salt. Acid sulphate soils, which represent a particular form of salinisation, occur more widely on the coast than on inland areas. Most of the Shire has some salt in the groundwater, with estimated salt concentrations of between 1,000- 3,000 milligrams per litre (NSW Coastal Salinity Audit, 2004).

Pest animal control is a responsibility of the South Coast Rural Lands Protection Board in conjunction with the Eurobodalla Shire Council, the National Parks and Wildlife Service, State Forests and the Department of Lands. The Shire area operates programs for deer, feral cats, goats and pigs as well as for rabbits, wild dogs and foxes.

Specific control measures have been implemented by the Eurobodalla Shire Council and Eurobodalla Landcare for blackberry, bitou bush, salvinia, lantana, St John's wort, African lovegrass, serrated tussock and fireweed. Landcare groups undertake significant work towards addressing particular pest plants that occur within the Shire.

## THE RIVER BASINS

The Eurobodalla Shire contains parts of the Clyde River-Jervis Bay Basin, the Moruya River Basin, the Tuross River Basin and the Bega River Basin. Map 1.2 shows the four basins in relation to the Eurobodalla Shire boundary.

**1.2** RIVER BASINS AND THE EUROBODALLA SHIRE*Clyde River-Jervis Bay Basin*

The part of the Clyde River-Jervis Bay Basin within the Shire is located in the northern part of the Eurobodalla Shire. The main towns are Batemans Bay and Nelligen. The total area of this river basin within the Shire is about 87,200 hectares with over 60,000 hectares being national park. The Clyde River is about 125 km in length with its sources almost entirely within the national park. It is one of the last major rivers in eastern Australia that remains undammed. Except for a very small amount of agricultural land there are no polluting industries within its catchment, nor is any sewage discharged directly into the river.

The level of groundwater salinity is lowest in the northern part of the Clyde River-Jervis Bay Basin.

*Moruya River Basin*

The part of the Moruya River Basin within the Shire covers about 115,700 hectares and is located in the centre of the Eurobodalla Shire. The main towns are Moruya and Moruya Heads. There are 87,836 hectares of national park within the basin.

Groundwater salinity is low in the headwaters of the Moruya River, with reasonable quality water occurring in unconsolidated sediments of alluvial flats and sand dune systems near the township of Moruya. There is some minor salting around Moruya but this could be associated with the acid sulphate soils (NSW Coastal Salinity Audit, 2004).

*Tuross River Basin*

The part of the Tuross River Basin within the Shire comprises about 131,200 hectares and is located between the Moruya and Bega River basins. The majority of the basin (94,694 hectares) is located within national parks. Narooma, Tuross Heads and Dalmeny are the main towns in the basin.

Tuross River Basin  
*continued*

Salinity levels are low within the groundwater in the upper reaches of the Tuross River Basin.

Bega River Basin

Only a small part of the Bega River Basin lies within the Shire. It comprises about 7,200 hectares and is located in the southern part of the Eurobodalla Shire. Tilba Tilba and Central Tilba are the main towns in this part of the river basin. Of the four river basins this is the only river basin where the area of national park (3,185 hectares) is less than half of the total area of the basin.

Based on the findings of the NSW Coastal Audit 2004, salinity is not considered an issue for the Bega River Basin.

Map 1.3 shows the regions included in the survey (in scope) and the regions not included in the survey (out of scope) and provides a legend for the features that are common to all maps in the publication.

**1.3** SURVEY REGIONS

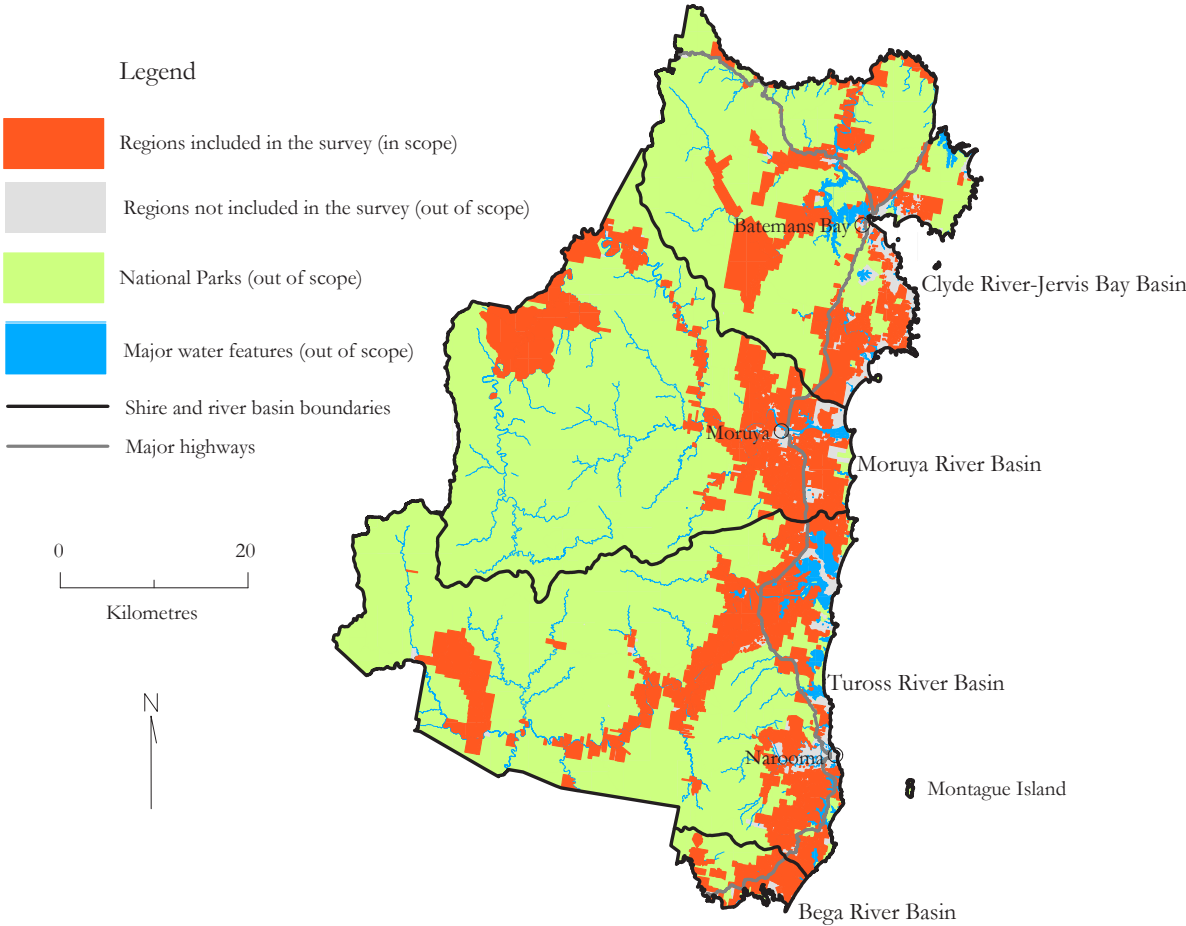


Table 1.4 shows the total areas of the in scope survey regions, the National Parks and other regions.



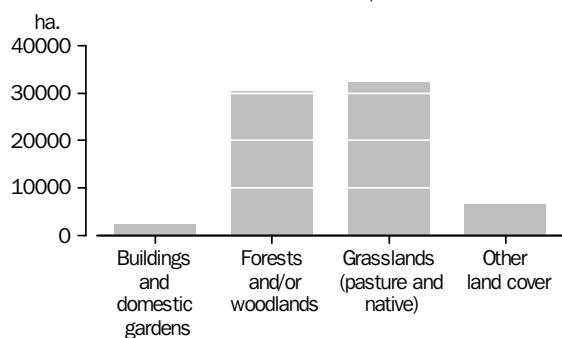
*Bega River Basin*  
*continued*

### 1.4 AREA OF SURVEY REGIONS

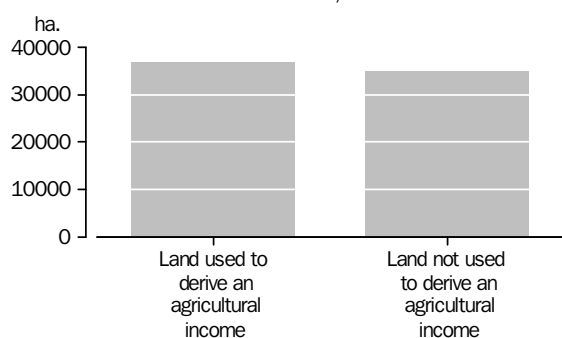
	BASIN				
	Clyde River-Jervis Bay	Moruya River	Tuross River	Bega River	Eurobodalla Shire
	ha.	ha.	ha.	ha.	ha.
In scope survey area	17 960	22 765	27 275	3 390	71 389
National Parks, State Forests and parklands	60 785	87 836	94 694	3 185	246 500
Urban areas, water and other regions	8 435	5 099	9 231	625	23 391
<b>Total</b>	<b>87 180</b>	<b>115 700</b>	<b>131 200</b>	<b>7 200</b>	<b>341 280</b>

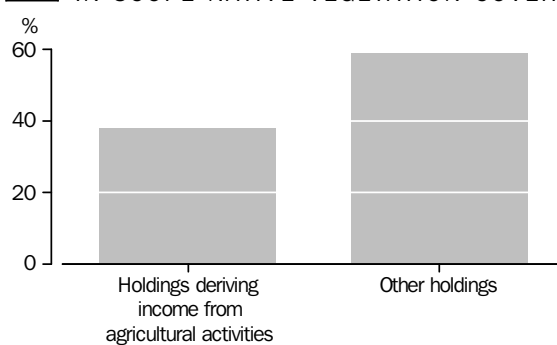
Graphs 1.5 - 1.7 display key data for the in scope survey regions of the Eurobodalla Shire.

### 1.5 IN SCOPE LAND COVER, Eurobodalla Shire



### 1.6 IN SCOPE LAND USE, Eurobodalla Shire



*Bega River Basin**continued***1.7** IN SCOPE NATIVE VEGETATION COVER, Eurobodalla Shire

## CHAPTER 2

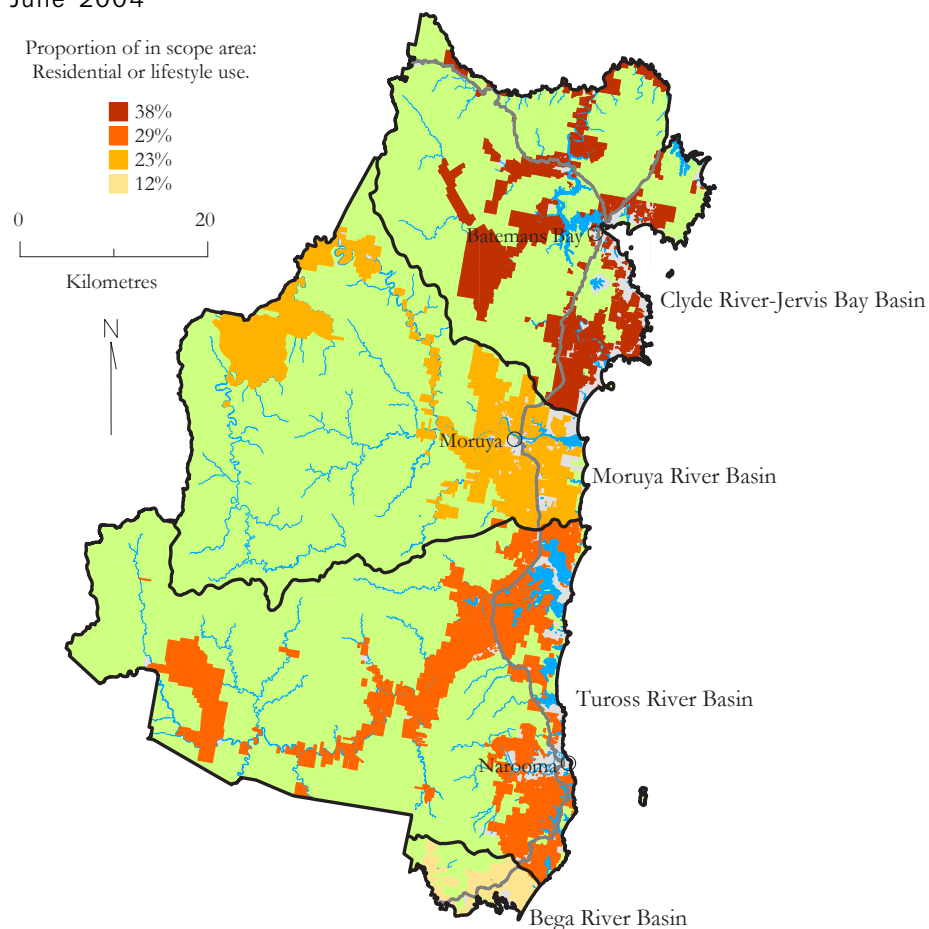
## LAND COVER AND USE .....

### KEY FINDINGS

As at 30 June 2004 there were a total of 2,327 holdings (refer to Explanatory notes for definition) in the Eurobodalla Shire that were in scope of this survey. The holdings were distributed over the Clyde River-Jervis Bay, Moruya River, Tuross River and Bega River basins. In total these holdings covered an area of 71,389 hectares. Forests and woodland covered 30,196 hectares (42%) and grasslands (pasture and native) covered 32,231 hectares (45%).

Most landholders (91%) reported that their holdings in the Eurobodalla Shire had some form of residential or lifestyle use. This land use represented just 28% of the total area. Map 2.1 shows the proportion of in scope hectares under residential or lifestyle use for each of the river basins in the Shire.

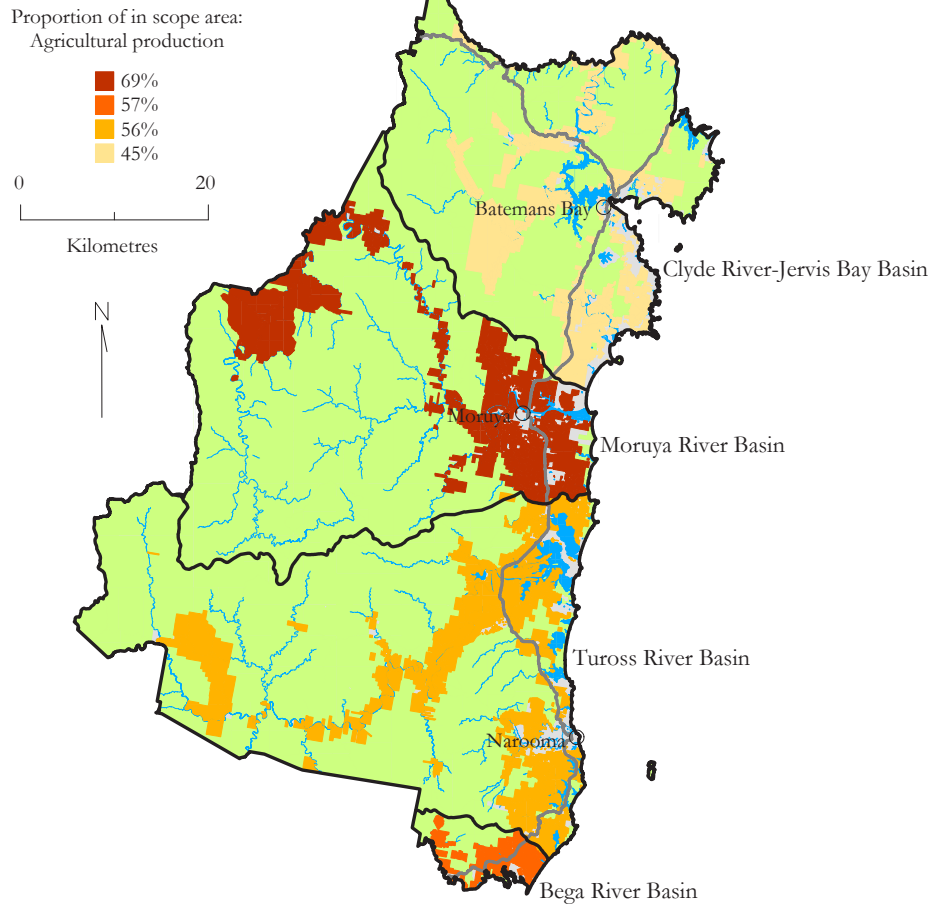
**2.1** LAND USED FOR RESIDENTIAL OR LIFESTYLE ACTIVITIES, as at 30 June 2004



KEY FINDINGS *continued*

Agricultural production was reported by 655 landholders with 40,842 hectares (57%) under this type of land use. Map 2.2 shows the proportion of in scope hectares under agricultural production in each of the river basins in the Shire.

## 2.2 LAND USED FOR AGRICULTURAL PRODUCTION, as at 30 June 2004



## KEY POINTS

- Beef cattle farming was the most common agricultural activity with 262 land holders reporting a total of 30,383 hectares used for this activity.
- Use of land for timber production was reported by 261 land holders and covered 4,605 hectares.
- Land used for tourism or recreational purposes was reported by 244 landholders and represented 1,388 hectares or 2% of the surveyed area.
- Of the four river basins, the Clyde River-Jervis Bay Basin had the highest proportion of residential and lifestyle block land use (38%). The Bega River Basin had the lowest proportion (12%).
- The Moruya River Basin had the highest proportion of agricultural production land use (69%). The Clyde River-Jervis Bay River Basin had the lowest proportion (45%).

**2.3****LAND COVER IN THE EUROBODALLA SHIRE, as at 30th June 2004**

## IN SCOPE AREA

	<i>Buildings and domestic gardens</i>	<i>Forests and woodlands</i>	<i>Grasslands (pasture and native)</i>	<i>Other vegetation</i>	<i>Wetlands and swamps</i>	<i>Other land cover</i>	<i>Total</i>	<i>Other(a)</i>	<i>Total for Eurobodalla Shire</i>
<b>Clyde River-Jervis Bay Basin</b>									
Number of holdings	573	503	459	245	153	265	(b) 743	. .	—
Land cover (ha.)	^ 803	6 898	8 120	1 366	393	380	17 960	69 220	87 180
Land cover (%)	1	8	9	2	1	—	21	79	100
<b>Moruya River Basin</b>									
Number of holdings	561	499	526	130	np	np	(b) 704	. .	—
Land cover (ha.)	578	12 205	8 403	999	np	np	22 765	92 935	115 700
Land cover (%)	1	11	7	1	np	np	20	80	100
<b>Tuross River Basin</b>									
Number of holdings	637	564	628	214	103	296	(b) 816	. .	—
Land cover (ha.)	^ 790	10 009	13 909	1 711	403	452	27 275	103 925	131 200
Land cover (%)	1	8	11	1	—	—	21	79	100
<b>Bega River Basin</b>									
Number of holdings	55	54	55	16	np	np	(b) 64	. .	—
Land cover (ha.)	* 133	1 083	1 799	78	np	np	3 390	3 810	7 200
Land cover (%)	2	15	25	1	np	np	47	53	100
<b>Total for Eurobodalla Shire</b>									
<b>Number of holdings</b>	<b>1 826</b>	<b>1 621</b>	<b>1 668</b>	<b>605</b>	<b>351</b>	<b>869</b>	<b>(b) 2 327</b>	<b>. .</b>	<b>—</b>
<b>Land cover (ha.)</b>	<b>2 304</b>	<b>30 196</b>	<b>32 231</b>	<b>4 154</b>	<b>1 217</b>	<b>1 287</b>	<b>71 389</b>	<b>269 891</b>	<b>341 280</b>
<b>Land cover (%)</b>	<b>1</b>	<b>9</b>	<b>9</b>	<b>1</b>	<b>—</b>	<b>—</b>	<b>21</b>	<b>79</b>	<b>100</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

. . not applicable

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes land out of scope of the survey, eg: National Parks, State Forests and urban/residential

(b) Components do not add to total due to possible multiple land covers on each holding

**2.4****LAND USE IN THE EUROBODALLA SHIRE, as at 30 June 2004**

## IN SCOPE AREA

	<i>Residential and lifestyle</i>	<i>Timber production</i>	<i>Agricultural production</i>	<i>Tourism and recreation</i>	<i>Other land uses</i>	<i>Total(b)</i>	<i>Other(a)</i>	<i>Total for Eurobodalla Shire</i>
<b>Clyde River-Jervis Bay Basin</b>								
Number of holdings	670	89	161	94	167	743	..	..
Land cover (ha.)	6 813	^ 1 724	8 096	^ 936	1 729	17 960	69 220	87 180
Land cover (%)	8	2	9	1	2	21	79	100
<b>Moruya River Basin</b>								
Number of holdings	642	76	204	np	np	704	..	..
Land cover (ha.)	5 228	^ 1 067	15 666	np	np	22 765	92 935	115 700
Land cover (%)	5	1	14	np	np	20	80	100
<b>Tuross River Basin</b>								
Number of holdings	743	83	249	89	146	816	..	..
Land cover (ha.)	7 787	* 1 568	15 146	* 272	^ 2 832	27 275	103 925	131 200
Land cover (%)	6	1	12	—	2	21	79	100
<b>Bega River Basin</b>								
Number of holdings	59	13	42	np	np	64	..	..
Land cover (ha.)	^ 407	* 246	1 933	np	np	3 390	3 810	7 200
Land cover (%)	6	3	27	np	np	47	53	100
<b>Total for Eurobodalla Shire</b>								
<b>Number of holdings</b>	<b>2 114</b>	<b>261</b>	<b>655</b>	<b>244</b>	<b>458</b>	<b>2 327</b>	<b>..</b>	<b>..</b>
<b>Land cover (ha.)</b>	<b>20 235</b>	<b>^ 4 605</b>	<b>40 842</b>	<b>^ 1 388</b>	<b>6 771</b>	<b>71 389</b>	<b>269 891</b>	<b>341 280</b>
<b>Land cover (%)</b>	<b>6</b>	<b>1</b>	<b>12</b>	<b>—</b>	<b>2</b>	<b>21</b>	<b>79</b>	<b>100</b>

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np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes regions out of scope of the survey, eg: National Parks, State Forests and urban/residential areas

(b) Components do not add to total due to possible multiple land uses on each holding

**2.5****LAND USED TO DERIVE AN AGRICULTURAL INCOME, 2003-04**

	<i>Land under crop</i>	<i>Beef cattle farming</i>	<i>Other agricultural activities</i>	<i>Total(a)</i>
<b>Clyde River-Jervis Bay Basin</b>				
Number of holdings	21	50	35	76
Land cover (ha.)	37	6 409	^ 923	6 867
Land cover (%)	1	93	13	100
<b>Moruya River Basin</b>				
Number of holdings	19	87	30	115
Land cover (ha.)	46	12 514	1 258	13 791
Land cover (%)	—	91	9	100
<b>Tuross River Basin</b>				
Number of holdings	18	105	44	137
Land cover (ha.)	116	10 494	5 769	14 165
Land cover (%)	1	74	41	100
<b>Bega River Basin</b>				
Number of holdings	5	20	9	29
Land cover (ha.)	10	^ 966	^ 764	1 723
Land cover (%)	1	56	44	100
<b>Total for Eurobodalla Shire</b>				
<b>Number of holdings</b>	<b>63</b>	<b>262</b>	<b>118</b>	<b>357</b>
<b>Land cover (ha.)</b>	<b>208</b>	<b>30 383</b>	<b>^ 8 713</b>	<b>36 545</b>
<b>Land cover (%)</b>	<b>1</b>	<b>83</b>	<b>24</b>	<b>100</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

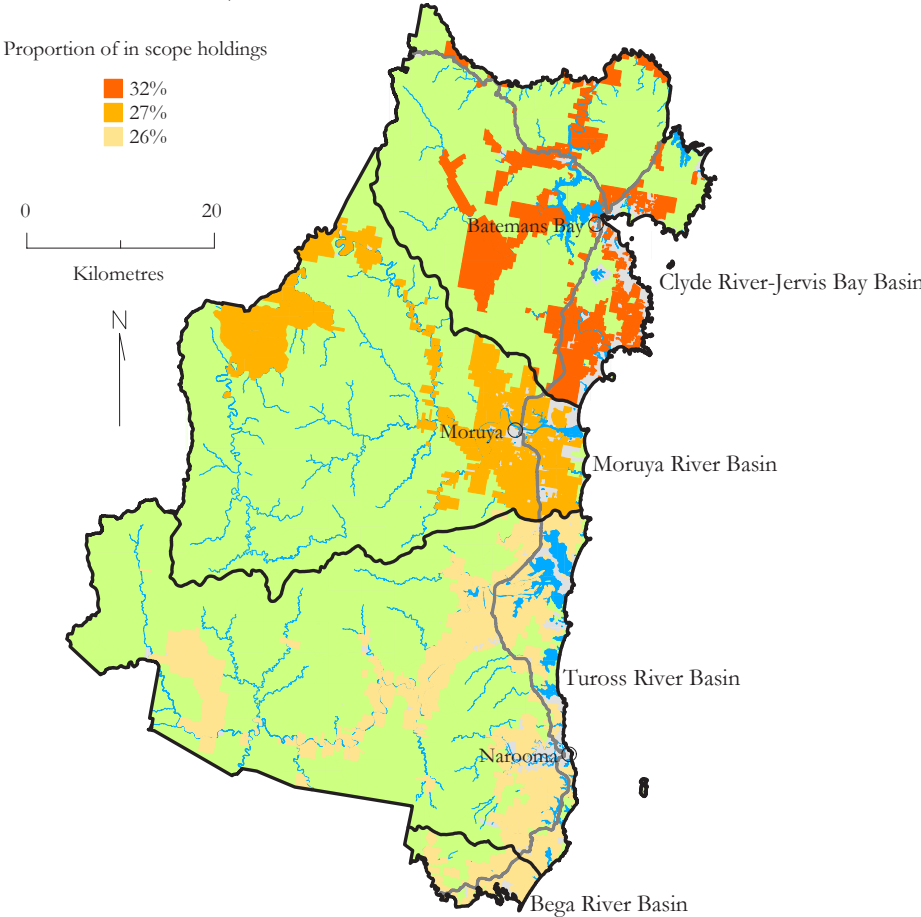
— nil or rounded to zero (including null cells)

(a) Components do not add to total due to possible multiple land uses on each holding

KEY FINDINGS

In the Eurobodalla Shire 665 landholders reported that they had one or more issues relating to land and soil on their holdings. Erosion was reported as being an issue by 429 landholders and covered 828 hectares. Salinity was an issue for 61 landholders with 89 hectares being affected. Map 3.1 gives the proportion of in scope holdings in each river basin with one or more soil issues.

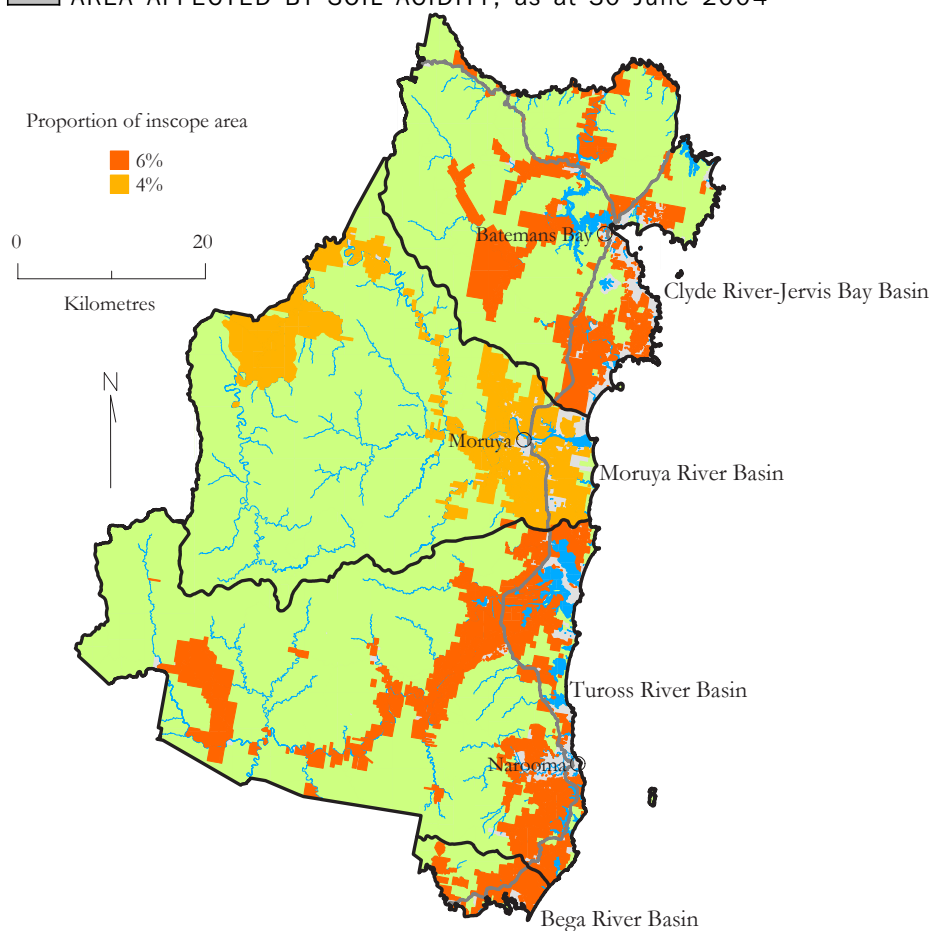
**3.1** SOIL ISSUES, 2003-04



Acidity was reported to be an issue by only 196 landholders with 4,038 hectares impacted by acidity during the 12 months ending 30 June 2004. Map 3.2 shows the proportion of in scope hectares affected by soil acidity in each river basin.



### 3.2 AREA AFFECTED BY SOIL ACIDITY, as at 30 June 2004



#### KEY POINTS

- In the Tuross River and Bega River basins 1,955 hectares were affected by soil acidity, representing 6% of the combined basin area.
- 146 landholders reported an erosion issue in the Moruya River Basin.
- In the Eurobodalla Shire 362 landholders addressed land and soil issues with:
  - Earthworks, drainage and water pumping undertaken by 97 landholders.
  - Addition of lime and/or soil testing undertaken by 83 landholders.
  - 57 landholders undertaking crop and pasture management.
  - Tree and shrub planting or maintenance undertaken by 53% of landholders in the Tuross River and Bega River basins.

### 3.3

#### ISSUES AFFECTING LAND AND SOIL, 2003-04

	BASIN							
	Clyde River-Jervis Bay		Moruya River		Tuross River and Bega River		Total for Eurobodalla Shire	
	no.	%	no.	%	no.	%	no.	%
<b>Holdings with land and soil issues</b>	<b>240</b>	<b>100</b>	<b>193</b>	<b>100</b>	<b>232</b>	<b>100</b>	<b>665</b>	<b>100</b>
Issues identified(a)								
Salinity	*29	12	*16	8	15	6	^ 61	9
Erosion	^ 140	58	^ 146	76	146	63	429	65
Acidity	63	26	63	33	70	30	^ 196	30
Sodicity	17	7	24	12	10	4	51	8
Soil compaction	88	37	50	26	77	33	214	32
Surface waterlogging	55	23	37	19	51	22	143	22

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could identify multiple issues on the one holding

### 3.4

#### ACTIVITIES ADDRESSING SALINITY, EROSION OR SOIL ACIDITY, 2003-04

	BASIN							
	Clyde River-Jervis Bay		Moruya River		Tuross River and Bega River		Total for Eurobodalla Shire	
	no.	%	no.	%	no.	%	no.	%
<b>Holdings that addressed salinity, erosion or acidity issues</b>	<b>^ 115</b>	<b>100</b>	<b>^ 106</b>	<b>100</b>	<b>140</b>	<b>100</b>	<b>362</b>	<b>100</b>
Activity(a)								
Crop and pasture management	24	21	14	13	19	14	57	16
Stock and grazing management	17	15	29	27	22	16	69	19
Undertaking earthworks, drains, or water pumping	*37	32	*12	11	48	34	^ 97	27
Tree and shrub planting or maintenance	69	60	41	39	74	53	185	51
Fencing to protect sensitive areas	25	22	28	26	46	33	^ 99	27
Addition of lime to soil acidity	30	26	20	19	32	23	83	23
Soil testing	25	22	28	26	46	33	99	27
Other	30	26	20	19	32	23	83	23

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could report multiple activities to address soil issues

**3.5****AREA AFFECTED BY SALINITY, EROSION OR SOIL ACIDITY, 2003-04 .....**

BASIN								
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River and Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	ha.	%	ha.	%	ha.	%	ha.	%
.....								
<b>Total in scope area</b>	<b>17 960</b>	<b>100</b>	<b>22 765</b>	<b>100</b>	<b>30 665</b>	<b>100</b>	<b>71 389</b>	<b>100</b>
Area affected by:								
Salinity	*24	—	*25	—	39	—	^89	—
Erosion	^105	1	345	2	377	1	828	1
Acidity	^1 101	6	^981	4	1 955	6	4 038	6

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

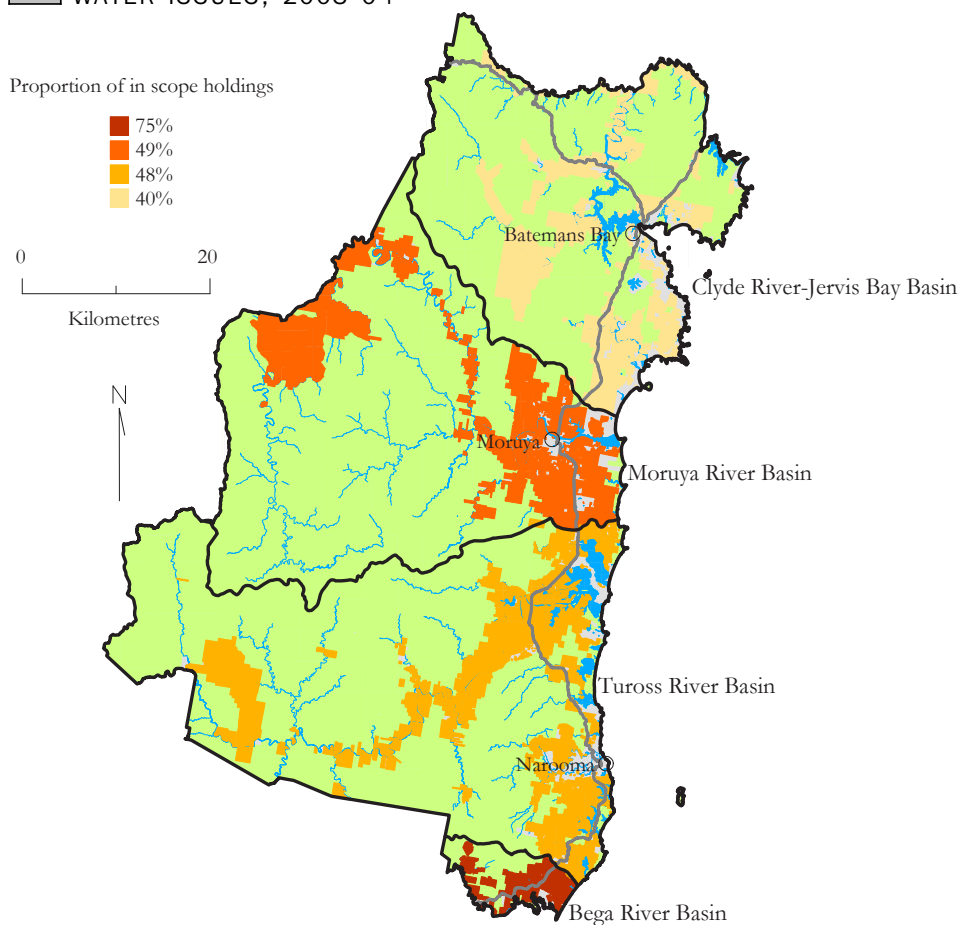
— nil or rounded to zero (including null cells)

KEY FINDINGS

Water issues were identified by 1,084 landholders in the Eurobodalla Shire. Bega River Basin had the highest proportion of landholders reporting water issues with 75% identifying at least one issue. Map 4.1 shows the proportion of in scope landholders reporting one or more water issues.

Tank water was used by 1,673 (72%) of the 2,327 landholders in the Eurobodalla Shire. It was the most commonly reported source of water in the Eurobodalla Shire. Dams were the next most commonly reported source of water with 1,368 landholders reporting their use. Rivers and creeks were used by 770 landholders. When compared to the other basins the Bega River Basin had a significantly higher proportion of landholders using rivers and creeks with 61% reporting this source.

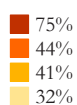
**4.1** WATER ISSUES, 2003-04



Water availability in the Eurobodalla Shire was an issue for 934 landholders. Map 4.2 shows the proportion of in scope landholders who identified water availability as an issue.

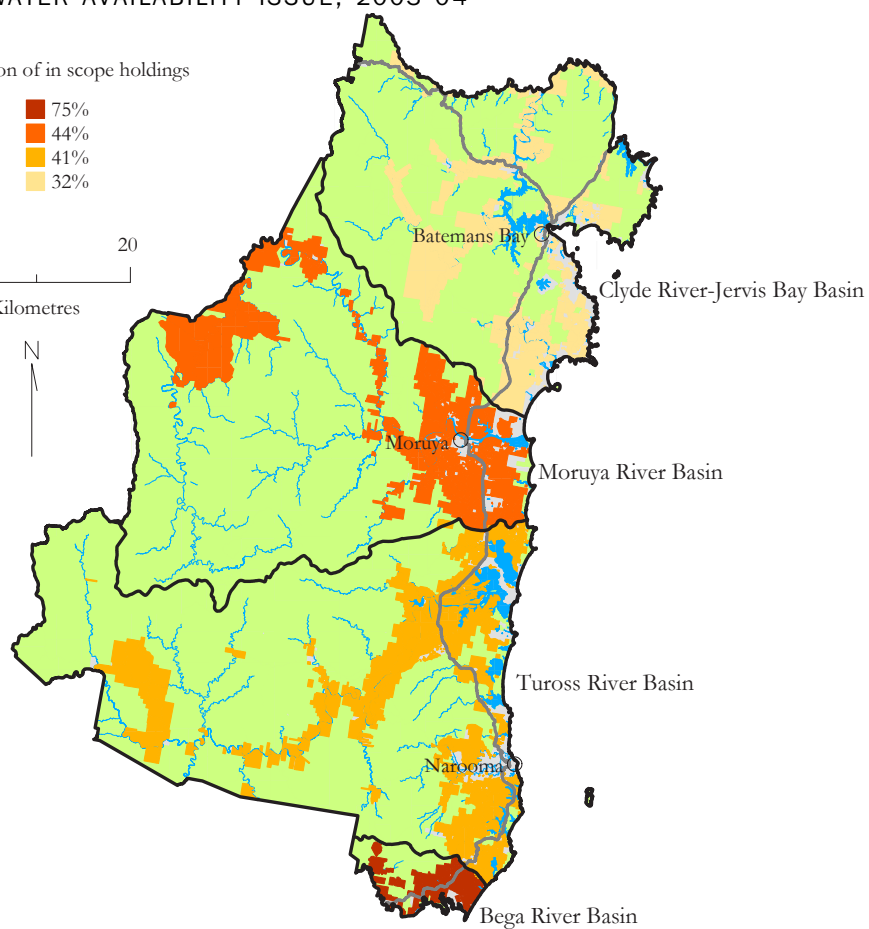
**4.2** WATER AVAILABILITY ISSUE, 2003-04

Proportion of in scope holdings



0 20

Kilometres



## KEY POINTS

- Use of mains supplied water was reported by 297 (13%) landholders in the Eurobodalla Shire.
- As well as tanks, dams and rivers and creeks landholders also reported using lakes, bores, wells, springs and other sources for their water supply.
- Water quality was an issue for 266 landholders in the Eurobodalla Shire.
- Water weeds were reported as an issue by 308 landholders.
- Water clarity was an issue for only 102 landholders.

### 4.3 SOURCES OF WATER, as at 30th June 2004

	BASIN									
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Total number of in scope holdings</b>	<b>743</b>	<b>100</b>	<b>704</b>	<b>100</b>	<b>816</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>2 327</b>	<b>100</b>
Source of water(a)										
Tank water	508	68	505	72	612	75	47	74	1 673	72
Rivers and creeks	^ 232	31	256	36	243	30	39	61	770	33
Dams	454	61	401	57	479	59	35	55	1 368	59
Mains supply	^ 80	11	^ 85	12	^ 119	15	^ 13	20	^ 297	13
Bores and wells	^ 100	14	*34	5	^ 40	5	*4	7	^ 178	8
Springs	^ 41	6	^ 62	9	^ 67	8	^ 8	12	^ 177	8
Other	*36	5	*23	3	^ 42	5	^ 12	19	^ 112	5

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could have more than one source of water on their holding

### 4.4 ISSUES RELATING TO WATER, 2003-04

	BASIN									
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Total number of holdings with water issues</b>	<b>296</b>	<b>100</b>	<b>345</b>	<b>100</b>	<b>395</b>	<b>100</b>	<b>48</b>	<b>100</b>	<b>1 084</b>	<b>100</b>
Water issue identified										
Quality	^ 59	20	^ 80	23	^ 111	28	^ 15	32	^ 266	25
Availability	^ 239	81	313	91	334	85	48	100	934	86
Clarity (turbidity)	*23	8	*35	10	*37	9	^ 7	15	^ 102	9
Weeds	^ 78	26	^ 101	29	^ 114	29	^ 15	31	^ 308	28

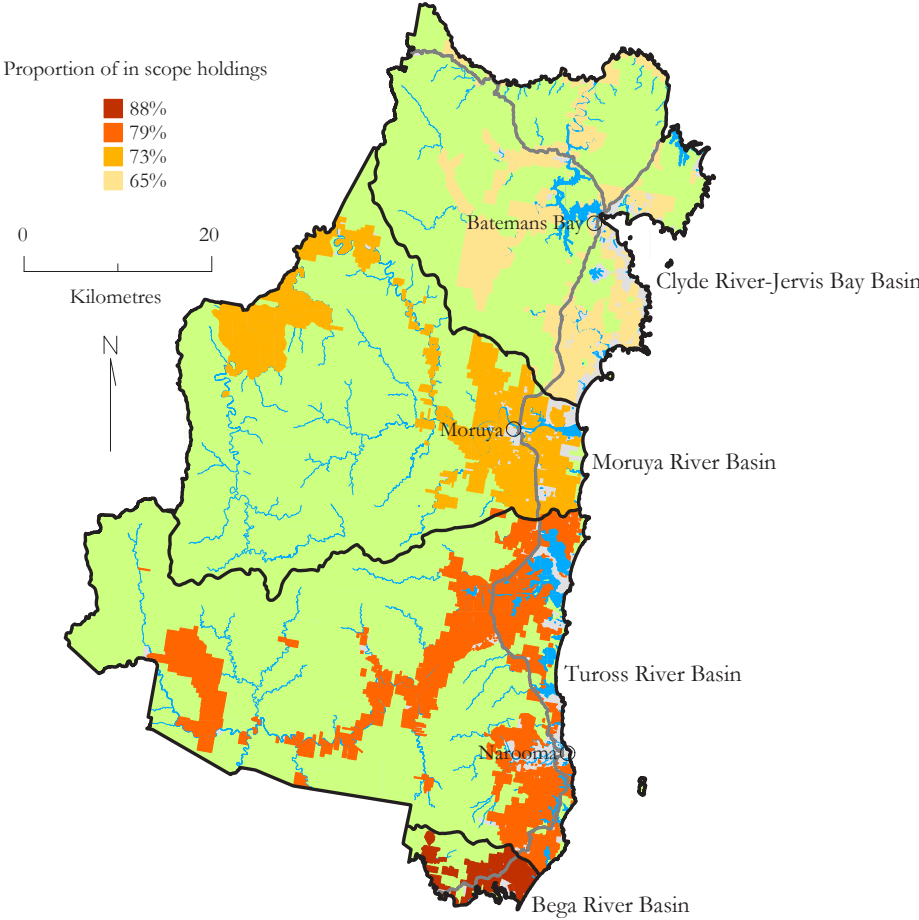
^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

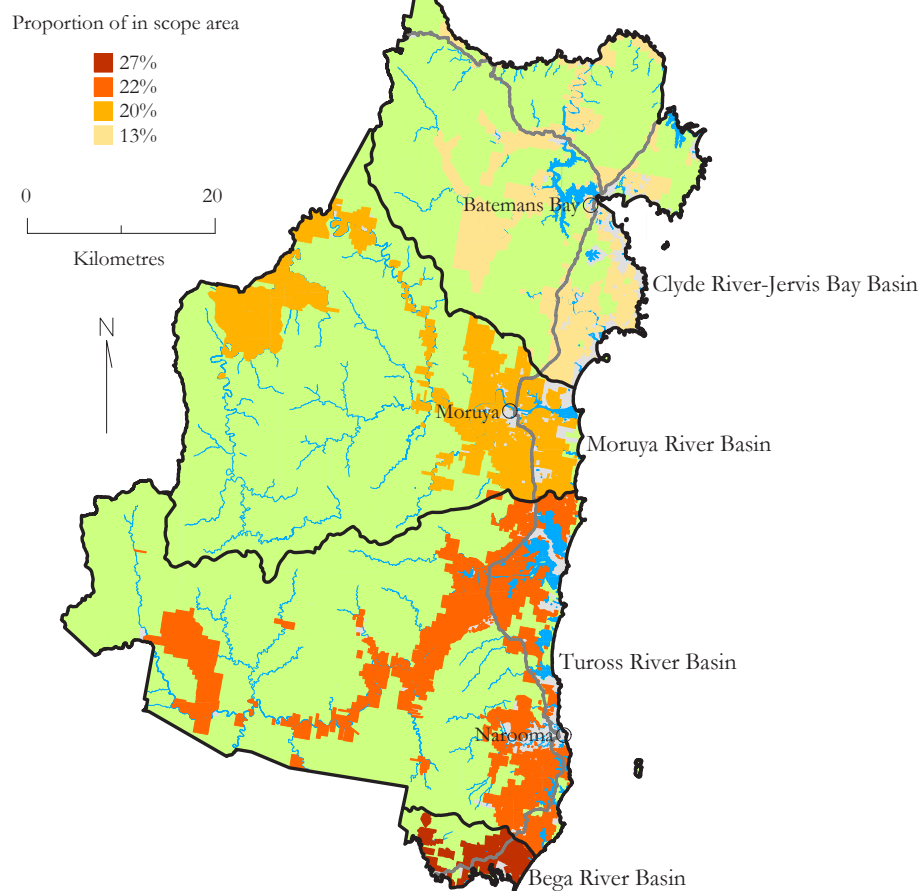
KEY FINDINGS

The majority of in scope holdings in the Eurobodalla Shire reported problems with weeds or pests, with 1,704 (73%) landholders reporting at least one weed and/or pest issue. Weeds were reported as an issue by 1,513 landholders. Map 5.1 shows the proportion of in scope holdings in each river basin with a weed or pest issue.

**5.1** WEED OR PEST ISSUES, 2003-04



Scattered weeds were reported to cover 13,673 hectares of the Shire. Weeds were dense or dominant over 2,428 hectares. The Tuross River Basin had 5,941 hectares of scattered weeds and 1,044 hectares of dense or dominant weeds. Map 5.2 shows the proportion of inscope area with scattered weeds in each river basin.

**5.2** SCATTERED WEEDS, as at 30 June 2004

## KEY POINTS

- Slashing, cutting, pulling or mowing weeds was undertaken by 1,212 landholders.
- Herbicides and/or pesticides were used by 726 landholders to combat weeds and pests.
- Landholders with weed issues spent a total of 49,713 person days (refer to Explanatory notes for definition) controlling the weeds.
- Native pest animals were an issue for 494 landholders in the Shire and feral pest animals were an issue for 577 landholders.
- Insect pests were an issue for 347 landholders.
- Landholders spent 5,090 person days controlling pests, with fencing and/or netting undertaken by 186 landholders to control pests.



**5.3**

## ISSUES RELATING TO WEEDS AND PESTS, 2003-04

	BASIN									
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Holdings with weed and pest issues<sup>(a)</sup></b>	<b>486</b>	<b>100</b>	<b>513</b>	<b>100</b>	<b>648</b>	<b>100</b>	<b>56</b>	<b>100</b>	<b>1 704</b>	<b>100</b>
Weeds	415	85	450	88	597	92	50	89	1 513	89
Native pest animals	^ 145	30	^ 153	30	^ 179	28	^ 18	31	494	29
Feral pest animals	^ 154	32	^ 197	38	^ 199	31	27	49	577	34
Insect pests	^ 135	28	^ 81	16	^ 119	18	^ 12	21	347	20

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution (a) Landholders could report multiple weed and pest issues

**5.4**

## AREA AFFECTED BY WEEDS, as at 30 June 2004

	BASIN									
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	ha.	%	ha.	%	ha.	%	ha.	%	ha.	%
<b>Total area of holdings</b>	<b>17 960</b>	<b>100</b>	<b>22 765</b>	<b>100</b>	<b>27 275</b>	<b>100</b>	<b>3 390</b>	<b>100</b>	<b>71 389</b>	<b>100</b>
Area where weeds are scattered	^ 2 375	13	^ 4 429	20	5 941	22	^ 928	27	13 673	19
Area where weeds are dense or dominant	^ 357	2	^ 897	4	^ 1 044	4	^ 130	4	2 428	3

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

## 5.5 ACTIVITIES UNDERTAKEN TO ADDRESS WEEDS AND PESTS, 2003-04 .....

BASIN											
	Clyde River-Jervis Bay		Moruya River		Tuross River		Bega River		Total for Eurobodalla Shire		
	no.	%	no.	%	no.	%	no.	%	no.	%	
Holdings that addressed weed and pest issues	358	100	425	100	586	100	54	100	1 422	100	
Activity(a)											
Use of herbicides and/or pesticides	^ 141	40	240	57	310	53	35	65	726	51	
Slashing, cutting, pulling or mowing	305	85	366	86	493	84	47	87	1 212	85	
Crop and pasture management and/or type	* 13	4	* 31	7	^ 39	7	^ 5	10	^ 87	6	
Grazing management	^ 48	13	^ 95	22	^ 80	14	^ 15	27	237	17	
Biological control agents (eg. insects)	** 5	2	** 4	1	** 8	1	—	—	* 17	1	
Burning	^ 55	16	* 22	5	^ 79	14	^ 7	14	^ 164	12	
Fencing and/or netting	* 49	14	^ 61	14	^ 69	12	^ 7	13	^ 186	13	
Other activities	^ 81	23	^ 71	17	^ 95	16	* 8	15	^ 255	18	
^ estimate has a relative standard error of 10% to less than 25% and should be used with caution			** estimate has a relative standard error greater than 50% and is considered too unreliable for general use								
* estimate has a relative standard error of 25% to 50% and should be used with caution			— nil or rounded to zero (including null cells)								
			(a) Landholders were able to report multiple activities addressing weed and pest issues								

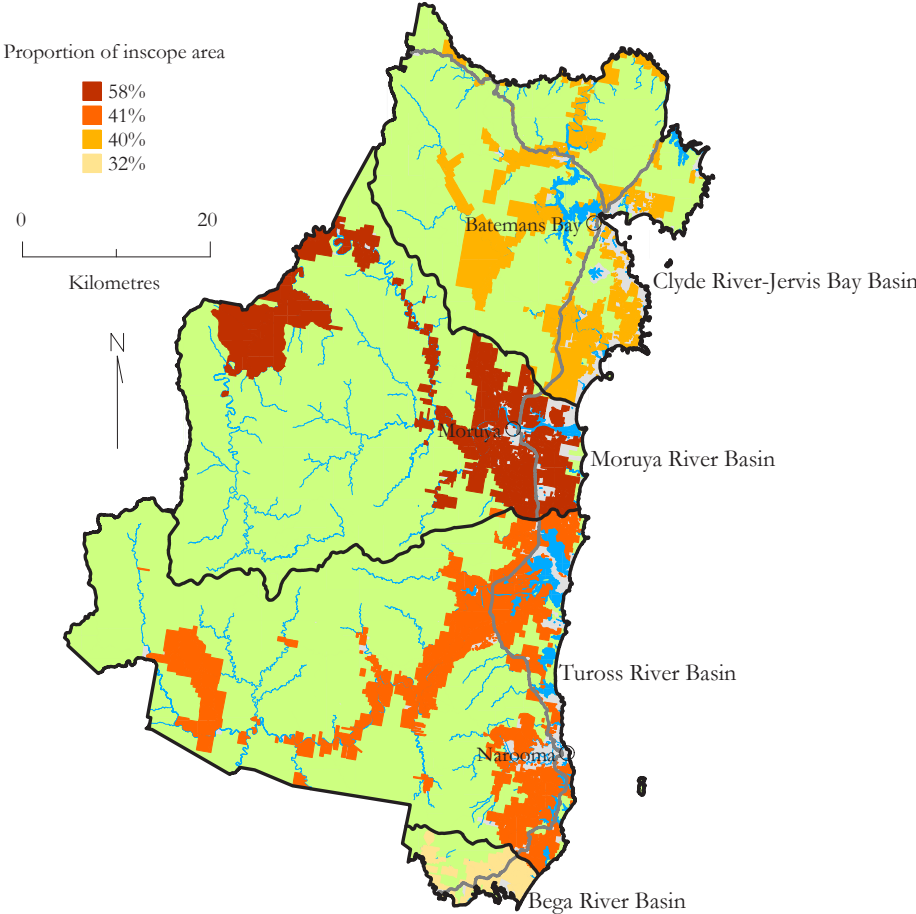
## 5.6 PERSON DAYS SPENT CONTROLLING WEEDS AND PESTS, 2003-04 .....

BASIN					
	<i>Clyde River-Jervis Bay</i>	<i>Moruya River</i>	<i>Tuross River</i>	<i>Bega River</i>	<i>Total for Eurobodalla Shire</i>
<b>Number of holdings managing weeds and pests</b>	<b>358</b>	<b>425</b>	<b>586</b>	<b>54</b>	<b>1 422</b>
Person days spent					
Controlling weeds	10 174	5 752	12 577	21 211	49 713
Controlling pests	1 256	1 118	2 597	119	5 090

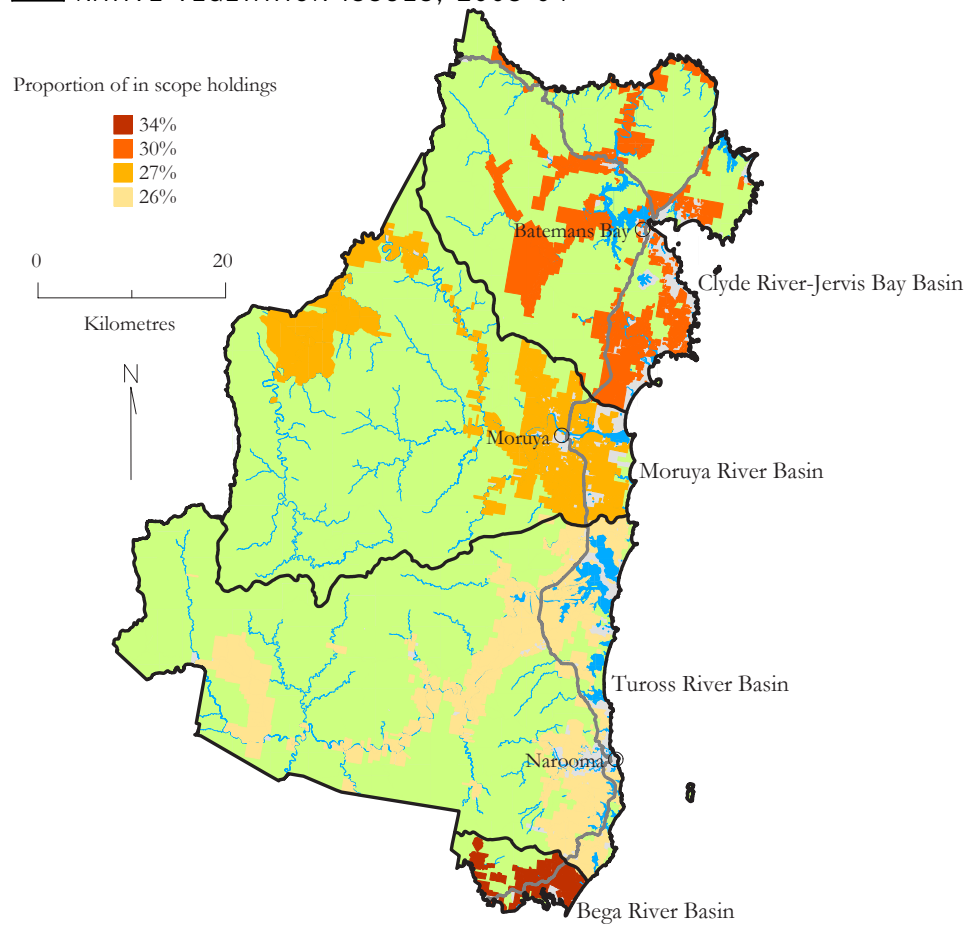
KEY FINDINGS

In the Eurobodalla Shire 1,763 landholders reported that they had native vegetation on their holding at 30 June 2004. Native vegetation covered 32,733 hectares representing 46% of the total in scope area. In the Bega River Basin 58 landholders reported having native vegetation on their holding. The same basin had the lowest coverage of native vegetation with 1,092 hectares or 32%. The Moruya River Basin had the highest coverage of native vegetation at 58% (13,187ha). Map 6.1 shows the proportion of in scope area covered by native vegetation in each river basin.

**6.1** NATIVE VEGETATION COVER, as at 30 June 2004



Over a third (37% or 650) of landholders with native vegetation on their holding reported that they had an issue with the native vegetation. Map 6.2 shows the proportion of in scope holdings that had an issue with native vegetation.

**6.2** NATIVE VEGETATION ISSUES, 2003-04

## KEY POINTS

- The quality of the native vegetation was an issue for 371 landholders.
- Too little native vegetation was an issue for 173 landholders.
- Too much native vegetation was considered an issue by 328 landholders.
- In the Eurobodalla Shire 506 (22%) landholders addressed native vegetation issues with:
  - 74 landholders fencing off a combined total of 886 hectares of native vegetation.
  - 153 hectares planted or seeded with native vegetation, with 142 landholders undertaking this activity.
  - 156 hectares cleared of native vegetation with 80 landholders undertaking this activity.
  - Thinning of regrowth undertaken on 197 holdings.
  - Fire management for regeneration undertaken on 134 holdings.
- The area of native vegetation cover decreased on 266 holdings during the year ending 30 June 2004.
- Provision of a wildlife habitat was reported by 1,140 landholders as a reason for having native vegetation on their holding.
- A total of 1,148 landholders considered that native vegetation provided an attractive outlook.
- A total of 498 landholders reported that native vegetation added to the value of the land.

**6.3****NATIVE VEGETATION COVER, as at 30 June 2004**

	<i>Total number of in scope holdings</i>	<i>In scope holdings with native vegetation</i>	<i>Total in scope area</i>	<i>Area of native vegetation on in scope holdings</i>
	no.	no.	ha.	ha.
<b>Total for Eurobodalla Shire</b>	<b>2 327</b>	<b>1 763</b>	<b>71 389</b>	<b>32 733</b>
Basin				
Clyde River-Jervis Bay	743	594	17 960	7 205
Moruya River	704	499	22 765	13 187
Tuross River	816	611	27 275	11 249
Bega River	64	58	3 390	1 092

**6.4****ISSUES RELATING TO NATIVE VEGETATION, 2003-04**

	BASIN								Total for Eurobodalla Shire	
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>			
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Holdings with native vegetation issues</b>	<b>^ 226</b>	<b>100</b>	<b>^ 191</b>	<b>100</b>	<b>^ 211</b>	<b>100</b>	<b>^ 22</b>	<b>100</b>	<b>650</b>	<b>100</b>
Issue(a)										
Native vegetation quality	^ 138	61	^ 78	41	^ 141	67	^ 13	60	371	57
Too little native vegetation	*50	22	^ 62	32	^ 56	27	*5	24	^ 173	27
Too much native vegetation	^ 120	53	^ 95	50	^ 102	48	^ 11	49	328	51

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Holdings could have multiple native vegetation issues

## 6.5 ACTIVITIES UNDERTAKEN TO ADDRESS NATIVE VEGETATION ISSUES, 2003-04 ..

	BASIN							
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River and Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%
<b>Holdings that addressed native vegetation issues</b>	<b>^ 166</b>	<b>100</b>	<b>^ 124</b>	<b>100</b>	<b>216</b>	<b>100</b>	<b>506</b>	<b>100</b>
Activity(a)								
Native vegetation fenced from stock	*14	8	*19	15	*42	19	^ 74	15
Planting and/or seeding of native vegetation	*20	12	*45	36	*77	36	^ 142	28
Clearing of native vegetation	*35	21	*24	19	*21	10	^ 80	16
Fire management for regeneration	^ 63	38	*31	25	*40	19	^ 134	26
Thinning of regrowth native vegetation	^ 80	48	*50	41	^ 67	31	^ 197	39
Weed and/or pest management	^ 66	40	^ 47	38	^ 120	56	^ 233	46
Other activities	*28	17	*29	23	*18	8	^ 75	15

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could undertake multiple activities to address native vegetation issues

## 6.6 AREA OF HOLDINGS WITH NATIVE VEGETATION ISSUES ADDRESSED, 2003-04 ..

	BASIN							
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>	
	ha.	%	ha.	%	ha.	%	ha.	%
<b>Area of holdings that addressed native vegetation issues</b>	<b>^ 3 234</b>	<b>100</b>	<b>^ 3 984</b>	<b>100</b>	<b>^ 8 117</b>	<b>100</b>	<b>^ 868</b>	<b>100</b>
Area of activity								
Area fenced from stock	*94	3	*96	2	^ 496	6	*200	23
Area planted and/or seeded	*14	—	*31	1	*104	1	*5	1
Area cleared	*37	1	*52	1	*64	1	*4	—

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

— nil or rounded to zero (including null cells)

**6.7**

## REASON FOR HAVING NATIVE VEGETATION, 2003-04

	BASIN									
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Holdings with native vegetation</b>	<b>594</b>	<b>100</b>	<b>499</b>	<b>100</b>	<b>611</b>	<b>100</b>	<b>58</b>	<b>100</b>	<b>1 763</b>	<b>100</b>
Reason for having native vegetation(a)										
Provide wildlife habitat	333	56	339	68	429	70	39	67	1 140	65
Aesthetic reasons	335	56	355	71	424	70	34	58	1 148	65
Adds value to land	^ 104	18	^ 184	37	^ 189	31	^ 21	36	498	28
Restriction on vegetation removal	^ 104	18	^ 63	13	^ 127	21	^ 7	12	301	17
To prevent erosion	261	44	^ 237	47	289	47	^ 22	38	808	46
To prevent salinity	^ 76	13	^ 70	14	^ 101	17	^ 11	18	^ 258	15
Shelter and shade for stock or crops	^ 70	12	^ 130	26	^ 157	26	^ 21	36	378	21
For future wood pulp production	*24	4	^ 58	12	^ 86	14	^ 9	16	^ 177	10
No particular reason	^ 225	38	^ 122	24	^ 140	23	^ 11	19	497	28
Other reasons	^ 84	14	^ 69	14	^ 52	9	^ 17	29	^ 221	13

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could report multiple reasons for having native vegetation on their holding

**6.8**

## HOLDINGS WHERE NATIVE VEGETATION DECREASED, 2003-04

	BASIN							
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River and Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%
<b>Holdings where native vegetation decreased</b>	<b>^ 75</b>	<b>100</b>	<b>^ 98</b>	<b>100</b>	<b>^ 93</b>	<b>100</b>	<b>^ 266</b>	<b>100</b>
Reason for decrease(a)								
Due to fire or fire management	*46	61	^ 69	70	*54	58	^ 169	64
Provides perceived increase in land value	**7	—	—	—	*5	5	*12	5
To create or enlarge agricultural land	*6	8	*3	3	*13	14	^ 22	8
To create or enlarge residential land	*18	24	*12	12	**9	10	*39	15
Other reasons	*42	56	*32	33	*50	54	^ 124	47

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) Landholders could report multiple reasons for a decrease in native vegetation

## KEY FINDINGS

*NRM expenditure*

In scope landholders in the Eurobodalla Shire spent almost \$3.6 million addressing soil, water, weed and pest, and native vegetation issues (NRM related expenditure). The average expenditure was \$1,541 for the 2,327 holdings included in the survey. Holdings in the Tuross and Bega River Basins accounted for 49% of this expenditure. The combined average expenditure for these two basins was \$1,980 per holding.

- The Moruya River Basin had the lowest average expenditure per holding of \$1,226.
- In the Clyde River-Jervis Bay Basin a total of \$981,000 was spent addressing NRM issues in 2003-04.
- The Clyde River-Jervis Bay Basin had the greatest expenditure addressing soil salinity, erosion and acidity (\$325,000).
- In the Tuross River and Bega River basins \$717,000 was spent addressing weed and pest issues out of a total NRM related expenditure of \$1,742,000.
- A total of \$632,000 was spent addressing native vegetation issues in the Eurobodalla Shire.

*Income*

Income from the sale of agricultural goods and services was reported by 367 landholders, with 277 land holders reporting income from other activities undertaken on the holding. The majority of these landholders reported income of less than \$25,000.

- In the Eurobodalla Shire 264 landholders derived between \$1 and \$24,999 from sales of agricultural goods with 103 earning \$25,000 or more.
- In the Eurobodalla Shire 187 landholders derived between \$1 and \$24,999 from other activities undertaken on their holding with 90 earning \$25,000 or more.

*Changes, initiatives and barriers*

Landholders in the Eurobodalla Shire reported planning ownership and activity changes to their holding over the next five years, with 292 landholders planning to sell all or part of their holding and 251 landholders considering sub-dividing their land.

Restrictions to improving management practices were reported by 1,415 landholders. The two restrictions reported most often were a lack of financial resources (73%) and lack of time (70%).

Family, friends and neighbours were considered by 1,433 landholders as a potential source of management assistance or information. Local Government was identified as a potential source of information by 1,282 landholders.

- In the Tuross River and Bega River basins 110 (13%) landholders planned to change the activity on their holding in the next 5 years.
- In the Moruya River Basin 414 (59%) landholders reported Local Government as a potential source of assistance for land management issues.
- In the Bega River Basin 39 (85%) landholders reported lack of financial resources as a restriction to improving management practices.



**7.1****EXPENDITURE ON NATURAL RESOURCE MANAGEMENT ACTIVITIES, 2003-04** .....

	BASIN			
	<i>Clyde River-Jervis Bay</i>	<i>Moruya River</i>	<i>Tuross River and Bega River</i>	<i>Total for Eurobodalla Shire</i>
	\$'000	\$'000	\$'000	\$'000
Expenditure on				
Salinity, erosion, acidity	*325	*191	*249	^ 765
Water related issues	*230	^ 177	*515	^ 922
Weed and pest related issues	^ 236	^ 314	^ 717	1 268
Native vegetation issues	*190	*181	*261	^ 632
<b>Total expenditure by in scope holdings</b>	<b>^ 981</b>	<b>^ 863</b>	<b>^ 1 742</b>	<b>3 586</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

**7.2****INCOME DERIVED FROM SALES OF AGRICULTURAL GOODS, 2003-04** .....

	BASIN							
	<i>Clyde River-Jervis Bay</i>		<i>Moruya River</i>		<i>Tuross River and Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%
<b>Total number of holdings</b>	<b>743</b>	<b>100</b>	<b>704</b>	<b>100</b>	<b>880</b>	<b>100</b>	<b>2 327</b>	<b>100</b>
Number of holdings with sales of								
agricultural goods	57	12	112	16	167	19	367	16
\$1 to \$24,999	^ 65	9	^ 87	12	^ 112	13	264	11
\$25,000 to \$49,999	*14	2	^ 9	1	**27	3	^ 51	2
\$50,000 and over	**8	1	^ 16	2	^ 28	3	^ 52	2

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

**7.3****INCOME FROM NON-AGRICULTURAL ACTIVITIES, 2003-04**

	BASIN									
	Clyde River-Jervis Bay		Moruya River		Tuross River		Bega River		Total for Eurobodalla Shire	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Total number of holdings</b>	<b>743</b>	<b>100</b>	<b>704</b>	<b>100</b>	<b>816</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>2 327</b>	<b>100</b>
Number of holdings with non-agricultural income	86	12	58	8	122	15	11	17	277	12
\$1 to \$24,999	*42	6	*41	6	^ 93	11	^ 11	17	^ 187	8
\$25,000 to \$49,999	*5	1	*8	1	*6	1	—	—	*19	1
\$50,000 and over	*39	5	*9	1	*23	3	—	—	^ 71	3

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

— nil or rounded to zero (including null cells)

**7.4****OWNERSHIP AND ACTIVITY CHANGES PLANNED IN THE NEXT 5 YEARS**

	BASIN							
	Clyde River-Jervis Bay		Moruya River		Tuross River and Bega River		Total for Eurobodalla Shire	
	no.	%	no.	%	no.	%	no.	%
<b>Total number of holdings<sup>(a)</sup></b>	<b>743</b>	<b>100</b>	<b>704</b>	<b>100</b>	<b>880</b>	<b>100</b>	<b>2 327</b>	<b>100</b>
No changes planned	458	62	516	73	585	66	1 559	67
Plan to purchase more land	*26	4	*10	1	*20	2	^ 56	2
Plan to sub-divide	^ 105	14	^ 63	9	*83	9	^ 251	11
Plan to sell all or part of the holding	^ 119	16	^ 69	10	*105	12	292	13
Plan to change the activity on the holding	^ 81	11	^ 59	8	*110	13	^ 250	11
Other plans	^ 47	6	*45	6	*61	7	^ 152	7

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders could report more than one planning or activity change

**7.5****RESTRICTIONS TO IMPROVING MANAGEMENT PRACTICES , 2003-04**

	BASIN									
	<i>Clyde River-Jervis</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Holdings reporting restrictions</b>	<b>438</b>	<b>100</b>	<b>420</b>	<b>100</b>	<b>511</b>	<b>100</b>	<b>46</b>	<b>100</b>	<b>1 415</b>	<b>100</b>
Type of restriction(a)										
Lack of financial resources	313	71	301	72	384	75	39	85	1 037	73
Lack of time	323	74	266	63	369	72	29	63	987	70
Insufficient information	^ 135	31	^ 130	31	^ 119	23	^ 11	24	395	28
Doubts about likely success	^ 105	24	^ 76	18	^ 115	23	^ 12	26	308	22
Age or poor health	^ 162	37	^ 137	33	^ 149	29	^ 15	33	463	33
Lack of incentives	^ 144	33	^ 136	32	^ 147	29	^ 20	43	447	32
Government restrictions	^ 160	37	^ 126	30	^ 158	31	^ 13	28	457	32
Other restrictions	^ 143	33	^ 94	22	^ 128	25	^ 13	28	^ 379	27

^ estimate has a relative standard error of 10% to less than 25% (a) Landholders were able to report more than one restriction and should be used with caution

**7.6****POTENTIAL SOURCES OF MANAGEMENT ASSISTANCE/INFORMATION**

	BASIN									
	<i>Clyde River-Jervis</i>		<i>Moruya River</i>		<i>Tuross River</i>		<i>Bega River</i>		<i>Total for Eurobodalla Shire</i>	
	no.	%	no.	%	no.	%	no.	%	no.	%
<b>Total number of holdings</b>	<b>743</b>	<b>100</b>	<b>704</b>	<b>100</b>	<b>816</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>2 327</b>	<b>100</b>
Source of assistance/information(a)										
Family friends and/or neighbours	373	50	481	68	538	66	41	65	1 433	62
Library and/or Internet	262	35	314	45	339	42	26	41	942	41
Landcare and/or other Care groups	^ 173	23	253	36	252	31	28	44	706	30
Natural Heritage Trust/Envirofund	* 44	6	^ 63	9	^ 56	7	^ 6	10	^ 170	7
Catchment Management Authority	^ 74	10	^ 118	17	^ 99	12	^ 7	11	298	13
Local Government	^ 407	55	414	59	428	52	33	52	1 282	55
State and/or Federal Government agencies	^ 173	23	234	33	210	26	24	37	641	28
Other	^ 63	9	^ 64	9	^ 85	10	^ 12	19	^ 225	10

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Landholders were able to report more than one potential source

## EXPLANATORY NOTES .....

- INTRODUCTION**
- 1** This publication presents results from the ABS Land Management Survey trial conducted in the Eurobodalla Shire of NSW for the 12 months ending 30 June 2004.
- SCOPE AND COVERAGE**
- 2** The scope of the survey was land parcels in the Eurobodalla Shire with a land use category of "rural" and greater than 2 hectares. This included any residential land parcels coded to "rural". Residential land parcels in the urban areas of the Shire were not in scope of the survey.
- 3** For the survey a stratified random sample of 1000 land parcels covering about 85% of the in scope land area was selected. The survey response rate was 74%, with 62% of in scope land covered by responding units.
- THE HOLDING**
- 4** The unit about which the statistics were reported was the holding. The holding comprised all land parcels under common ownership. Common ownership was defined as all land owned by a given person, persons or entity. For example, separate land parcels under the ownership of "Owner X" were combined to form one holding under the name of "Owner X". Land parcels that were owned by "Owner X and Owner Y" were treated as being part of another holding.
- 5** Each survey form contained a map that described the holding. Each lot plan within the holding was identified by lot number, plan number and its area (in hectares). Cases where changes in land ownership were not current were dealt with by applying survey framework maintenance procedures.
- PERSON DAYS**
- 6** One person day is considered to be 8 hours work. For example if two people spent 5 days in the year controlling weeds, then this equals 10 person days.
- REFERENCE PERIOD**
- 7** Data contained in the maps and tables in this publication relate to activity and conditions during the year ended 30 June 2004.
- RELIABILITY OF DATA**
- 8** The estimates in this publication are subject to sampling and non-sampling errors.
- SAMPLING ERRORS**
- 9** The estimates in this publication are based on information obtained from a sample drawn from all of the land parcels in scope of the survey, and are subject to sampling variability; that is, they may differ from figures that would have been produced if all land parcels had been included in the survey. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of land parcels was included. There are about two chances in three that a sample estimate will differ by less than one SE from the figure that would have been obtained if a census had been conducted, and approximately nineteen chances in twenty that the difference will be less than two SEs.
- 10** In this publication 'sampling' variability of the estimates is measured by the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate to which it refers.
- 11** Where the RSE of an estimate included in this publication falls in the range of 10% to less than 25%, it has been annotated with the symbol '^', indicating that the estimate should be used with caution as it is subject to sampling variability too high for some purposes. Where the RSE of an estimate is 25% to 50%, it has been annotated with the symbol '\*', indicating that the estimate should be used with caution as it is subject to

SAMPLING ERRORS *continued*

sampling variability too high for most practical purposes. Where the RSE of an estimate exceeds 50%, it has been annotated with the symbol '\*\*', indicating that the sampling variability causes the estimate to be considered too unreliable for general use. RSEs of all estimates in this publication are available on request.

**12** The following table contains estimates of RSEs for a selection of the statistics presented in this publication.

## RELATIVE STANDARD ERRORS OF SELECTED ESTIMATES, 2003-04

	BASIN				Total for Eurobodalla Shire
	Clyde River-Jervis Bay	Moruya River	Tuross River	Bega River	
	%	%	%	%	%
Number of in scope holdings	—	—	—	—	—
In scope area (ha.)	—	—	—	—	—
Land cover					
Buildings and domestic gardens (no.)	4	3	3	3	2
Buildings and domestic gardens (ha.)	10	6	10	27	5
Forests and/or woodlands (no.)	5	4	4	3	2
Forests and/or woodlands (ha.)	4	3	4	8	2
Grasslands (pasture and native) (no.)	5	4	4	3	2
Grasslands (pasture and native) (ha.)	3	5	3	6	2
Land use					
Residential and lifestyle (no.)	2	2	2	2	1
Residential and lifestyle (ha.)	5	6	5	10	3
Timber production (no.)	17	17	19	16	10
Timber production (ha.)	15	16	20	34	10
Agricultural production (no.)	12	9	8	5	5
Agricultural production (ha.)	4	2	3	7	2
Holdings with:					
Land and soil issues (no.)	10	10	10	8	6
Issues addressed (no.)	16	16	13	11	8
Water issues (no.)	9	7	7	5	4
Issues addressed (no.)	15	14	12	13	8
Weed and pest (no.)	5	4	3	3	2
Issues addressed (no.)	7	5	4	3	3
Native vegetation (no.)	10	11	10	11	6
Issues addressed (no.)	13	14	11	13	7

— nil or rounded to zero (including null cells)

## NON-SAMPLING ERRORS

**13** Errors other than those due to sampling may occur because of deficiencies in the list of units from which the sample was selected, non-response, and errors in reporting by providers. Inaccuracies of this kind are referred to as non-sampling error, which may occur in any collection, whether it be a census or a sample. Every effort has been made to reduce non-sampling error to a minimum by careful design and testing of questionnaires, operating procedures and systems used to compile statistics.

ABS DATA AVAILABLE ON  
REQUEST

**14** As well as the statistics included in this publication, the ABS may have other relevant data available on request. Inquiries should be made to either the National Information and Referral Service on 1300 135 070 or John Purcell on 02 6252 5651.

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**15** A range of NRM and agricultural publications are produced by the ABS, including:

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## ACKNOWLEDGEMENT

**17** ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence, as required by the Census and Statistics Act 1905.

## ABBREVIATIONS

\$'000	thousand dollars
ABS	Australian Bureau of Statistics
ha	hectare
no.	number
NRM	natural resource management
NSW	New South Wales
RSE	relative standard error
SD	statistical division
SE	standard error
SLA	statistical local area







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