

Regional Catchment Strategies and biodiversity enhancement: the East Gippsland experience

Andrea Lindsay¹, Bill Peel¹, Matt Kennedy¹ and Stephen Henry²

¹East Gippsland Catchment Management Authority

²Flora and Fauna, Regional Services Division, Department of Sustainability and Environment

Abstract

The 1997 East Gippsland Regional Catchment Strategy has recently been reviewed, in preparation for the development of a new strategy. This paper describes the statutory basis for the strategy and outlines the considerable implications for biodiversity protection in the region. After five years a good deal has been achieved, but much remains to be done. Gaps in resource provisions, community involvement and knowledge, particularly relating to managing change, were identified. Nonetheless, many lessons have been learned, and the renewal of the RCS offers opportunities for further achievement.

Keywords

biodiversity conservation, change management, community involvement, East Gippsland, Regional Catchment Strategy

Introduction

The *East Gippsland Regional Catchment Strategy* (1997) is one of ten regional strategies that were prepared under the *Catchment and Land Protection Act 1994*. Each of the ten Victorian Catchment Management Authorities recently coordinated the review of these strategies, as required by the Act. Each region is now in various stages of preparing new Regional Catchment Strategies. The East Gippsland CMA, in partnership with other relevant agencies, undertook a somewhat more extensive review of its existing strategy in comparison to some other regions. It has learnt many lessons for the new Strategy from this process. The report on the review can be obtained from the East Gippsland Catchment Management Authority website (www.egcma.com.au).

Statutory Requirements and Context of the RCS

The purpose of a Regional Catchment Strategy (RCS) is to set out how the natural resources in a region are to be managed, in line with the general objectives of the Act (s. 4 and s. 23). The Strategies can be taken as the key vehicles used to meet the objectives of the Act, which include:

- (a) to establish a framework for the integrated and co-ordinated management of catchments which will
 - (i) maintain and enhance long-term land productivity while also conserving the environment; and
 - (ii) ensure the quality of the State's land and water resources and their associated plant and animal life are maintained and enhanced; (s. 4)

While the term 'biodiversity' is not used, probably because it was not in common parlance when the Act was drafted, protection of biodiversity is implied in these objectives.

Provisions are made within the Act for Regional Catchment Strategies (s. 3). In addition, the Act also states that 'a management plan must be prepared in accordance with any guidelines established by the [Victorian Catchment Management] Council' (Schedule 2). Guidelines

provided for the 1997 Strategy were brief and generally mirrored directions in the Act (VCLPC 1995). Guidelines for the new RCS are more extensive and develop some new concepts that are relevant to biodiversity protection, including specific reference to Victoria's Biodiversity Strategy.

The review of the current RCS

The review was undertaken using the following methods: examination of the legislative requirements and guidelines provided for development of the RCS and the history of its development; a technical workshop to determine the status of implementation of the RCS, interviews, a questionnaire and discussion group to assess the process used to develop the RCS, the contents of the strategy, its implementation, gaps in the strategy, and lessons for the next strategy.

This paper attempts to draw general themes from the large array of sometimes divergent views on the many matters discussed.

What the review said about biodiversity

The 1997 East Gippsland RCS contained a reference in its 'Vision' statement to protection of the 'natural environment' and 'enhanced water quality and flora and fauna values through sound land and water management'. Major objectives included 'to maintain and conserve the biodiversity of the Region'.

A very open consultation process during the review was used to identify 'natural resource issues of concern' in East Gippsland. Column 1 of Table 1 summarises 'key issues' identified in the 1997 RCS. Those shown in bold relate directly to biodiversity. Other issues may also have some relationship to biodiversity protection. The number of actions identified in the RCS to address these issues is listed in the second column, and the other columns provide an indication of implementation of actions.

Table 1 Implementation status of actions in the 1997 East Gippsland Regional Catchment Strategy.

Issues identified/Focus of actions	Number of actions	Actions completed, or in progress	Actions not done as well as could have been hoped for at this stage
Community education, awareness and support	6	6	0
Water erosion and waterways	22	19	5
Pest plants	14	14	7
Pest animals	12	10	1
Fire	8	8	2
Biodiversity conservation	3	3	1
Problem wildlife	1	1	1
Water quality	12	11	6
Soil characteristics	2	1	0
River flow management	6	5	1
Native vegetation removal	3	2	1
Strategy implementation	9	5	0
Macro-scale monitoring	4	2	1
Total	102	87	26

Biodiversity conservation was identified, as a 'key issue' for the region. However, only 6% of actions were aimed directly at biodiversity conservation. The consultation process tended to focus on issues of immediate concern to those sections of the community that were most used to

being outspoken on natural resource matters; that is, farmers and those with a long-standing interest in water management. Their interests were seen as dominating, while biodiversity was given less prominence.

Public land issues were also neglected. In East Gippsland, where 80% of land is in public ownership, public land issues are of immediate relevance to biodiversity. Furthermore, concern for native biodiversity in the rural landscape appears to be influenced by the large tracts of public land. Public concern for native flora and fauna on private land may be diminished somewhat in East Gippsland because of the backdrop of very extensive public land covered by native vegetation.

What the 1997 RCS might have done for biodiversity

There is uncertainty concerning what the 1997 RCS has achieved for biodiversity. There are several reasons for this. In particular:

- Many of the actions that had been implemented (column 3 of Table 1) were part of existing programs. It was also concluded that consultation to produce the RCS influenced the thinking of those responsible for natural resource management and, indirectly, what was subsequently done. A more integrated approach to natural resource management was fostered. Partnerships between natural resource managers and regionally based approaches were encouraged.
- Five years is too short a time in which to fully assess programs and processes to conserve and improve biodiversity. It is a short time in terms of many ecological processes; it is also a short time in terms of changes in the human institutions, attitudes and behaviours that affect how we treat our natural environment.
- The RCS is one of many instruments for changing the way biodiversity is protected. Other instruments include policies such as state and federal biodiversity policies (Anderson et al. 2001), legislation such as Victoria's *Flora and Fauna Guarantee Act 1988*, regulations such as the native vegetation clearing controls introduced into Victoria over a decade ago (NRE 2000), community movements, particularly Landcare (Anon. 2001, pp. 32–33), and planning regulations (CNR 1996). There is considerable interaction between instruments, with one providing a practical expression or support for another. For example, the primary driver for developing the *Draft East Gippsland Native Vegetation Plan* (EGCMA 2000) was a Government-sponsored process to develop such plans for all Victoria. The planning process drew together information about the status of each of the 87 ecological vegetation classes (EVCs) in the region. This fundamentally important data set was generated through an extensive tenure-blind mapping process undertaken by the former Department of Natural Resources and Environment. The plan used the EVC status analysis as the basis for recommending differential levels of protection for native vegetation throughout the region (and in particular on private land), and to generate priorities for revegetation work. The RCS included an action to 'prepare and implement a regional vegetation plan which takes account of the particular circumstances of the East Gippsland Region'. This gave the East Gippsland Management Authority an imprimatur to coordinate the development of the plan. It also allowed access to funding sources for development of the plan — a matter that is discussed further below.
- No specific process for monitoring and assessing the effects of the RCS on natural resource protection was built into the original strategy. Much monitoring of programs that fall under the RCS has been undertaken but is not necessarily tailored to assessing the strategy itself. Developing an appropriate framework for monitoring the new RCS is one of the tasks identified in the guidelines for its development (NRE 2002a, p. 12).

What the 1997 RCS did for biodiversity

While there is uncertainty concerning some of the effects of the 1997 RCS on biodiversity in East Gippsland, there is agreement on several benefits. In particular:

- The RCS played an essential part in obtaining funds for a range of activities relevant to biodiversity protection. Only funding applications that could be related to an endorsed Regional Catchment Strategy, of which the RCS was one, were eligible for funding under the National Heritage Trust.¹ Several thousands of dollars have been granted by the National Heritage Trust to implement the Draft East Gippsland Native Vegetation Plan, and for waterways projects. These funds have been used to protect, restore and reconstitute threatened ecosystems (particularly Plains Grassy Woodlands of the Red Gum plains and temperate rainforest ecosystems) through covenants, incentives, assistance with controlling threatening processes and replanting. They have also helped to develop methods for using indigenous species to protect rivers and riparian vegetation from erosion and consequently estuaries from degrading sediment pollution.

Similar amounts of National Heritage Trust funds have been obtained for Landcare activities. These include the preparation of the East Gippsland Strategic Landcare Action Plan, Group Action Plans, funding of two Landcare coordinators, control of pest plants and rabbits and revegetation projects. A biodiversity enhancement component is normal in these projects. Revegetation is with indigenous species of local provenance. Revegetation is undertaken to provide wildlife corridors, rather than simply shelterbelts.

- Programs funded have been used to increase community capacity for biodiversity protection and enhancement. Restoration projects all have an underlying adaptive management approach. Each activity includes some experimentation, monitoring, assessment, and incorporation of new information into future management and knowledge dissemination to the wider community. Much has been learnt about cost-effective management of threatening processes, such as competition from weeds and browsing by exotic animals. Private nurseries grow local species used in the projects. Government agencies and community groups, including Corrective Services, Green Corps, Indigenous people and the Community Jobs Program, are involved in restoration, planting and weed control. Training is provided in restoration techniques as well as other work-place skills.
- The community-based planning of programs under the RCS has drawn many people into the discussion about biodiversity. The development of the Draft East Gippsland Native Vegetation Plan was one such consultative process. It was guided by a project committee of farmers, other community members and agency representatives. The committee itself was polarised over the application of clearing controls on private land. The plan, and the consultation process associated with it, served to raise community (and particularly farmer) awareness of the application of native vegetation clearing regulations. The strong negative reaction to the plan from many landholders has been something of a surprise, given that the controls have been in existence for over a decade and the plan did not propose any major changes to their current application.

It is most important that these reactions, and the reasons for them, are identified. To proceed with plans and programs that do not have the support of the affected community would be, at best, a waste of time, and could very easily be counter-productive. It is not enough to believe that private land managers should accept policies, legislation, regulations or plans to protect biodiversity, when in fact they do not do so. Nor is it enough to assume that more information, more marketing, more penalties or even more money will ensure that they will change their attitudes and behaviour.² Actual, rather than assumed, barriers to

¹ Strategies were endorsed by the Minister. This has been taken as the equivalent of the accreditation that will be required of the new Regional Catchment Strategies.

² A study by staff of Deakin University into barriers to energy conservation in domestic households identified that conventional thinking about barriers to change can be well wide of reality (Stokes et al. 1994, Stokes and Lindsay

change need to be understood, and mechanisms that will prove effective in overcoming these barriers need to be identified. Successes elsewhere and in East Gippsland provide a good basis for understanding how change for biodiversity protection can be facilitated. A more systematic assessment of available information on managing change, and studies to fill gaps in knowledge, appear to be among the keys to protecting biodiversity.

- In spite of conflicting attitudes to biodiversity protection in East Gippsland, the last five years has seen a positive shift in landholders' attitudes, and a considerable shift in attitudes within government. Some of this change has resulted from the projects funding described above. There is a view that the emerging concept of 'environmental services' is a positive approach that grew out of demands in East Gippsland for compensation for restrictions on clearing of native vegetation. This is the basis of the Bush Tender trials now extended to East and West Gippsland (NRE, n.d.). Under the Bush Tender scheme a landholder can bid to sell to the government environmental services provided by managed remnant native vegetation. The philosophy of treating native vegetation as a positive asset that can help farmers finance their enterprises may provide a useful basis for discussion when the new RCS is being developed.
- The 1997 RCS has had a major influence on planning in East Gippsland. The objectives and actions from the RCS were incorporated into the East Gippsland Planning and Development Strategy (coordinated by East Gippsland Shire) and formed the basis for the Municipal Strategic Statement in the East Gippsland Planning Scheme. As a result, the RCS provisions were carried forward into the policy sections of the Scheme, guided the application of zones and overlays, and contributed to the development of controls in schedules within the Planning scheme.

What the RCS has not yet achieved for biodiversity, and why

The review of the 1997 RCS indicated a number of gaps, which will be addressed in the new RCS. In particular:

- It has achieved only minor changes in attitudes in the community.
- It did not identify actual, rather than assumed, barriers to biodiversity protection on farms and adjoining land.
- it gave only limited attention to biodiversity and did not provide adequate attention to threatening processes.
- It did not identify adequately information and resource deficiencies.
- There has, so far, been only limited success in reversing decline in biodiversity in most threatened EVCs.

The main reasons identified for these gaps were:

- the relatively short time (five years) to achieve measurable changes in attitudes and reverse biodiversity decline, particularly in the face of very severe drought and floods in the region
- the limited time and resources to undertake capacity-building activities and public education and communication
- the limited understanding of the processes of change, and how these can be managed in a positive way
- the limited knowledge of processes that threaten biodiversity and ecosystem function, and the high costs of expanding this knowledge
- the high cost of reversing threatening processes and restoring ecosystems.

unpubl.). Most of the factors that actually influence total domestic energy use bore little resemblance to the assumptions being made by policy makers at the time. These assumptions were leading to promotion of energy efficient technologies, public education and marketing of desired behavior change. Actual barriers had to do with decision-making structures within households, time constraints on the home manager, car dependence in sprawling suburbs and total family income. Ironically, more income related positively to both capacity to purchase energy-efficient goods and to high energy consumption.

However, the review concluded that the 1997 RCS was a good first try at a new approach to natural resource management. Furthermore, East Gippsland is in a strong position to achieve good outcomes in the future for biodiversity protection and enhancement. It still contains good representation of most of native vegetation type that are indigenous to the region. Equally important, the region is less affected than most of Victoria by some of the most threatening processes, particularly salinity and clearing of native vegetation.

Opportunities with renewal of the RCS

The 1997 Regional Catchment Strategies were pioneering documents (NRE 2002a, p. 4). They were the first integrating, catchment-based management strategies produced on a statewide basis in Australia. Implementation of the RCS has provided valuable experience that can inform the new RCS. It has identified gaps, as well as changes over the five years, that should influence the new Strategy.

Changes of particular relevance to biodiversity include introduction of policies, regulations and actions directly aimed at biodiversity protection and enhancement. Several of these were mentioned earlier in this paper. Others include the establishment of the Natural Heritage Trust and, most recently, the development of the Bush Tender trials (NRE, n.d.).

Some new direction is given by the guidelines for the new RCS. They make specific reference to biodiversity and contain other key objectives that support a strong emphasis on biodiversity protection. Specifically, they state that:

RCSs in all parts of Victoria need to specify each region's objectives and targets for the following high-level outcomes:

- effective community engagement in decision making
- a commitment to ecologically sustainable development
- enhanced biodiversity values
- improved natural resource management. (NRE 2002a, p. 4)

The guidelines give biodiversity a similar status to other aspects of catchment protection, such as land, water, social and economic considerations (e.g. NRE 2002a, p. 11, point 9). They also direct that there will be a strengthening of the Regional Catchment Strategies in two key areas: integration of catchment issues, and evidence-based decision making (that is, based on sound scientific information) (NRE 2002a, p. 13).

The guidelines also require that an 'asset-based' approach be used. The community (including agency staff and other public employees, as well as private individuals) will be involved in identifying the region's 'natural assets', threats to these 'assets', and strategies to deal with these threats. The approach used in the 1997 strategy was issues-based. In this approach, the community was asked to identify 'issues' of concern. This very often encouraged a focus on the symptoms of natural resource degradation (e.g. river bank erosion) rather than the causes of degradation (e.g. increased run-off resulting from land clearing). It could give the highest priority for action to the matters that caused the most immediate irritation, rather than to the natural resources that have the highest values to the community (e.g. clean water) and the greatest threats to these (e.g. nutrient run-off). The assets-based approach is an attempt to raise thinking above concern for symptoms of degradation, to focus on those natural assets that are of greatest value and that are under the most risk of degradation. In East Gippsland it would be very surprising if the richness of the region's flora and fauna were not given a high status among its natural assets.

Recently interest and concern about the condition of our natural 'assets' has been encouraged within East Gippsland by events such as increasing frequency of algal blooms in the Gippsland Lakes and the knowledge that nutrient pollution from the catchments is responsible (NRE 2002b). The need to reverse the decline of native vegetation on the Red Gum plains is also a matter of increasing debate among both landholders and agency staff (J. Hand, pers.

comm.³). This increasing interest should encourage a greater emphasis on biodiversity during the development and implementation of the new RCS.

There has also been a growing desire, at the regional and Gippsland-wide levels, for stronger partnerships between natural resource managers, including farmers, private industry, local government and public land managers. This has been given practical expression in the composition of the RCS Steering Committee and Management Group, and also through involvement of the Gippsland Integrated Natural Resource Management (INRM) Forum as a high-level reference group. The Steering Committee and Management Group includes representatives of the farming community, the East Gippsland Institute of TAFE, the East Gippsland Shire, the tourist industry and conservation interests, as well as relevant government agencies and the East Gippsland CMA. The INRM Forum brings together leaders in natural resource management from across Gippsland in order to achieve an integrated response to management and protection of natural resources in Gippsland. It will play important roles in aligning the East and West Gippsland strategies and ensuring that the RCS is implemented efficiently.

The resources available to undertake the development of the new RCS and establish partnerships for its implementation are greater than were provided to produce the 1997 RCS. They are intended to allow additional directives in the guidelines to be fulfilled. These directives include the requirement for a stronger foundation of scientific information to underpin the RCS, consultation for the assets-based approach, consideration of relevant social and economic matters (expressed in a requirement for a 'triple bottom line' reporting framework) and community consultation that achieves 'ownership' of the RCS (NRE 2002a, pp. 9, 11, 13).

The new RCS offers an opportunity to build strong directions for biodiversity protection and enhancement into the RCS — the primary integrating framework for natural resource management at the regional level.

The Information Base for the New RCS

Information on the vascular flora and vertebrate fauna and vegetation types on public land in East Gippsland is substantial, and there is a good basic understanding of the status, distribution and habitat associations of most species. Much of this survey effort has been generated by the long-running public debate over land allocation (national park versus state forest) and timber harvesting, so that state forest has been relatively well surveyed and the major gaps are (ironically) in national parks. This information has been summarised in several major reports, notably CNR (1993), Commonwealth and VRFASC (1996) and Commonwealth and VRFASC (1999).

Information on plants and animals on private land is much patchier, and few areas of the rural estate have been subject to systematic flora and fauna surveys. The consequences of this are most important for those landforms that have been preferentially selected for agricultural development, such as the Gippsland Plains, mountain plateaux (such as near Omeo, Gelantipy and Bendoc) and floodplains (such as the Mitchell River at Lindenow, Snowy River at Orbost and Cann River at Cann River). Vegetation types closely associated with these landforms have been disproportionately cleared and are often poorly represented in the public reserve system, and many areas that remain are heavily disturbed. This is particularly evident on the Gippsland Plains and on the floodplains. Thus, species and vegetation communities closely associated with these landforms could be expected to have declined significantly, and their presence on private land means that their status is often poorly understood. Some work to redress this gap has commenced, notably on the Gippsland Plains (M. Bramwell, pers. comm.⁴) and Snowy River (W. Peel, pers. obs.).

As indicated earlier in this paper, understanding the factors that influence the capacity of communities and individuals to change may be the area in which there is the greatest deficiency in information. Such knowledge is needed at all levels, from policy and strategy development to application on the ground. This is not to say that those who deal with the community on a day-

³ Estuarine Monitor, East Gippsland Catchment Management Authority, PO Box 1012, Bairnsdale, Vic. 3875.

⁴ Flora and Fauna Unit, Department of Natural Resources and Environment, 7 Service St, Bairnsdale, Vic, 3875

to-day basis do not have a considerable knowledge that is based on experience. What are inadequate are frameworks and resources to evaluate this knowledge rigorously and extend it into available and useful information for the people who need it.

Conclusion

The review of the 1997 East Gippsland Regional Catchment Strategy indicates that the strategy was a good first attempt at a strategic approach to managing East Gippsland's natural resources. The process of reviewing the 1997 RCS has provided considerable information and direction on which to base the development of the new RCS.

The guidelines for the next RCS should lead to greater attention to biodiversity as an asset to be valued and protected. Some increase in community concern for biodiversity could see a slow but steady commitment to biodiversity protection and enhancement in the region.

Emphasis on evidence-based decision-making should ensure that the RCS has its foundations in the best available information. There is a considerable, if incomplete, basis of biological information on which to build the new RCS. However, there is less information on the human side of natural resource management, particularly factors that present barriers to desirable change or that can facilitate such change, as well as factors that may influence managers and users of natural resources to make changes that increase the degradation of natural resources. Good information is needed on actual rather than assumed factors that influence human desire and capacity for protecting biodiversity. While there appears to be considerable experiential knowledge, a sound framework within which this knowledge can be interpreted, and gaps identified, is desirable.

The emphasis in the guidelines on social and economic issues, as well as ecological ones, should see this need for human information addressed.

Acknowledgments

The authors would like to express their appreciation for information provided by staff of the former Department of Natural Resources and Environment and the East Gippsland Catchment Management Authority. They would also like to thank the many individuals who contributed to the review of the 1997 East Gippsland Regional Catchment Strategy.

References

- Anderson, S., Lowe, K., Preece, K. and Crouch, A. (2001) *Incorporating Biodiversity into Environmental Management Systems for Victorian Agriculture*. Department of Natural Resources and Environment: East Melbourne.
- Anon. (2001) A fistful of biodiversity. *Australian Landcare* December 2001.
- Commonwealth and VRFASC [Victorian Regional Forest Agreement Steering Committee] (1996), *East Gippsland Comprehensive Regional Assessment — Environment and Heritage Report*. Commonwealth of Australia: Canberra.
- Commonwealth and VRFASC (1999) *Gippsland Comprehensive Regional Assessment — Biodiversity Assessment*. Commonwealth of Australia: Canberra.
- Catchment and Land Protection Act 1994* (Vic.), as amended at 1 July 1997.
- CNR (1993) *Statement of Resources, Uses and Values, East Gippsland Forest Management Area*. Department of Conservation and Natural Resources, Victoria: East Melbourne.
- CNR (1996) *Planning Guidelines for Native Vegetation Retention Controls*. Department of Conservation and Natural Resources: East Melbourne.
- EGCMA (1997) *East Gippsland Regional Catchment Strategy*, East Gippsland Catchment Management Authority: Bairnsdale, Victoria.
- EGCMA (2000) *Draft East Gippsland Native Vegetation Plan*. East Gippsland Catchment Management Authority: Bairnsdale, Victoria.
- NRE (n.d.) *BushTender Trial – Gippsland*. Department of Natural Resources and Environment: East Melbourne [www.nre.vic.gov.au].
- NRE (2000) *Restoring our Catchments: Victoria's Draft Native Vegetation Management Framework*. Department of Natural Resources and Environment: East Melbourne.

- NRE (2002a) *Guidelines for the Review and Renewal of Regional Catchment Strategies, 2002–7*. Government of Victoria: Melbourne.
- NRE (2002b) *Directions for the Gippsland Lakes: Key Findings from the CSIRO Environmental Report*, Government of Victoria: Melbourne.
- Stokes, D., Lindsay, A., Marinopolous, J., Treloar, A. and Wescott, G. (1994) Household carbon dioxide production in relation to the greenhouse effect. *Journal of Environmental Management* **40**:197–211.
- Stokes, D. and Lindsay, A. (unpubl.) Factors influencing household contributions to carbon dioxide emissions in Melbourne, Australia. Unpublished data (1994). Deakin University: Melbourne.
- VCLPC [Victorian Catchment and Land Protection Council] (1995) *Processes and Activities for the Preparation of the Regional Catchment Strategy – Guidelines*. Government of Victoria, Melbourne.