



Productive Grazing, Healthy Rivers

Improving riparian and in-stream biodiversity

Project Report 2006

Productive Grazing, Healthy Rivers: Improving riparian and in-stream biodiversity Project Report 2006

Published by the Department of Primary Industries
DPI Ellinbank Centre
RMB 2460 Hazeldean Rd
Ellinbank, Victoria, 3821.

ISBN 1 74146 442 0

© State of Victoria, Department of Primary Industries 2005
This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

General disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.



For further information on the Productive Grazing, Healthy Rivers project:

www.dpi.vic.gov.au/vro/biodiversity/riparian

Acknowledgments

The Productive Grazing, Healthy Rivers project team was comprised of staff members from the Department of Primary Industries (DPI) and the Department of Sustainability and Environment (DSE): Sharon Aarons (DPI Ellinbank), Michelle Jones-Lennon (DPI Ellinbank), Leah Fensham (DPI Ellinbank), Nigel Ainsworth (DPI Frankston), Fiona Ede (DPI Frankston), John Bowman (DPI Leongatha), Graeme Ward (DPI Warrnambool), Phil Papas (DSE Heidelberg), Alan Crouch (DSE Melbourne) and Geoff Sutter (DSE Heidelberg). Rebecca Lester is a PhD student with DPI Ellinbank and Monash University.

Module 1: Quantifying on farm riparian biodiversity

The researchers would like to thank the following: the 36 dairy and beef farmers and their families who allowed us access to their properties; John Davies, Richard Loyn, Michael Scroggie, Nick Clemman and Josh Dorrough for assistance with survey design; Josephine MacHunter, Peter Lansley (birds), Rebecca Lester (macroinvertebrates), and volunteers for their assistance with field data collection; Di Crowther, David Bryant, Michael Nicol, Shanaugh McKay for sorting and identifying macroinvertebrate samples; Wendy Wright for her co-supervision of Leah Fensham; and Murray Hannah and David Bryant for their assistance with statistical data analysis and interpretation.

Module 2: Wood to water

The researchers for Module 2 gratefully acknowledge the contribution of the following people: Wendy Wright, Monash University, co-supervisor of Rebecca Lester; Di Crowther and Anna Hicks for assistance in invertebrate identification, and all field assistants, especially Leah Fensham, Josie Lester and Donna Gibson.

Module 3: Regeneration in remnant vegetation

The researcher is grateful for the assistance of many colleagues and volunteers in all aspects of the field work, particularly in establishing and monitoring the field experiments. The cooperation of many landholders and land managers in providing access to field sites is also gratefully acknowledged. Additional funding for this module was provided by the Weeds CRC, DSE Victoria and Melbourne Water.

Module 4: Weed management in riparian zones

The Gippsland and South West Technical Reference Groups for Productive Grazing, Healthy Rivers provided important feedback on drafts of the guidelines. Information on noxious weeds was taken from the DPI Landcare Note **Declared noxious weeds (LC 0252)** by Ian Faithfull. Trevor Hunt contributed to the preparation of the final document.

Module 5: Riparian condition and land-use practices

The researchers wish to acknowledge the important contributions of all landowners in west and south Gippsland who allowed access to their properties and took part in interviews. We would also like to thank Carol Bradshaw for her help in establishing the context for the project and introduction to the farmers, and Phil Taylor, Clare Lamers, Martin Fuller and Coralie Pickett for establishing contact with dairy farmers. John Bowman and Paul Devlin also provided useful advice during the early phase of the project. Dairy Australia, GippsDairy, Land and Water Australia, Charles Sturt University and the University of Western Australia supported this study.

Module 6: Riparian zone management

The researchers would like to thank the farmers on whose properties this work has been undertaken, Lianne Dorling, Donna Gibson, Ivor Awty, Kerry Matthews, Ian Sargeant and others for their assistance with all aspects of field work; Alice Melland and Peter Davies for some aspects of project design, and Murray Hannah for data analysis and interpretation. This module received contributions from GippsDairy, Dairy Australia, Land and Water Australia, the West Gippsland Catchment Management Authority, WaterWatch, the University of Western Australia and the University of Melbourne.

Contents

	Page
Executive Summary	(i)
Project Overview	1
Module 1 - Quantifying on-farm riparian biodiversity	11
Module 2 - Wood to water: Habitat creation within replanted riparian land	25
Module 3 - Regeneration in remnant vegetation: Overcoming the barriers	31
Module 4 - Riparian weed management system: Development of an on-farm management tool	35
Module 5 - Riparian condition and land-use practices: A survey of riparian health and condition on dairy farms	39
Module 6 - Riparian zone management: Reducing water quality impacts of dairy cows	43
Appendix 1	47