



Carp reduction plan for the Upper Murrumbidgee Demonstration Reach and surrounding region

July 2010

Sponsor:

The development of this Carp Reduction Plan was made possible through funding from the Native Fish Strategy of the Murray-Darling Basin Authority.

**Acknowledgements:**

The preparation of this plan has been assisted by many people and organisations.

The plan was drafted by Ivor Stuart, Jason Higham, Associate Professor Mark Lintermans and Dr Bill Phillips. Technical input and review was provided by Dr Mike Braysher, Jim Barrett and Heleena Bamford of the Murray-Darling Basin Authority, Shaun Morris, Anthony Townsend, Matt Bietzel, Jo Keogh and Vanessa Keyzer. Thanks also goes to those interested community members who provided comments on the draft and information about where and when carp are found in the region under consideration.

Context:

This Plan has been developed to operate under the Implementation Plan for the Upper Murrumbidgee Demonstration Reach, and to work in concert with its Monitoring and Evaluation Plan and Communication, Education, Participation and Awareness Plan.

Disclaimer:

RiverSmart Australia Ltd and its subcontractors do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability, currency or otherwise. RiverSmart Australia Ltd and its subcontractors expressly disclaim all liability or responsibility to any person using the information or advice.

Citation:

This publication should be cited as follows: Stuart, I, Higham, J, Lintermans, M, Braysher, M and Phillips, B. (2010). *Carp reduction plan for the Upper Murrumbidgee Demonstration Reach and surrounding region*.

For further information about this plan contact:

Dr Bill Phillips, CEO of RiverSmart Australia. Email: bill.phillips@riversmart.org.au

Copyright:

This work is copyright. Unless permitted under the *Copyright Act 1968* (Cwlth), no part may be reproduced by any process without prior written permission from the Murray-Darling Basin Authority. Requests and inquiries concerning reproduction and rights should be addressed to:

Department of Territory and Municipal Services
GPO Box 158, Canberra City, ACT 2601

All photographs are the property of the authors unless otherwise indicated and should not be used without their express permission.

Cover photographs:

Top left – Copyright – The Federal Capital Press Pty Ltd. All others – Bill Phillips

Table of Contents

	Page
1. Introduction	1
1.1 About this plan	1
1.2 The Native Fish Strategy and Demonstration Reach concept	1
1.3 Putting this plan in context	3
2. Fundamentals of pest and carp management	9
2.1 The basics	9
2.2 Principles of integrated pest management	11
2.3 Techniques for carp control	11
3. The Upper Murrumbidgee Demonstration Reach	18
3.1 Regional context	18
3.2 Historical, current and potential future surface water flow patterns	23
3.3 Notable native fish and other animal taxa found in the Demonstration Reach	23
3.4 Dominant riparian vegetation communities	24
4. Carp management objectives and preliminary life history and conceptual models for carp habitat use	27
4.1 Objectives	27
4.2 What we know about carp in the UMDR region	28
4.3 Preliminary life history and conceptual models for carp habitat use	30
4.3.1 Lake Burley Griffin and other major impoundments	33
4.3.2 Urban siltation ponds	39
5. Carp reduction measures	43
5.1 Promoting community engagement	43
5.2 Addressing priority knowledge gaps	44
5.3 Operating policy or regulatory 'levers' to assist carp control	46
5.3.1 Exemptions under legislation for coarse fishing tournaments	46
5.3.2 Review of the 'grey' list for possibly noxious species	46
5.3.3 The keeping of Koi carp	46
5.3.4 Implementation of provisions in the ACT's <i>Pest Plants and Animals Act 2005</i>	46
5.3.5 Closures to recreational fishing in specific locations	47
5.3.6 Policy on stocking of native fish	47
5.4 Site-specific interventions	49
5.4.1 Management Unit 1: Murrumbidgee River from Bredbo to Angle Crossing	51
5.4.2 Management Unit 2: Murrumbidgee River from Angle Crossing to Casuarina Sands	52
5.4.3 Management Unit 3: Murrumbidgee River from Casuarina Sands to the junction with Ginninderra Creek	59
6. Monitoring and evaluation relevant to implementation of this plan	63
7. Cited references	66

List of Figures	Page
1: Conceptual diagram of a typical demonstration Reach	2
2: Location of the Upper Murrumbidgee Demonstration Reach	4
3: Many factors besides carp and other pest fish influence the recovery of native fish communities	10
4: Life-history stages of common carp and their specific control measures	15
5: Demonstration reach showing locations of water management infrastructure	20
6: Stylised diagram showing the tributaries of the Demonstration Reach and below it extending to where Ginninderra Creek joins the Murrumbidgee River	22
7: Example riverine habitat near Point Hut crossing showing the river channel and possible spawning habitat composed of <i>Typha</i> and <i>Phragmites</i> likely to be utilised by carp in the Murrumbidgee River.	31
8: A preliminary conceptual model of carp movements in the ACT region	32
9: A preliminary conceptual model of carp life-history in a major impoundment	33
10: Likely habitat use by carp in Lake Burley Griffin	36
11: Lake Tuggeranong showing presence of potential spawning habitat	37
12: A conceptual model of a cascade downstream carp movement in the Ginninderra ponds system	38
13: Lake Ginninderra likely habitat use by carp	38
14: Conceptual carp habitat in Gunghalin and Yerrabee ponds	39
15: Conceptual carp habitat in Tuggeranong weir pool	40
16: Conceptual carp habitat in Isabella Pond	40
17: Conceptual carp habitat in Upper Stranger Pond	41
18: Conceptual carp habitat in Lower Stranger Pond	41
19: Conceptual carp habitat in Point Hut Pond	42
20: Stylised diagram showing the tributaries of the Demonstration Reach and below it extending to where Ginninderra Creek joins the Murrumbidgee River (Repeat of Figure 6)	50
21: Williams' carp cage trap	54

List of Tables	Page
1: Principles that underpin the approach to successful management of pest fish and how they influence the development and implementation of an effective control program.	12
2: The range of current and future control techniques for carp	14
3: Addressing priority knowledge gaps	44
4: Operating policy or regulatory 'levers' to support carp control	48
5: Actions recommended for Management Unit 1	52
6: Actions recommended for Management Unit 2	56
7: Actions recommended for Management Unit 3	61

List of Plates	Page
1: Carp	1
2-4: Trout cod, Murray cod and Macquarie perch	5
5: In-stream weir and fishway on the Cotter River near its junction with the Murrumbidgee River	18
6: Gigerline Gorge	19
7: Low level road crossing at Angle Crossing	21
8: Point Hut crossing	21
9: In-stream weir and fishway at Casuarina Sands	22
10: Tableland Aquatic and Fringing Vegetation Complex	24
11: River Bottlebrush-Burgan Tableland Riparian Shrubland	24
12: Ribbon Gum Tableland Riparian Woodland	25
13: She-oak Tableland Riparian Woodland	25
14: Scrivener Dam	34
15: Sullivans Creek	35
16: Jerrabomberra Creek	35
17 and 18: The 2010 Canberra Carp-Out held at Lake Burley Griffin	
19 and 20: Angle Crossing looking upstream and downstream	51
21: Upper Stranger Pond	58
22 and 23: Weirs near the centre of Queanbeyan	60