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SURVEY ON TYPHA MANAGEMENT ON THE SWAN COASTAL PLAIN

CONSERVATION AND LAND MANAGEMENT

Prepared by:

Ecoscape (Australia) Pty Ltd

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Summary

Survey of Typha management on the Swan Coastal Plain

The Department of Conservation and Land Management (CALM) is seeking to liaise with other organisations involved in the management of Typha in the south west of WA, to maximise the effectiveness of research into Typha control and the efforts undertaken by CALM and other parties.

A simple survey was developed for: assessing the extent of the problem; the degree to which it is being managed; and identifying management authorities willing to participate in review of methodology.

The survey was distributed to approximately 50 Local Government Authorities and all five West Australian universities. Recipients of the survey were also encouraged to forward the survey onto any other interested parties.

There were eleven respondents to the survey; seven from community groups and five from local government. All respondents were aware of Typha on land under their control and the majority of the responses were from within the Perth metropolitan region, but responses were also received from as far south as Dunsborough.

The majority of respondents recorded Typha in multiple wetland types and observed that the density or extent of Typha had increased over the last five years and were expecting this trend to continue. Whilst most respondents allocated no specific funds to Typha control, they all undertook some control measures. The most commonly used Typha control techniques were slashing and slashing combined with herbicide application. Other methods used included cutting and drowning and using an excavator to dig out the Typha.

Only a minority of respondents undertake monitoring or research, and only half of respondents document their activities but all were interested in participating in a review of the management strategies, and all were willing to have contact details circulated amongst the other survey respondents.

This survey was seen as the first step in increasing communication amongst stakeholders. Issues that should be further explored by the stakeholders include:

- The physical extent of populations;
- The effectiveness of control methods;
- The adequacy of any documentation of results; and
- The reasons for a lack of specific funding for Typha control despite all parties undertaking some control and the expectation that the weed's density and/or extent will increase in most areas.

Introduction

Survey of Typha management on the Swan Coastal Plain

1.1 Background

Typha orientalis is a highly invasive weed in wetlands of the southwest of Western Australia. The Department of Conservation and Land Management has a policy of controlling weeds under Policy Statement No. 14 – Weeds on CALM Lands. As a result CALM Swan Coastal District have been conducting small scale trials in Typha control at Forrestdale Lake and is committed to the reduction of *Typha orientalis* at Lake Forrestdale by at least 3% every three years as stipulated in the 2005 Management Plan for this reserve.

CALM were seeking to liaise with other organisations involved in the management of Typha in the south west of WA (and in particular on the Swan Coastal Plain) to maximise the effectiveness of any research on Typha control and the efforts undertaken by CALM and other parties.

A simple survey was developed for; assessing the extent of the problem, the degree to which it is being managed; and identifying management authorities willing to participate in review of methodology. The survey was very simple to maximise responses.

1.2 Objectives

The Department of Conservation and Land Management contracted Ecoscape to undertake a survey to identify:

- the scale of the *Typha orientalis* problem on the Swan Coastal Plain; and
- land managers and stakeholders in the region that are interested in information sharing regarding Typha management.

This survey was seen as the first step in increasing communication amongst stakeholders with the documentation of the effectiveness of different Typha control methods being considered a logical step after stakeholders are identified.

Methods

Survey of Typha management on the Swan Coastal Plain

1.3 Survey Development

This survey was envisaged as the first step in increasing communication amongst stakeholders and therefore detailed responses were not considered critical. As a result questions regarding the number of hectares of Typha being dealt with were excluded.

The survey questions were therefore focused on:

- the scale of the *Typha orientalis* problem on the Swan Coastal Plain;
- the degree to which the problem was being managed; and
- identifying land managers and stakeholders in the region interested in information sharing regarding Typha management.

The survey was restricted to one page of the following 10 simple yes/no and multiple choice questions to maximise the number of responses.

Question	Answer
Q1 Contact Details	
Q2 Aware of Typha on Organisation's/Authority's lands	Yes
	No
Q3a Overall density/extent increased over last 5 yrs?	Yes
	No
Q3b Expecting density/extent to increase next last 5 yrs?	Yes
	No
Q4 Situation Occurs in (multiple answers acceptable)	permanent lake
	creek/river/drain
	seasonal lake
	dampland
	other (specify)
Q5 Annual funding allocation for Typha control by Organisation/Authority	\$0
	<\$5K
	\$5K-20K
	>\$20K
Q6 Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
	chemical (e.g. herbicide)
	Other
	Dug out with excavator cutting and drowning
Q7a Previous strategies/results recorded	Yes
	No
Q7b Any research/monitoring undertaken	Yes
	No
Q8 Interested in participating in review of management strategies	Yes
	No
Q9 Willing to have contact details circulated amongst other survey respondents	Yes
	No

1.4 Survey Distribution

The survey was distributed to relevant stakeholders, who were identified in consultation with CALM.

The survey was distributed to approximately 50 Local Government Agency's on the Swan Coastal Plain through the Natural Area Managers Network's e-Newsletter. While a selection of seven researchers and lecturers from appropriate Departments within the local universities were also forwarded a copy. Recipients of the survey were encouraged to forward the questionnaire to other interested parties. The degree to which the survey was distributed to third parties is unknown but several community groups that did not have the survey sent to them directly did respond.

1.5 Survey Responses

Responses to the survey were accepted via either email or fax over a five week period from the 17th February to the 24th March 2006 to allow adequate time for responses within a reasonable timeframe.

1.6 Feedback to Respondents

To encourage responses to the survey and increasing communication amongst stakeholders the summary of the survey results was emailed to each of the respondents to the survey. In addition to the respondents, three parties contacted Ecoscape to request results but these parties did not complete the survey form and their details were not retained.

Results

Survey of Typha management on the Swan Coastal Plain

Over the five week period that the survey was in circulation, there were eleven submissions in total. The tallied responses to each question are listed in Table 1.

Table 1: Tallied Responses to Typha orientalis Questionnaire

Question	Answer	Responses out of 11
Q1 Contact Details	Refer to Table 2	
Q2 Aware of Typha on Organisation's/Authority's lands	Yes	11
	No	0
Q3a Overall density/extent increased over last 5 yrs?	Yes	9
	No	2
Q3b Expecting density/extent to increase over next 5 yrs?	Yes	8
	No	3
Q4 Situation Occurs in (multiple answers acceptable)	permanent lake	8
	creek/river/drain	6
	seasonal lake	7
	dampland	3
	other - detention basin	1
Q5 Annual funding allocation for Typha control by Organisation/Authority	\$0	6
	<\$5K	4
	\$5K-20K	
	>\$20K	1
Q6 Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)	10
	chemical (e.g. herbicide)	9
	Other black plastic bags	1
	Dug out with excavator	1
	cutting and drowning	1
Q7a Previous strategies/results recorded	Yes	5
	No	6
Q7b Any research/monitoring undertaken	Yes	2
	No	9
Q8 Interested in participating in review of management strategies	Yes	11
	No	0
Q9 Willing to have contact details circulated amongst other survey respondents	Yes	11
	No	0

There were eleven respondents to the survey; seven from community groups and five from local government. All respondents were aware of Typha on land under their control and the majority of the responses were from within the Perth metropolitan region, but responses were also received from as far south as Dunsborough.

The majority of respondents recorded Typha in multiple wetland types and observed that the density or extent of Typha had increased over the last five years and were expecting this trend to continue. Whilst most respondents allocated no specific funds to Typha control, they all undertook some control measures. The most commonly used Typha control techniques were slashing and slashing combined with herbicide application. Other methods used included cutting and drowning and using an excavator to dig out the Typha.

No trend could be discerned between expenditure and current or expected trends in Typha density/extent. This was because:

- Many respondents stated that they were not allocating specific funds for Typha control but were undertaking some control and therefore actual expenditure could not be determined;
- The physical extent of the weed in each jurisdiction was not recorded and therefore the intensity of control/expenditure could not be compared. A question requiring an estimate of the area of Typha infestation was intentionally omitted from the survey due to concerns that few organisations would be able to provide accurate figures.

Only a minority of respondents undertake monitoring or research, and only half of respondents document their activities but all were interested in participating in a review of the management strategies, and all were willing to have contact details circulated amongst the other survey respondents.

All respondents were interested in participating in a review of management strategies and as such a contact list has been created to aid in the coordination of both prospective research projects as well as current practical efforts of removing *Typha orientalis* from the wetlands of the Swan Coastal Plain (Table 2).

Table 2: Contact details of Respondents

Name of Organisation/ Authority	Type of Organisation/ Authority	Respondent's Name	Position	Contact Number	Email Address
Friends of Peron Reserve	Shire of Busselton and Community	Richard Clarke	Chairperson	08 9756 8971 0427 385 551	rmc@swisp.net.au
City of Cockburn	Local Government	Chris Beaton	Env Officer	08 9411 3502	chris@cockburn.wa.gov.au
Dunsborough Coast and Landcare Inc	Community	RN Glencross	President	08 9755 3718	gcm@netserv.net.au
Geocatch	Community	Nicole Lincoln	Wetlands Officer	08 9781 0111	nicole.lincoln@environment.wa.gov.au
Geocatch	Community	Meredith Spencer	Rivercare Officer	08 9781 0115	meridith.spencer@environment.wa.gov.au
City of Belmont	Local Government	Nicole Davey	Env Officer	08 9477 7285	nicole.davey@belmont.wa.gov.au
Cockburn Wetlands Education Centre	Community	Denise Crosbie	Wetlands Officer	08 9417 8460	wetlands@inet.net.au
SERCUL	Community	Julie Robert	Regional Coordinator	08 9458 5664	julierobert@sercul.org.au
City of Wanneroo	Local Government	Jon Holter	Senior leading Hand Bushcare	08 9405 5249	kelly.smith@wanneroo.wa.gov.au
Lake Mealup Preservation Society	Community	Peter Wilmot	Secretary	08 9420 2371 (w) 08 9244 3015 (h)	jan_edit@omen.com.au
Shire of Busselton	Local Government	John McKinney	Env Officer	08 9781 0457	johnm@busselton.wa.gov.au

Recommendations

Survey of Typha management on the Swan Coastal Plain

This survey was seen as the first step in CALM initiating greater communication amongst organisations undertaking control of *Typha orientalis* on the Swan Coastal Plain. The summarised results of the survey and contacts details of respondents were circulated amongst all respondents.

The nature or form that further communication should take was not determined prior to this survey being developed and the following recommendations are made to CALM in furthering this communication:

1. The City of Cockburn allocates by far the greatest amount of specific funds to Typha control, of the respondents, and should be considered a critical participant in any information sharing forum;
2. Commercial weed control operators were not included within the survey group but CALM should consider providing them a role in any information sharing forum;
3. It is recommended that CALM explore the following issues with the respondents to the survey:
 - o The physical extent of populations;
 - o The effectiveness of control methods;
 - o The adequacy of any documentation of results; and
 - o The reasons for a lack of specific funding for Typha control despite all parties undertaking some control and the expectation that the weed's density and/or extent will increase in most areas.

Appendix One: Survey Submissions

Survey of Typha management on the Swan Coastal Plain

BULRUSH (TYPHA ORIENTALIS) MANAGEMENT SURVEY 2006

Question		Response
Q1	Name of Organisation / Authority:	Dunsborough Coast and Landcare (D-CALC) Inc
	Type of Organisation / Authority:	Community
	Respondent's name	RN Glencross
	Position/Title	President
	Contact phone number	08 9755 3718
	Email address	gcm@netserv.net.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	seasonal lake
		creek/river/drain / dampland
Q5	Annual funding allocation for Typha control by Organisation/Authority	\$0
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Area of concern, Town of Dunsborough and immediate surrounds	

Question		Response
Q1	Name of Organisation / Authority:	GeoCatch
	Type of Organisation / Authority:	Community
	Respondent's name	Nicole Lincoln
	Position/Title	Wetlands Officer
	Contact phone number	9781 0111
	Email address	nicole.lincoln@environment.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Unsure only been in the region 4 months
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	seasonal lake
		permanent lake
Q5	Annual funding allocation for Typha control by Organisation/Authority	\$0
		Non specific weed control \$15K/yr
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	My Project area includes Geographe and Leschenault Catchment area (11 shires)	

Question		Response
Q1	Name of Organisation / Authority:	GeoCatch
	Type of Organisation / Authority:	Community
	Respondent's name	Meridith Spencer
	Position/Title	Rivercare Officer
	Contact phone number	9781 0115
	Email address	meredith.spencer@environment.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	seasonal lake
		permanent lake
		creek/river/drain
Q5	Annual funding allocation for Typha control by Organisation/Authority	\$0
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
		Chemical (e.g. herbicide)
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Working largely with private landholders. Am interested in results on trials for control-cost/time effective	

Question		Response
Q1	Name of Organisation / Authority:	City of Belmont
	Type of Organisation / Authority:	Local Government
	Respondent's name	Nicole Davey
	Position/Title	Environmental Officer
	Contact phone number	9477 7295
	Email address	nicole.davey@belmont.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	No
Q3b	Expecting density/extent to increase over next 5 yrs?	No
Q4	Situation Occurs in (multiple answers acceptable)	permanent lake
		creek/river/drain
Q5	Annual funding allocation for Typha control by Organisation/Authority	<\$5K
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
		Chemical (e.g. herbicide)
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Goodwoode Pde Ascot Quays has been removed completely (along the foreshore). No formal monitoring. There is a problem with encroachment of Typha from adjacent land not under control be the City of Belmont	

Question		Response
Q1	Name of Organisation / Authority:	Cockburn Wetlands Education Centre
	Type of Organisation / Authority:	Community
	Respondent's name	Denise Crosbie
	Position/Title	Wetlands Officer
	Contact phone number	9417 8460
	Email address	wetlands@iinet.net.au
	Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	seasonal Lake
		permanent lake
Q5	Annual funding allocation for Typha control by Organisation/Authority	<\$5K
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing)
		chemical (e.g. herbicide)
Q7a	Previous strategies/results recorded	Yes
Q7b	Any research/monitoring undertaken	Yes
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments: No Comment	

Question		Response
Q1	Name of Organisation / Authority:	SERCUL
	Type of Organisation / Authority:	Community
	Respondent's name	Julie Robert
	Position/Title	Regional Coordinator
	Contact phone number	9458 5664
	Email address	julierobert@sercul.org.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	Dampland permanent lake Creek/river/drain
Q5	Annual funding allocation for Typha control by Organisation/Authority	<\$5K
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing) chemical (e.g. herbicide) Other: black plastic
Q7a	Previous strategies/results recorded	Yes
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Perhaps get the survey out to the spray contractors as well.	

Question		Response
Q1	Name of Organisation / Authority:	City of Wanneroo
	Type of Organisation / Authority:	Local Government
	Respondent's name	Jon Holter
	Position/Title	Senior Leading Hand Bushcare
	Contact phone number	9405 5249
	Email address	kelly.smith@wanneroo.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	permanent lake
Q5	Annual funding allocation for Typha control by Organisation/Authority	<\$5K
Q6	Management strategies currently or previously used (multiple answers acceptable)	chemical (e.g. herbicide) Other: dug out with excavator
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	No serious large scale control carried out up to this point. Main area of infestation is at Lake Joondalup	

Question		Response
Q1	Name of Organisation / Authority:	Lake Mealup Preservation Society
	Type of Organisation / Authority:	Community
	Respondent's name	Peter Wilmot
	Position/Title	Secretary
	Contact phone number	9420 2371 (w) 9244 3015 (h)
	Email address	jan_edit@omen.com.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	Seasonal lake
Q5	Annual funding allocation for Typha control by Organisation/Authority	\$0
Q6	Management strategies currently or previously used (multiple answers acceptable)	Physical (e.g. slashing) chemical (e.g. herbicide)
Q7a	Previous strategies/results recorded	Yes
Q7b	Any research/monitoring undertaken	Yes
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments: No Comment	

Question		Response
Q1	Name of Organisation / Authority:	Friends of Peron Reserve, Dunsborough (2.43 ha)
	Type of Organisation / Authority:	Shire of Busselton & Friends' group
	Respondent's name	Richard Clark
	Position/Title	Chairperson
	Contact phone number	0897 568971 0427 385 551
	Email address	rmc@swisp.net.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes
Q4	Situation Occurs in (multiple answers acceptable)	seasonal lake
		and drain (and lots of nearby drains)
Q5	Annual funding allocation for Typha control by	\$0 (Peron) any actions we have taken have been funded by the shire
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing) - yes
		chemical (e.g. herbicide) - yes
Q7a	Previous strategies/results recorded	Yes
Q7b	Any research/monitoring undertaken	I don't think so
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Q5 We have had help from Conservation volunteers cutting the typha under water	
	Q5 – I am not sure if the shire has a typha budget, but I'm sure they've been involved in some Busselton wetlands with typha control.	

Question		Response
Q1	Name of Organisation / Authority:	City of Cockburn
	Type of Organisation / Authority:	Govt - Local
	Respondent's name:	Chris Beaton
	Position/Title:	Environmental Officer
	Contact phone number:	94113502
	Email address:	chris@cockburn.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	No
Q4	Situation Occurs in (multiple answers acceptable)	permanent lake / seasonal lake dampland other (specify)
Q5	Annual funding allocation for Typha control by Organisation/Authority	>\$20K
Q6	Management strategies currently or previously used (multiple answers acceptable)	physical (e.g. slashing) chemical (e.g. herbicide)
Q7a	Previous strategies/results recorded	Yes (Photos)
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments	
	Will consider any other methods of control. Soon to trial boom spray that was on the ABC New Inventors Program and currently investigating the use of helicopter for spraying.	

Question		Response
Q1	Name of Organisation / Authority:	Shire of Busselton
	Type of Organisation / Authority:	Govt - Local
	Respondent's name:	John McKinney
	Position/Title:	Environmental Officer
	Contact phone number:	9781 0457
	Email address:	johnm@busselton.wa.gov.au
Q2	Aware of Typha on Organisation's/Authority's lands (if no go to Q7)	Yes
Q3a	Overall density/extent increased over last 5 yrs?	Yes
Q3b	Expecting density/extent to increase over next 5 yrs?	Yes unless actions taken
Q4	Situation Occurs in (multiple answers acceptable)	Creek/river/drain
		Permanent wetland
		other (specify), detention basins
Q5	Annual funding allocation for Typha control by Organisation/Authority	\$0 specifically for Typha
Q6	Management strategies currently or previously used (multiple answers acceptable)	Mainly cutting and drowning, although some chemical control of regrowth after cutting has been used
Q7a	Previous strategies/results recorded	No
Q7b	Any research/monitoring undertaken	No
Q8	Interested in participating in review of management strategies	Yes
Q9	Willing to have contact details circulated amongst other survey respondents	Yes
Q10	Comments: No Comment	