THE BIOLOGY AND ECOLOGY OF RAMPION MIGNONETTE

Reseda phyteuma L.

by

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THE BIOLOGY AND ECOLOGY OF RAMPION MIGNONETTE  
*Reseda phyteuma* L.

The potential of this plant to become a weed, particularly in the vineyards of Australia, initiated this study.

Rampion mignonette established in a newly planted vineyard at Clare, South Australia, photographed on 15 May 1997.

"To win the secrets of a weed's plain heart"

James Russell Lowell (Sonnet LIV).
TABLE OF CONTENTS

ABSTRACT vii
STATEMENT viii
ACKNOWLEDGEMENTS ix

CHAPTER 1
1 GENERAL INTRODUCTION 1

CHAPTER 2
2 LITERATURE REVIEW 3
2.1 INTRODUCTION 6
2.1.1 Literature 6
2.1.2 The South Australian agricultural environment 6
2.2 RESEDACEAE 6
2.2.1 The family Resedaceae 6
2.2.1.1 Reseda in Australia 6
2.2.2 Rampion mignonette (Reseda phyteuma L.) 12
2.2.2.1 Name 12
2.2.2.2 Botanical description 15
2.2.2.3 Karyology 17
2.2.2.4 Morphology and variation 17
2.2.2.5 Taxonomy and identification 17
2.2.2.6 Economic importance and significance as a weed 17
   Detrimental effects 18
   Beneficial effects 18
   Legislation 18
2.2.2.7 Geographic distribution 19
   Origin and world distribution 19
   Australian distribution 20
CHAPTER 3

3 MORPHOLOGY AND REPRODUCTION

3.1 BOTANICAL DRAWINGS OF RAMPION MIGNONETTE

3.1.1 Portion of plant
3.1.2 Seedlings
3.1.3 Young plant
3.1.4 Main stem
3.1.5 Flower
3.1.6 Plant habit

3.2 REPRODUCTION

3.2.1 Floral biology
3.2.2 Flowering period and pollination
3.2.3 Seed production and dispersal
3.2.4 Viability of seed and germination
3.2.5 Vegetative reproduction
3.2.6 Hybrids

3.3 PHOTOGRAPHS OF RAMPION MIGNONETTE
CHAPTER 4

4 SURVEY OF PLANT DISTRIBUTION AT CLARE.

4.1 SITE OF THE SURVEY

4.1.1 The climate of the site
4.1.2 The soils of the site

4.2 THE SURVEY

4.2.1 Introduction
4.2.2 Methodology
4.2.3 Data collection
4.2.4 Results and Discussion
4.2.5 Conclusions

CHAPTER 5

5 AGRONOMIC EXPERIMENTS

5.1 EXPERIMENT 1.

COMPETITION TRIAL

5.1.1 Introduction
5.1.2 Materials and methods
5.1.2.1 Site of the experiment
5.1.2.2 Trial design and treatments
5.1.3 Data collection and analysis
5.1.4 Results and Discussion
5.1.5 Conclusions
5.2 EXPERIMENT 2.

EFFECT OF SEEDING DEPTH ON SEEDLING EMERGENCE 64

5.2.1 Introduction 64

5.2.2 Materials and methods 64
  5.2.2.1 Soil used in the experiment 64
  5.2.2.2 Design, treatments, data collection and analysis 64

5.2.3 Results and Discussion 65

5.2.4 Conclusions 66

5.3 DEMONSTRATION 1.

PRELIMINARY INVESTIGATION INTO THE EFFECTS OF HERBICIDES 67

5.3.1 Introduction 67

5.3.2 Materials and methods 67

5.3.3 Results and Discussion 68

5.3.4 Conclusions 72

CHAPTER 6

6 GENERAL DISCUSSION, CONCLUSION AND SUGGESTIONS FOR FURTHER WORK 73

6.1 GENERAL DISCUSSION 73

6.1.1 Introduction 73

6.1.2 Morphology and reproduction 73

6.1.3 Environmental factors 74

6.1.4 Germination and establishment 74

6.1.5 Plant growth and development 74

6.1.6 Response to human manipulation 75

6.1.7 Colonisation 76

6.1.8 Non biological control measures 76

6.1.9 Biological control measures 77
6.1.10 Integrated weed management 78
6.1.11 Legislation 79
6.1.12 Potential as a weed in South Australia and Australia 79

6.2 CONCLUSION 80

6.3 SUGGESTIONS FOR FURTHER WORK 81

REFERENCES 80

APPENDICES 90
APPENDIX 1. 91
Publications

APPENDIX 2. 93
Drawings showing both subspecies ssp. phyteuma and ssp. collina.

APPENDIX 3. 96
Copy of the letter from K.L. Wilson, Kew, London.

APPENDIX 4. 98
Specimen 21 lodged in the herbarium, Kew, London.

APPENDIX 5. 100
Detail of plant components observed on 16 October 1996.

APPENDIX 6. 102
Field worksheet.
The aim of this study was to collect information in order to increase knowledge of the biology and ecology of rampion mignonette so as to provide a basis for integrated control and management.

The potential of this plant to become a weed in Australia prompted this study. The Animal and Pest Plant Commission realised the threat to the Australian wine industry and possibly also broadacre farming and stated the need for information on the biology and ecology of the weed.

Rampion mignonette (*Reseda phyteuma* L.), is a new weed to South Australia being first found in vineyards at Clare, lat. 33°50' S., long 138°37' E., in 1986. It is an annual to short-lived perennial agricultural weed from the Mediterranean region which grows to 30 cm height and flowers from May to January in Australia.

Literature covering the family Resedaceae and rampion mignonette up to 1997 is reviewed. Maps showing its world distribution and distribution in Australia have been drawn. Drawings of rampion mignonette showing the plant habit, main stem components, seedlings and details of the flower, capsule and seeds have been prepared.

A survey of 500 ha of vines to the east of Clare found that rampion mignonette showed little migration to blocks initially free of the weed and this suggests that currently employed methods of containment are effective. Population reduction can be achieved by careful management including both chemical and cultural techniques. Migration and increases in abundance are likely to be slow, under commonly practised vineyard management in southern Australia.

A single isolated plant 75 cm in diameter produced 831 capsules which were estimated to contain 17,500 seeds.
An experiment to determine the effect of seeding depth on seedling emergence found that rampion mignonette seedlings are able to emerge quite readily from depths of up to 30 mm and that a sample of rampion mignonette seed was found to be 25% germinable and contained 12% hard seed.

An experiment to ascertain the potential of rampion mignonette to compete with wheat, fava beans, subterranean clover and grass pasture indicated that rampion mignonette is a weed which colonises bare ground and will not establish under growing winter annuals and so is therefore unlikely to have potential to become a major weed of broadacre crops and pastures in the South Australian dryland farming system.

Rampion mignonette has the potential to compete with grapevines and reduce grape yields.

Preliminary investigations into the effects of herbicides found that Glyphosate, Glufosinate Ammonium, Oxyfluorfen, Oryzalin, Napropamide and Oxadiazon were all effective in controlling rampion mignonette.

General conclusions to the research indicate that rampion mignonette is unlikely to cause major losses to broadacre agriculture but is likely to increase costs and cause losses of production in viticulture.
STATEMENT

This thesis contains no material which has been submitted previously in full or part to any University for any degree or diploma and to the best of my knowledge and belief, it contains no material previously published or written by any other person except when due reference is made in the text. I consent to the thesis being made available for loan and photocopying. The copyright of this thesis belongs to the author.

Robin St John-Sweeting
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The author’s publications relating to rampion mignonette are listed in Appendix 1.
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