

# Contents

Foreword .....	vii	5.3.1 Legislation .....	30
Acknowledgements .....	viii	5.3.2 Trade restrictions .....	30
Executive Summary .....	ix	5.3.3 Species conservation plans .....	30
Chapter 1. Introduction .....	1	5.3.4 Taxonomic studies .....	30
Chapter 2. Cycads of the World: An Overview .....	3	5.3.5 <i>In situ</i> protection .....	30
2.1 Cycad taxonomy, diversity and distribution .....	3	5.3.6 <i>Ex situ</i> conservation .....	30
2.1.1 Taxonomy and classification .....	3	5.3.7 Sustainable harvest programmes .....	30
2.1.2 Centres of diversity and endemism .....	6	Chapter 6. Regional Overview: New World .....	31
2.2 Cycads and global biodiversity hotspots .....	6	6.1 Introduction .....	31
2.3 Cycad interactions .....	7	6.2 Threats to New World cycads .....	32
2.4 Diversity and threat .....	7	6.2.1 United States and the West Indies .....	32
Chapter 3. Regional Overview: Africa .....	9	6.2.2 Mesoamerica .....	32
3.1 Introduction .....	9	6.2.3 South America .....	34
3.2 Threats to African cycads .....	10	6.3 Addressing the threats .....	37
3.2.1 Trade in wild-collected plants .....	15	6.4 Gaps and priorities .....	38
3.2.2 Habitat destruction .....	15	Chapter 7. Cycads in Trade and Sustainable Use	
3.2.3 Traditional use for magical/ medicinal purposes and for food .....	16	of Cycad Populations .....	39
3.2.4 Alien vegetation .....	16	7.1 Introduction .....	39
3.2.5 Critically small populations .....	17	7.2 Current trade in cycads and cycad products .....	39
3.3 Addressing the threats .....	17	7.3 The restriction of trade by CITES .....	43
3.3.1 Trade restrictions .....	17	7.4 The potential for artificial propagation .....	43
3.3.2 The protected area network .....	18	7.4.1 Obtaining larger plants .....	44
3.3.3 <i>Ex situ</i> collections in botanical gardens .....	18	7.5 Sustainable trade from wild populations .....	44
3.3.4 Sustainable use and community projects .....	18	7.5.1 Mexico .....	45
3.3.5 Species recovery programmes .....	19	7.5.2 South Africa .....	46
Chapter 4. Regional Overview: Australia .....	20	7.5.3 China .....	46
4.1 Introduction .....	20	7.5.4 Australia .....	47
4.2 Threats to Australian cycads .....	20	7.5.5 The lessons learned .....	47
4.2.1 Fire .....	21	Chapter 8. Off-site Collections .....	48
4.2.2 Collection from the wild .....	21	8.1 Introduction .....	48
4.2.3 Habitat loss .....	24	8.2 The requirements for off-site preservation .....	48
4.2.4 Other threats .....	24	8.3 Priorities for conservation .....	50
4.3 Addressing the threats .....	24	8.4 Current status in off-site collections .....	50
Chapter 5. Regional Overview: Asia .....	25	8.5 The role of private collections .....	52
5.1 Introduction .....	25	8.5.1 Plant records .....	53
5.2 Threats to Asian cycads .....	28	8.5.2 Conservation vs commercial objectives .....	53
5.2.1 Habitat loss .....	28	8.6 Priorities for action .....	53
5.2.2 Selective removal .....	29	Chapter 9. A Unifying Framework for Cycad Conservation .....	54
5.2.3 Other threats .....	29	9.1 Introduction .....	54
5.3 Addressing the threats .....	30	9.2 Developing a conceptual framework for cycad conservation .....	54
		9.3 Applying the general model to cycad conservation problems .....	55

9.3.1 Regulations to limit trade and access to wild populations .....	56	10.3.2 Facilitate sustainable trade in cycad seeds .....	60
9.3.2 Changing markets and market perceptions .....	56	10.3.3 Develop a conservation culture among cycad collectors .....	60
9.3.3 Research .....	57	10.4 Research .....	60
9.3.4 Education and publicity .....	57	10.4.1 Survey cycad populations in poorly known areas .....	60
9.3.5 Involving local people .....	57	10.4.2 Develop a consistent taxonomy for cycads .....	60
9.4 Summary .....	57	10.4.3 Promote horticultural research to increase the availability of artificially propagated plants .....	61
<b>Chapter 10. Action Proposals</b> .....	<b>58</b>	10.4.4 Study the persistence of small populations and identify the key factors influencing decline and recovery .....	61
10.1 The Conservation of cycad habitats .....	58	10.5 Provision of information .....	61
10.1.1 Develop links with organisations focusing on biodiversity hotspots .....	58	10.5.1 Update and disseminate information on cycads .....	61
10.1.2 Evaluate and promote cycad nurseries linked to wild populations .....	58	<b>Literature Cited</b> .....	<b>62</b>
10.2 <i>Ex situ</i> conservation .....	58	<b>Appendix 1: IUCN/SSC Cycad Specialist Group Members and Contributing Authors</b> .....	<b>68</b>
10.2.1 Obtain more comprehensive coverage of cycad taxa in genebanks .....	59	<b>Appendix 2: IUCN Red List Categories and Criteria Version 3.1</b> .....	<b>70</b>
10.2.2 Develop species recovery programmes linked to <i>ex situ</i> collections .....	59		
10.3 Trade monitoring and control .....	59		
10.3.1 Review current trade and its impact on wild populations .....	59		