WCMC Biodiversity Series No. 7

Industrial Reliance on Biodiversity

T. M. Swanson and R. A. Luxmoore







Digitized by the Internet Archive in 2010 with funding from UNEP-WCMC, Cambridge

Industrial Reliance on Biodiversity

A Darwin Initiative Project

T. M. Swanson
Faculty of Economics and Politics
Cambridge University

R. A. Luxmoore
World Conservation Monitoring Centre





World Conservation Press

The World Conservation Monitoring Centre, based in Cambridge, UK, is a joint venture between the three partners in the World Conservation Strategy and its successor Caring For The Earth: IUCN - The World Conservation Union, UNEP - United Nations Environment Programme, and WWF - World Wide Fund for Nature. WCMC provides information services on conservation and sustainable use of species and ecosystems and supports others in te development of their own information systems.

Prepared for publication by the World Conservation Monitoring Centre with generous funding from the Darwin Initiative.





Published by:

World Conservation Press, WCMC, Cambridge, UK.

ISBN:

1 899628 06 1

Copyright:

1997 World Conservation Monitoring Centre, Cambridge

Copyright release:

Reproduction of this publication for educational or other noncommercial purposes is authorised without prior permission from the copyright holders, provided the source is acknowledged.

Reproduction for resale or other commercial purpose is prohibited without the prior written permission of the copyright holders.

The views expressed in this book do not necessarily reflect those of WCMC or its collaborators.

The designations of geographical entities and the presentation of material in this publication do not imply the expression of any opinion whatsoever by WCMC, the Commonwealth Secretariat, the Darwin Initiative for the Survival of Species, or other participating organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Citation:

Swanson, T. M. and Luxmoore, R. A.. 1997. Industrial Reliance on Biodiversity. World Conservation Press, WCMC, Cambridge, UK. 98pp.

Cover design by:

Michael Edwards

Printed by:

Victoire Press Ltd, Cambridge

Available from:

World Conservation Monitoring Centre

219 Huntingdon Road, Cambridge CB3 0DL, UK Tel: +44 1223 277314; Fax: +44 1223 277136

Email: info@wcmc.org.uk; URL: http://www.wcmc.org.uk

CONTENTS

1.	IN	DUSTRIAL RELIANCE ON BIODIVERSITY: A SUMMARY	5
1.	. 1	INTRODUCTION: THE INDUSTRIAL USEFULNESS OF BIODIVERSITY	5
1.	.2	BIODIVERSITY AS A COMMODITY: DIRECT USE OF DIVERSE WILDLIFE RESOURCES .	5
1.	.3	BIODIVERSITY AS AN INFORMATIONAL INPUT INTO BIO-INDUSTRY	6
Ι.	.4	THE PROJECT ENVIRONMENT (INDUSTRIAL AND NATURAL) PROPERTY RIGHTS ISSUES	8
Ι.	.5	CONCLUSIONS	9
Ι.	.6 °	REFERENCES	10
2.	ΤŦ	HE VALUE OF THE WILDLIFE TRADE	13
2.	. I	INTRODUCTION	13
2.	.2	FOREST RESOURCES	I4
2.	.3	FISHERIES	17
2.	.4	WILD ANIMAL TRADE	18
	2.4. 2.4. 2.4. 2.4. 2.4. 2.4. 2.4.	Reptile Skin Trade Live Animal Trade Corals, Pearls, Shells and Other Marine Trade Rhino Horn and Elephant Ivory Trade Animals as Food: Game Meat Animals for Medicinal Use Animals for Biomedical Research	20 26 33 37 41 42 43
2.	.5	PLANT TRADE	16
	2.5. 2.5. 2.5.	2 Plants as Food	47 48
2.	.6	TOURISM	19
2.	.7	OVERVIEW OF TRADE AND CONCLUSIONS	
2.	.8	REFERENCES	54
3.	Bl	ODIVERSITY AND THE PHARMACEUTICAL INDUSTRY	57
3.	. 1	INTRODUCTION	57
3.	.2	SURVEY RESULTS	57

	Drug Discovery and Natural Products Research: Evolution to the 1990s	
	Expenditure on Research and Development of Natural Products Company Strategies	
	Sample Collections	
	Work with Extracts	
	Screening	
	Details of Natural Product Research Programmes	
	Collaborations	
	Chemical Libraries	
3.2.10	The Convention on Biological Diversity	73
3.3 SUM	ИMARY	75
3.4 CON	NCLUSIONS	75
4. THE U	USE OF PLANT GENETIC RESOURCES IN AGRICULTURE	77
4.1 INT	RODUCTION	77
4.2 THE	E BASICS OF PLANT BREEDING	77
4.2.1	Determinants of Germplasm Use	79
	The Dynamic Use of Wild Genes in Research: The Cascade Effect	
4.2.2	The Dynamic Osc of Wild Oches in Research. The Cascade Effect	17
4.3. SUR	EVEY RESULTS	80
4.3.1	Seed Companies and Plant Breeders	80
4.3.2	Use of Germplasm in the Breeding Industry	82
	Institutional Sources of Germplasm	
4.3.4	Allocation of Breeding Activities	88
4.3.5	Research Priorities	91
4.3.6	Breeding Methods	92
	The Industry's Perceptions of the Maintenance of Germplasm	93
4.3.8	Biodiversity and Agriculture	97
4.4 SUN	MMARY AND CONCLUSIONS	97
TABLES		
IADLES		
2.1	World timber trade: roundwood, sawnwood and other forest products 1980-1991	15
		16
		18
	European imports of whole, raw furskins from 1986 to 1989	19
	Major countries of origin of the trade in reptile skins and items to the USA (1984-1990)	21
	Major countries of origin and importing countries of skins of Caiman crocodilus (1990-1)	22
2.6b	Major countries of origin of Caiman crocodilus manufactured products exported by Italy	
	and France (1990-1)	23
	Japanese Testudinata skin imports by region (kg)	23
	Minimum net trade in classic crocodilian skins detailed in CITES annual reports	24
2.9	Japanese imports of reptile skins and leather (1983-90)	25
2.10	Minimum number of CITES Appendix II species traded (1983-1988) as live animals,	
	Parts and derivitives or both	27

	2.11	Net imports in live reptiles and amphibians in species listed in CITES, 1988-1992	29
	2.12	CITES reported trade in selected live reptiles originating in China by reporting country,	
		1988-92	29
	2.13	Trade in live <i>I.iguana</i> by main countries of origin and type of source reported in CITES	
		1988-92	30
	2.14	Net live imports of CITES-listed mammals, 1988-1992	31
	2.15	Live ornamental fish imports into the European Community	32
	2.16	Summary of reported trade in CITES-listed stony corals by country of export (1986-1989)	34
	2.17	European annual imports in coral, shells and cuttle bone	
	2.18	Pearl imports into the European Community	
	2.19	Volume and price (in kg and US\$/kg) of rhino horn by country	
	2.20	Japanese imports of ivory: 1980-1990	
	2.21	Net imports (tonnes) of raw and worked ivory by major consumers, 1979-1988	
	2.22	Estimated minimum net imports (tonnes) of game meat: 1980-1985	
	2.23	European imports of game meat (excluding rabbits and hares)	
	2.24	Frogs' legs imports into the European Community	
	2.25	Fats and oils of marine mammals, fractions of oils, excluding chemically modifed products	
	2.26	Imports of medicinal products of deer to the Republic of Korea	
	2.27	Medicinal products of animal origin imported by Japan	
	2.28	Japanese imports of monkeys: 1980-1990	
	2.29	Value (USS millions) of world trade in flowers and plants, 1981-1985	
	2.30	Cactus and orchid trade data for 1989	
	2.31	Distribution of international tourism revenues (1987)	
	2.32	Reasons for selecting travel destinations in Latin America	
	2.33	Estimated minimum value of wildlife imports into the USA, the EC and Japan by type of	
	2.00	Resource (excluding fisheries and timber) in US\$	52
	3.1	Major groups of organisms screened by 15 pharmaceutical companies questioned	
	3.2	Major regions and ecosystems used for source material for NPR by different pharmaceutical	
		Companies questioned	74
	4.1	Crops covered by Survey	
	4.2	Source of gemplasm used in all crops and in four crop types	
	4.3	Organisation of research and breeding activities	
FI	GURI	ES	
	4.1	Investment in R&D as a percentage of total turnover	81
	4.2	Percentage of marketed varieties that recoup R&D costs	
	4.3	Sources of in-house germplasm	87
	4.4	Determinants of the extent of in-house germplasm holdings	87
	4.5	Distribution of germplasm enhancement activities	91
	4.6	Properties of new germplasm incorporated into new varieties	92
	4.7	Methods of development in new marketed cultivars	94
	4.8	Properties of firms accessing in situ sources directly	94
	4.9	Replies to the question "Do gene banks have/give sufficient information regarding the	
		following:"?	96

PREFACE

This report presents the results of industrial surveys undertaken under the auspices of the U.K. Department of Environment's Darwin Initiative between 1994 and 1996. The project was entitled "Sustainable Utilisation for Global, National, and Community Benefit: An Analysis of Utilisation and Biodiversity Conservation". It was conducted jointly by the World Conservation Monitoring Centre (Dr Richard Luxmoore, principal investigator) and the Faculty of Economics, Cambridge University (Dr Timothy Swanson, principal investigator). The investigator who conducted most of the surveys and wrote up the majority of the reports under this portion of the project was Nathalie Olsen, now of the Food and Agricultural Organisation, Beijing, China. Also contributing to this portion of the project were Jose Carlos Fernandez (Department of Applied Economics, Cambridge University) and Harriet Gillett (WCMC). Dr Caroline Harcourt assisted with the final editing. We would also like to acknowledge the time and assistance received from the numerous members of industry who participated in the survey. The views expressed in this report are those of the authors only and do not necessarily reflect the views of the Darwin Initiative nor those of the Department of the Environment of the UK.

预览已结束,完整报告链接和二维码如下:

https://www.yunbaogao.cn/report/index/report?reportId=5_12861

