Contents

Cont	tributors	ix
Prefa	ace	xii
PART	I: INTRODUCTION	
1	Introduction to Soil Erosion and Sediment Redistribution in River Catchments: Measurement, Modelling and Management in the 21st Century A.J. <i>Collins and P.N. Owens</i>	3
PART	II: MEASUREMENT	
2	Tracing versus Monitoring: New Challenges and Opportunities in Erosion and Sediment Delivery Research <i>D.E. Walling</i>	13
3	A Comparison of Caesium-137 and Erosion Pin Data from Tai To Yan, Hong Kong M.R. <i>Peart</i> , M.E. <i>Ruse and R.D. Hill</i>	28
4	Assessing the Contribution of Different Processes to Soil Degradation within an Arable Catchment of the Stavropol Upland, Southern European Russia V.R. Belyaeu, A.Yu. Sidorchuk, V.N. Golosov, P.J. Wallbrink and A.S. Murray	40
5	Hillslope Soil Erosion and Bioturbation after the Christmas 2001 Forest Fires near Sydney, Australia R.A. Shakesby, W.H. Blake, S.H. Doerr, G.S. Humphreys, P.J. Wallbrink and C.J. Chafer	51
6	Tracing Eroded Soil in a Burnt Water Supply Catchment, Sydney, Australia: Linking Magnetic Enhancement to Soil Water Repellency W.H. Blake, S.H. Doerr, R.A. Shakesby, P.J. Wallbrink, G.S. Humphreys and C.J. Chafer	62

vi Contents

7	Land Use, Sediment Delivery and Sediment Yield in England and Wales R. Evans	70
8	Seasonal Trends of Suspended Sediment Concentration in a Mediterranean Basin (Anoia River, NE Spain) J. Farguell and M. Sala	85
9	Suspended Sediment Transport during Rainfall and Snowmelt-Rainfall Floods in a Small Lowland Catchment, Central Poland L. Hejduk, A. Hejduk and K. Banasik	94
10	Sediment in the River Bush, Northern Ireland: Transport, Sources and Management Implications D.J. Evans and C.E. Gibson	101
11	The Physical and Biological Influence of Spawning Fish on Fine Sediment Transport and Storage E.L. Petticrew	112
12	Lakes and Reservoirs in the Sediment Delivery System: Reconstructing Sediment Yields I.D.L. Foster	128
PART	TIII: MODELLING	
13	Can Soil Erosion be Predicted? M.A. Nearing	145
14	Erodibility Assessment in Dynamic Event-based Erosion Models N.J. Kuhn	153
15	Double-averaging Methodology in Stochastic Modelling of Soil Erosion A.Yu. Sidorchuk, A. Smith and V. Nikora	162
16	Runoff and Predicting Erosion on Hillslopes within Catchments P.I.A. Kinnell	170
17	The Roles of Natural and Human Disturbances in Forest Soil Erosion W.J. Elliot	177
18	Runoff and Erosion Modelling by WEPP in an Experimental Mediterranean Watershed E Licciardello, E. Amore, M.A. Nearing and S.M. Zimbone	186
19	Spatial Modelling of Ephemeral Gully Incision: a Combined Empirical and Physical Approach V. Jetten, J. Poesen, J. Nachtergaele and D. uan de Vlag	195
20	Simulating Fine Sediment Delivery in Lowland Catchments: Model Development and Application of INCA-Sed N.P. Jarritt and D.S.L. Lawrence	207

Contents vii

21	Estimating Sediment Generation from Hillslopes in England and Wales: Development of a Management Planning Tool G.A. Wood, M. McHugh, R.P.C. Morgan and A. Williamson	217
22	Management of Sediment Production and Prevention in River Catchments: a Matter of Scale? R.J. Rickson	228
23	Changes in the Spatial Distribution of Erosion within a Selectively Logged Rainforest Catchment in Borneo 1988–2003 R.P.D. Walsh, M.A. Clarke, K. Bidin, W.H. Blake, N.A. Chappell, I. Douglas, N. Ramli, A.M. Sayer, W. Sinun, J. Larenus and J. Hanapi	239
24	Erosion and Deposition Rates on 'Headlands' in Low-gradient Sugarcane Land in Australia E <i>Visser</i>	254
25	Land Use Change, Sediment Fluxes and Reef Conservation in Belize , Central America <i>R.S. Nunny</i> , F? <i>Stone and D.E. Walling</i>	264
26	Understanding the Distribution, Structure and Behaviour of Urban Sediments and Associated Metals Towards Improving Water Management Strategies I.G. Droppo, K.N. Irvine, K.J. Curran, E Carrigan, S. Mayo, C. Jaskot and B. Trapp	272
27	Managing Sediment in the Landscape: Current Practices and Future Vision R.P.C. Morgan	287
PAR	T V: SUMMARY AND OUTLOOK	
28	Soil Erosion and Sediment Redistribution in River Catchments: Summary, Outlook and Future Requirements <i>P.N. Owens</i> and <i>A.J. Collins</i>	297
Index		319