

---

# Contents

---

<i>List of contributors</i>	viii
Introduction <i>Paulo A.L.D. Nunes, Pushpam Kumar and Tom Dedeurwaerdere</i>	1
PART I SETTING THE SCENE: THE NEED FOR ECOSYSTEM SERVICE VALUATION	
1 Comprehensive wealth accounting: measuring sustainable development <i>Glenn-Marie Lange and Esther Naikal</i>	15
2 The protective value of estuarine and coastal ecosystems <i>Edward B. Barbier</i>	27
3 Cruising for a bruising: challenges in sustainable capture of ecosystem service values from cruise ship tourism in Belize <i>Andrew Seidl, Lawrence Pratt, Martha Honey, William H. Durham, Geraldine Slean and Amos Bien</i>	40
4 Climate change effects on the economics and management of marine fisheries <i>U. Rashid Sumaila, William W.L. Cheung and Vicky W.Y. Lam</i>	61
5 The economic impacts of ocean acidification <i>Luke M. Brander, Daiju Narita, Katrin Rehdanz and Richard S.J. Tol</i>	78
6 Estimating the welfare loss of climate change impact on corals <i>Pushpam Kumar and Hongyan Chen</i>	93
PART II EMERGING ECONOMIC VALUATION METHODS, INCLUDING THE USE OF DELIBERATIVE, MACRO AND SPATIALLY EXPLICIT ECONOMIC VALUATION	
7 The behavioral argument for an expanded valuation framework for biodiversity and ecosystem services <i>John M. Gowdy and Sarah Parks</i>	113
8 Valuing ecosystem services in macroeconomic settings <i>Rodney B.W. Smith and Masahiko Gemma</i>	130
9 Exploring the use of a macro–micro-based approach to value biodiversity productivity impacts on the agricultural sector <i>Ruslana Rachel Palatnik and Paulo A.L.D. Nunes</i>	153

vi	<i>Handbook on the economics of ecosystem services and biodiversity</i>	
10	Quantifying and valuing ecosystem services: an application of ARIES to the San Pedro River Basin, USA <i>Kenneth J. Bagstad, Darius Semmens, Ferdinando Villa and Gary W. Johnson</i>	169
11	Optimal selection of clustered conservation lands using integer programming: the case of Fort Stewart in Georgia, USA <i>Sahan T.M. Dissanayake, Hayri Önal, James D. Westervelt and Harold E. Balbach</i>	193
12	QUICKScan: a pragmatic approach for decision support in ecosystem services assessment and management <i>Manuel Winograd, Marta Pérez-Soba and Peter Verweij</i>	208
<b>PART III ECOSYSTEM SERVICES AND CONSERVATION POLICY</b>		
13	Ecosystem service valuation and the allocation of land <i>R. David Simpson</i>	233
14	Biodiversity prospecting over time and under uncertainty: a theory of sorts <i>Amitrajeet A. Batabyal and Peter Nijkamp</i>	252
15	Game theory and marine protected areas: the effects of conservation autarky in a multiple-use environment <i>Maarten J. Punt, Hans-Peter Weikard and Ekko C. van Ierland</i>	264
16	The valuation of ecosystem services and their role in decision-making: constraints and ways forward <i>Anil Markandya and Marta Pascual</i>	278
17	Optimal species preservation policy in a symbiotic relationship between species <i>Shiri Zemah-Shamir, Benyamin Shitovitz and Mordechai Shechter</i>	302
18	Biodiversity, poverty and development <i>Charles Palmer and Salvatore Di Falco</i>	318
19	Biodiversity conservation and ecosystem services provision: a tale of confused objectives, multiple market failures and policy challenges <i>Jessica Coria, Elizabeth Robinson, Henrik G. Smith and Thomas Sterner</i>	337
<b>PART IV SHEDDING LIGHT ON NON-MARKET VALUES OF ECOSYSTEM SERVICES</b>		
20	A choice experiment to value the recreational benefits of coral reefs: a case study of Ras Mohammed National Park, Egypt <i>Rady T. Tawfik and R. Kerry Turner</i>	367
21	Using ecological information in choice experiments to value ecosystem services restoration programmes in East Asia <i>Yohei Mitani and Ståle Navrud</i>	391

22	A one-and-one-half bound contingent valuation survey to estimate the benefits of restoring a degraded coastal wetland ecosystem: the case study of Capo Feto, Italy <i>Giovanni Signorello, Joseph C. Cooper, Giuseppe Cucuzza and Maria De Salvo</i>	407
23	A micro-econometric approach to deriving use and non-use values of in situ groundwater: the Vosvozis case study, Greece <i>Phoebe Koundouri, Vassilis Babalos, Mavra Stithou and Ioannis Anastasiou</i>	423
24	The economic feasibility of the creation of the Jardines de la Reina National Park <i>Tamara Figueredo Martín, Fabián Pina-Amargós and Jorge Angulo-Valdés</i>	436
25	Valuation of ecosystem services provided by man-made wetlands <i>Nico B.P. Polman, Arianne T. de Blaeij, C. Martijn van der Heide, Vincent Linderhof and Stijn Reinhard</i>	454
26	The contribution of non-use values to inform the management of groundwater systems: the Rokua esker, Northern Finland <i>Phoebe Koundouri, Mavra Stithou, Eva Kougea, Pertti Ala-aho, Riku Eskelinen, Timo Karjalainen, Björn Klöve, Manuel Pulido-Velazquez, Kalle Reinikainen and Pekka M. Rossi</i>	466
PART V THE ROLE OF GOVERNANCE AND SCIENCE–POLICY– BUSINESS INTERFACE IN BRINGING VISIBLE ECOSYSTEM VALUES		
27	Governance is critical to managing coastal and marine resources: effects of marine management areas <i>Giselle Samonte, Daniel Suman, Juan Maté, Diego Quiroga, Carlos Mena, Adele Catzim-Sanchez, Patrick Fong and Xuanwen Wang</i>	485
28	Strengthening the science–policy interface: lessons from the Intergovernmental Platform on Biodiversity and Ecosystem Services <i>Anantha Kumar Duraiappah</i>	499
29	Governance of the transition to a green economy – responding to the values of nature <i>Patrick ten Brink, Leonardo Mazza, Tomáš Badura, Marianne Kettunen and Sirini Withana</i>	511
30	New business decision-making aids in an era of complexity, scrutiny, and uncertainty: tools for identifying, assessing, and valuing ecosystem services <i>Sissel Waage</i>	546
 <i>Index</i>		 567