

CONTENTS

Environmental Kuznets curve estimation for NO ₂ emission: A case of Indian cities A. Sinha and J. Bhattacharya (Indore, India).....	1
Successive projections algorithm-based three-band vegetation index for foliar phosphorus estimation J. Wang, T. Shi, H. Liu and G. Wu (Shenzhen, China)	12
A new approach to species distributional indicators for the Marine Strategy Framework Directive (MSFD) L. Modica (Madrid, Spain), P. Córdoba, C. Rodríguez-Cabello, F. Sánchez and F. Velasco (Santander, Spain)	21
Research on the cooling island effects of water body: A case study of Shanghai, China H. Du, X. Song (Shanghai, China), H. Jiang (Shanghai, China and Bijie, China), Z. Kan, Z. Wang and Y. Cai (Shanghai, China)	31
To aggregate or not? Capturing the spatio-temporal complexity of the thermal regime M.P. Turschwell (Nathan, Australia and Brisbane, Australia), E.E. Peterson (Brisbane, Australia), S.R. Balcombe and F. Sheldon (Nathan, Australia)	39
Sensitivity and resistance of soil fertility indicators to land-use changes: New concept and examples from conversion of Indonesian rainforest to plantations T. Guillaume (Göttingen, Germany and Lausanne, Switzerland), D. Maranguit (Göttingen, Germany), K. Murtlaksono (Bogor, Indonesia) and Y. Kuzyakov (Göttingen, Germany and Kazan, Russia).....	49
Floristic Quality Index for woodland ground flora restoration: Utility and effectiveness in a fire-managed landscape C.J. Maginel, B.O. Knapp, J.M. Kabrick (Columbia, MO, USA), E.K. Olson (West Plains, MO, USA) and R.-M. Muzika (Columbia, MO, USA).....	58
Ecological indicators for green building construction H. Liu (Fujian, PR China) and B. Lin (Fuzhou, PR China).....	68
Multi-region comparisons of emission performance: The structural decomposition analysis approach B. Su and B.W. Ang (Singapore)	78
Alterations in the general condition, biochemical parameters and locomotor activity in <i>Cnesterodon decemmaculatus</i> exposed to commercial formulations of chlorpyrifos, glyphosate and their mixtures A.F. Bonifacio (Córdoba, Argentina), J. Cazenave, C. Bacchetta (Santa Fe, Argentina), M.L. Ballesteros (Córdoba, Argentina), M. de los Ángeles Bistoni (Santa Fe, Argentina), M.V. Amé, L. Bertrand and A.C. Hued (Córdoba, Argentina)	88
Novel quantitative indicators to characterize the protective effect of mountain forests against rockfall S. Dupire, F. Bourrier, J.-M. Monnet (St-Martin-d'Hères, France), S. Bigot (Grenoble, France), L. Borgniet, F. Berger (St-Martin-d'Hères, France) and T. Curt (Aix en Provence, France)	98
Monitoring habitat types by the mixed multinomial logit model using panel data D.J. Brus, P.A. Slim, G. Gort, A.H. Heidema and H. van Dobben (Wageningen, The Netherlands).....	108
Assessment of wind and water erosion risk in the watershed of the Ningxia-Inner Mongolia Reach of the Yellow River, China H. Du (Lanzhou, China), S. Dou (Zhengzhou, China), X. Deng, X. Xue and T. Wang (Lanzhou, China)	117
The Biological Sediment Tolerance Index: Assessing fine sediments conditions in Oregon streams using macroinvertebrates S. Hubler (Hillsboro, OR, USA), D.D. Huff (Hammond, OR, USA), P. Edwards and Y. Pan (Portland, OR, USA)...	132
Environmental education indicators system for protected areas management J. Zorrilla-Pujana and S. Rossi (Barcelona, Spain)	146
Copper and zinc in <i>Elodea canadensis</i> from rivers with various pollution levels A. Cegłowska, K. Sokołowska, A. Samecka-Cymerman, K. Kolon (Wrocław, Poland), S. Jusik (Poznań, Poland) and A.J. Kempers (Nijmegen, The Netherlands).....	156

Diatom taxa and assemblages for establishing nutrient criteria of lakes with anthropogenic hydrologic alteration Y. Zhang, S. Huo (Beijing, China), R. Li (Wuhan, China), B. Xi (Beijing, China), H. Li (Wuhan, China), Z. He (Beijing, China) and C. Pang (Italy)	166
Correlations in Life Cycle Impact Assessment methods (LCIA) and indicators for construction materials: What matters? S. Lasvaux (France and Switzerland), F. Achim, P. Garat, B. Peuportier, J. Chevalier (France) and G. Habert (ETH Zurich, Switzerland)	174
Scaling indicator and planning plane: An indicator and a visual tool for exploring the relationship between urban form, energy efficiency and carbon emissions F. Khan (Karachi, Pakistan) and L. Pinter (Budapest, Hungary and Winnipeg, Canada)	183
Vegetation damage in the vicinity of an aluminum smelter in Brazil E. Louback, T.A.R. Pereira (Viçosa, Brazil), S.R. de Souza (São Paulo, Brazil), J.A. de Oliveira and L.C. da Silva (Viçosa, Brazil)	193
A thermodynamic approach for assessing agroecosystem sustainability F.V. Cochran (Kahului, HI, USA), N.A. Brunzell (Lawrence, KS, USA) and A.E. Suyker (Lincoln, NE, USA)	204
Pollution emissions from a petrochemical complex and other environmental stressors induce structural and ultrastructural damage in leaves of a biosensor tree species from the Atlantic Rain Forest A.N.V. Pedroso (São Paulo, Brazil), F. Bussotti, A. Papini, C. Tani (Firenze, Italy) and M. Domingos (São Paulo, Brazil)	215
Is <i>Tillandsia capillaris</i> an efficient bioindicator of atmospheric metal and metalloid deposition? Insights from five months of monitoring in an urban mining area E. Schreck (Toulouse, France), G. Sarret (Grenoble, France), P. Oliva, A. Calas (Toulouse, France), S. Sobanska (Villeneuve d'Ascq Cedex, France), S. Guédron (Grenoble, France), F. Barraza, D. Point (Toulouse, France), C. Huayta (Bolivia), R.-M. Couture (Oslo, Norway and Waterloo, Canada), J. Prunier, M. Henry (Toulouse, France), D. Tisserand (Grenoble, France), S. Goix (Toulouse, France and Fos-sur-Mer, France), J. Chincheros (La Paz, Bolivia) and G. Uzu (Grenoble, France)	227
Habitat ecological integrity and environmental impact assessment of anthropic activities: A GIS-based fuzzy logic model for sites of high biodiversity conservation interest D. Caniani, A. Labella, D.S. Lioi, I.M. Mancini and S. Masi (Potenza, Italy)	238
A measure of spatial stratified heterogeneity J.-F. Wang (Beijing, China), T.-L. Zhang (IN, USA) and B.-J. Fu (Beijing, China)	250
Functional diversity and trait-environment relationships of periphytic algae in subtropical floodplain lakes B. Dunck (Maringá, Brazil), V.M. Algarte (Curitiba, Brazil), M.V. Cianciaruso (Goiânia, Brazil) and L. Rodrigues (Maringá, Brazil)	257
Investigating the environmental Kuznets curve hypothesis in seven regions: The role of renewable energy U. Al-Mulali (Melaka, Malaysia), I. Ozturk (Mersin, Turkey) and S.A. Solarin (Melaka, Malaysia)	267
Wetland ecosystem comparison using a suite of plant assessment measures B.M. Wentzell, C.W. Boylen and S.A. Nierzwicki-Bauer (Bolton Landing, NY, USA and Troy, NY, USA)	283
An approach to analyzing environmental drivers to shape spatial variations in body-size structure of biofilm-dwelling protozoa during an annual cycle in marine ecosystems G. Xu and H. Xu (Qingdao, China)	292
Testing the effectiveness of surrogates for assessing biological diversity of arthropods in cereal agricultural landscapes O. Pérez-Fuertes, S. García-Tejero, N. Pérez Hidalgo (León, Spain), P. Mateo-Tomás (Coimbra, Portugal), A.D. Cuesta-Segura (León, Spain) and P.P. Olea (Madrid, Spain)	297
Confidence in ecological indicators: A framework for quantifying uncertainty components from monitoring data J. Carstensen (Roskilde, Denmark) and M. Lindegarth (Strömstad, Sweden)	306
An approach to intercalibrate ecological classification tools using fish in transitional water of the North East Atlantic M. Lepage (Cestas, France), T. Harrison (Lisburn, UK), J. Breine (Groenendaal, Belgium), H. Cabral (Lisbon, Portugal), S. Coates (Glasgow, UK), C. Galván (Santander, Spain), P. García (Mieres, Spain), Z. Jager (Holwierde, The Netherlands), F. Kelly (Dublin, Ireland), E.C. Mosch (Hannover, Germany), S. Pasquaud (Lisbon, Portugal), J. Scholle (Bremen, Germany), A. Uriarte and A. Borja (Pasaia, Spain)	318
Excessive nitrogen and phosphorus in European rivers: 2000–2050 H. Blaas and C. Kroeze (Wageningen, The Netherlands and Heerlen, The Netherlands)	328
Assessing temporal and spatial trends in estuarine nutrient dynamics using a multi-species stable isotope approach J.P. van de Merwe, S.Y. Lee, R.M. Connolly, K.A. Pitt (Gold Coast, Australia) and A.D.L. Steven (Brisbane, Australia)	338
A forest structure habitat index based on airborne laser scanning data N.C. Coops, P. Tompaski, W. Nijland, G.J.M. Rickbeil (Vancouver, Canada), S.E. Nielsen, C.W. Bater and J.J. Stadt (Edmonton, Canada)	346
Thresholds for morphological response to light reduction for four tropical seagrass species C.J. Collier (Townsville, Australia and Cairns, Australia), M.P. Adams (Brisbane, Australia), L. Langlois (Cairns, Australia), M. Waycott (Adelaide, Australia), K.R. O'Brien, P.S. Maxwell (Brisbane, Australia) and L. McKenzie (Cairns, Australia)	358
Effects of elevated ozone on physiological, anatomical and ultrastructural characteristics of four common urban tree species in China F. Gao (Beijing, China), V. Calatayud (Beijing, China and Paterna, Spain), F. García-Breijó, J. Reig-Armiñana (Valencia, Spain) and Z. Feng (Beijing, China)	367

(Contents continued from inside back cover)

Benthic quality assessment in a naturally- and human-stressed tropical estuary J. Feebarani (Cochin, India), T.V. Joydas (Dhahran, Saudi Arabia), R. Damodaran (Cochin, India) and A. Borja (Pasaia, Spain).....	380
Chironomid assemblage structure and morphological response to pollution in an effluent-impacted river, Eastern Cape, South Africa O.N. Odume, C.G. Palmer (Grahamstown, South Africa), F.O. Arimoro (Minna, Nigeria) and P.K. Mensah (Grahamstown, South Africa).....	391
Development and assessment of indices to determine stream fish vulnerability to climate change and habitat alteration N.A. Sievert, C.P. Paukert (Columbia, MO, USA), Y.-P. Tsang (Honolulu, HI, USA) and D. Infante (East Lansing, MI, USA).....	403
Cellular markers indicative of ozone stress on bioindicator plants growing in a tropical environment E.S. Alves, B.B. Moura, A.N.V. Pedroso, F. Tresmondi (São Paulo, Brazil) and S.R. Machado (Botucatu, Brazil)	417
Regulating Ecosystem Services of forests in ten Italian Metropolitan Cities: Air quality improvement by PM ₁₀ and O ₃ removal F. Manes, F. Marando, G. Capotorti, C. Blasi, E. Salvatori, L. Fusaro (Rome, Italy), L. Ciancarella, M. Mircea (Bologna, Italy), M. Marchetti (Pesche, Italy), G. Chirici (Firenze, Italy) and M. Munafò (Rome, Italy).....	425
Fluctuating water depths affect American alligator (<i>Alligator mississippiensis</i>) body condition in the Everglades, Florida, USA L.A. Brandt, J.S. Beauchamp, B.M. Jeffery, M.S. Cherkiss and F.J. Mazzotti (Davie, FL, USA).....	441
Assessment of the ecological quality (EcoQ) of the Venice lagoon using the structure and biodiversity of the meiofaunal assemblages F. Semprucci, M. Balsamo (Urbino, Italy) and R. Sandulli (Napoli, Italy).....	451
Bio-agro-economic returns from carrot and salad rocket as intercrops using hairy woodrose as green manure in a semi-arid region of Brazil T.M. de Vasconcelos Batista (Apodi, Brazil), F. Bezerra Neto (Mossoró, Brazil), V.C.N. Porto, A.P. Barros Júnior, Í.N. Silva (Mossoró, Brazil), M.L. da Silva (Aquidauana, Brazil), J.S.S. de Lima (Mossoró, Brazil) and E.Q. da Oliveira (Sousa, Brazil)	458
Assessing the ecological stress in a Garonne River stretch, southwest France M.C. Villanueva (Plouzané, France) and A.A. Ibarra (Auzeville-Tolosane, France)	466
Analysis of relationship between Beijing's environment and development based on Environmental Kuznets Curve Z. Wang, Y. Bao, Z. Wen and Q. Tan (Beijing, China)	474
A novel alternative to F-tests for ecological studies C. Pertoldi (Aalborg, Denmark), S. Faurby, V. Loeschcke (Aarhus, Denmark), J. Thirstrup (Tjele, Denmark), A. Ruiz-Gonzalez (Vitoria-Gasteiz, Spain), A. Kjærsgaard (Aalborg, Denmark), T. Manenti (Aarhus, Denmark) and S. Bahrndorff (Aalborg, Denmark)	484
Empirical investigation of environmental Kuznets curve for carbon emission in Morocco I. ul Haq, S. Zhu (Changsha, China) and M. Shafiq (Austria).....	491
Parasite assemblages of Double-crested Cormorants as indicators of host populations and migration behavior K.L. Sheehan (Clemson, SC, USA), D.W. Tonkyn, G.K. Yarrow and R.J. Johnson (Clemson, SC, USA)	497
A methodology to estimate national REDD+ reference levels using the Zero-Sum-Gains DEA approach J. Sheng (Nanjing, China and Beijing, China), Z. Miao (Beijing, China and Taizhou, China) and U.A. Ozturk (Nanjing, China and Tokyo, Japan).....	504
Effect of product recovery and sustainability enhancing indicators on the location selection of manufacturing facility K. Govindan (Odense, Denmark), K. Garg, S. Gupta and P.C. Jha (Delhi, India).....	517
Will income inequality affect environmental quality? Analysis based on China's provincial panel data Y. Hao, H. Chen and Q. Zhang (Beijing, China)	533
The impact of trade openness on global carbon dioxide emissions: Evidence from the top ten emitters among developing countries H.M. Ertugrul (Ankara, Turkey), M. Cetin (Tekirdag, Turkey), F. Seker (Turkey) and E. Dogan (Turkey).....	543
The double edge of cutting edge: Explaining adoption and nonadoption of the STAR rating system and insights for sustainability indicators L. Elgert (Worcester, MA, USA)	556
Using dynamic sustainability indicators to assess environmental policy measures in Biosphere Reserves I. Banos-González (Murcia, Spain), J. Martínez-Fernández (Zaragoza, Spain and Murcia, Spain) and M.A. Esteve-Selma (Murcia, Spain)	565

Pollution characteristics of mercury (Hg) in surface sediments of major basins, China B. Gao, L. Han, H. Hao and H. Zhou (Beijing, China).....	577
Operationalizing ecosystem services for the mitigation of soil threats: A proposed framework G. Schwilch, L. Bernet (Bern, Switzerland), L. Fleskens (The Netherlands and UK), E. Giannakis (Cyprus), J. Leventon (Lüneburg, Germany, and UK), T. Marañón (Seville, Spain), J. Mills, C. Short (UK), J. Stolte (Norway), H. van Delden (Maastricht, The Netherlands and Australia) and S. Verzaandvoort (Wageningen, The Netherlands)	586
Hill coefficient-based stochastic switch-like signal directly governs damage-recovery dynamics in freshwater fish in response to pulse copper W.-Y. Chen (Kaohsiung, Taiwan, ROC) and C.-M. Liao (Taipei, Taiwan, ROC)	598
An urgent need for sustainable thinking in agriculture – An Indian scenario P. Srivastava, R. Singh (Varanasi, India), S. Tripathi (New Delhi, India) and A.S. Raghubanshi (Varanasi, India)	611
Environmental Kuznets Curve hypothesis and the role of globalization in selected African countries M. Shahbaz (Lahore, Pakistan), S.A. Solarin (Melaka, Malaysia) and I. Ozturk (Mersin, Turkey)	623
Remote estimation of canopy height and aboveground biomass of maize using high-resolution stereo images from a low-cost unmanned aerial vehicle system W. Li, Z. Niu (Beijing, China), H. Chen (Fuzhou, China), D. Li, M. Wu and W. Zhao (Beijing, China)	637
Carbon emission targets and decoupling indicators M. Conte Grand (Buenos Aires, Argentina)	649
Fatty acid profiling as bioindicator of chemical stress in marine organisms: A review V. Filimonova (Coimbra, Portugal, Aveiro, Portugal and Gent, Belgium), F. Gonçalves (Aveiro, Portugal), J.C. Marques (Coimbra, Portugal), M. De Troch (Gent, Belgium) and A.M.M. Gonçalves (Coimbra, Portugal and Aveiro, Portugal)	657
Quantitative analysis of anthropogenic influences on coastal water – A new perspective M. Cai (Xiamen, China), Y. Liu (Qingdao, China), K. Chen (Xiamen, China), D. Huang (Fujian Province, China) and S. Yang (Xiamen, China).....	673
A rapid assessment of anthropogenic disturbances in East African wetlands S. Beuel, M. Alvarez, E. Amler, K. Behn (Bonn, Germany), D. Kotze (Pietermaritzburg, South Africa), C. Kreye, C. Leemhuis (Bonn, Germany), K. Wagner (Jülich, Germany), D.K. Willy, S. Ziegler and M. Becker (Bonn, Germany).....	684
Benthic freshwater cyanobacteria as indicators of anthropogenic pressures L. Monteagudo and J.L. Moreno (Albacete, Spain).....	693
Biased richness and evenness relationships within Shannon–Wiener index values W.L Strong (Whitehorse, Canada)	703
Integrating small-scale landscape elements into land use/cover: The impact on landscape metrics' values K. Mõisja, E. Uuemaa and T. Oja (Vanemuise, Estonia)	714
Stability of food webs to biodiversity loss: Comparing the roles of biomass and node degree H. Zhang (Beijing, China), L. Zhao (Beijing, China and Berkshire, UK), W. Tian and H. Huang (Beijing, China).....	723
Can annual cyclicity of protozoan communities reflect water quality status in coastal ecosystems? G. Xu and H. Xu (Qingdao, China).....	730
Functional connectivity as an indicator for patch occupancy in grassland specialists D. Poniowski, F. Löffler, G. Stuhldreher (Osnabrück, Germany), F. Borchard (Coesfeld, Germany), B. Krämer (Neu-Isenburg, Germany) and T. Fartmann (Osnabrück, Germany)	735
Fish communities' response to implementation of restoring measures in a highly artificialized estuary N. Castro, P.M. Félix (Lisboa, Portugal), J.M. Neto (Coimbra, Portugal), H. Cabral (Lisboa, Portugal), J.C. Marques (Coimbra, Portugal), M.J. Costa and J.L. Costa (Lisboa, Portugal)	743
A fuzzy multi-objective optimization model for sustainable reverse logistics network design K. Govindan (Odense, Denmark), P. Paam and A.-R. Abtahi (Tehran, Iran).....	753
Bioaccumulation and biochemical response in South American native species exposed to zinc: Boosted regression trees as novel tool for biomarkers selection L. Bertrand, R. Asis, M.V. Monferrán and M.V. Amé (Córdoba, Argentina)	769
Indicators of sustainable tourism: A case study from a Taiwan's wetland T.H. Lee and H.-P. Hsieh (Touliu, Taiwan)	779
Drought-induced dynamics of carbon and water use efficiency of global grasslands from 2000 to 2011 C. Gang (Yangling, China), Z. Wang, Y. Chen, Y. Yang, J. Li (Nanjing, China), J. Cheng (Yangling, China), J. Qi (East Lansing, USA) and I. Odeh (Sydney, Australia)	788
Data envelopment analysis of cities – Investigation of the ecological and economic efficiency of cities using a benchmarking concept from production management C. Deilmann, I. Lehmann, D. Reißmann and J. Hennersdorf (Dresden, Germany)	798

Designing ecological corridors in a fragmented landscape: A fuzzy approach to circuit connectivity analysis M.E. Pierik (Milan, Italy), M. Dell'Acqua (Pisa, Italy), R. Confalonieri, S. Bocchi and S. Gomasca (Milan, Italy)	807
Tillage effects on carbon footprint and ecosystem services of climate regulation in a winter wheat–summer maize cropping system of the North China Plain X.-Q. Zhang (Beijing, China and Hohhot, China), C. Pu, X. Zhao, J.-F. Xue, R. Zhang, Z.-J. Nie, F. Chen (Beijing, China), R. Lal (Columbus, OH, USA) and H.-L. Zhang (Beijing, China).....	821
Climate change and indicators of probable shifts in the consumption portfolios of dryland farmers in Sub-Saharan Africa: Implications for policy T.S. Amjath-Babu (Müncheberg, Germany), T.J. Krupnik (Gulshan, Bangladesh), S. Aravindakshan (Gulshan, Bangladesh and the Netherlands), M. Arshad and H. Kaechele (Müncheberg, Germany).....	830
Floristic changes of epiphytic flora in the Metropolitan Lisbon area between 1980–1981 and 2010–2011 related to urban air quality C. Sérgio, P. Carvalho, C.A. Garcia, E. Almeida, V. Novais, M. Sim-Sim, H. Jordão and A.J. Sousa (Lisboa, Portugal)	839