

# CONTENTS

Felix Müller stepping down as Editor-in-Chief of ecological indicators J.C. Marques and G. Zurlini .....	A1
Island urbanization and its ecological consequences: A case study in the Zhoushan Island, East China W. Cao, R. Li (Hangzhou, China), X. Chi (Berlin, Germany), N. Chen, J. Chen, H. Zhang and F. Zhang (Hangzhou, China).....	1
Long-term sulphate and inorganic nitrogen mass balance budgets in European ICP Integrated Monitoring catchments (1990–2012) J. Vuorenmaa (Helsinki, Finland), A. Augustaitis (Kaunas, Lithuania), B. Beudert (Grafenau, Germany), N. Clarke (Ås, Norway), H.A.de Wit (Oslo, Norway), T. Dirnböck (Vienna, Austria), J. Frey (Tartu, Estonia), M. Forsius (Helsinki, Finland), I. Indrikšone (Riga, Latvia), S. Kleemola (Helsinki, Finland), J. Kobler (Vienna, Austria), P. Krám (Prague, Czechia), A.-J. Lindroos (Helsinki, Finland), L. Lundin (Uppsala, Sweden), T. Ruoho-Airola, L. Ukonmaanaho (Helsinki, Finland) and M. Váňa (Košetice, Czechia).....	15
Developing adaptation strategies using an agroecosystem indicator: Variability in crop failure temperatures A. Anandhi (Tallahassee, FL, USA) and C.E. Blocksome (Manhattan, KS, USA).....	30
Exposure to heavy metal stress does not increase fluctuating asymmetry in populations of isopod and hardwood trees S. Wadhwa (Newark, NJ, USA), F.J. Gallagher (New Brunswick, NJ, USA), C. Rodriguez-Saona (Chatsworth, NJ, USA) and C. Holzapfel (Newark, NJ, USA) .....	42
Analyzing spatial variations in land use/cover distributions: A case study of Nanchang area, China Y. Zhang (Fuzhou, China), C. Wang (Beijing, China), H. Xie (Fuzhou, China), J. Zhang (Nanchang, China) and J. Wu (Fuzhou, China).....	52
Measurement uncertainty from physical sample preparation of moss samples: Estimation of mechanical cleaning vs. rinsing S. Dołęgowska (Kielce, Poland) .....	64
Towards sustainable growth? A multi-criteria assessment of (changing) urban forms S. Pili, E. Grigoriadis, M. Carlucci (Rome, Italy), M. Clemente (Perugia, Italy) and L. Salvati (Rome, Italy) .....	71
The use of multiple biological traits in marine community ecology and its potential in ecological indicator development O. Beauchard (Yerseke, Netherlands and Wilrijk, Belgium), H. Veríssimo (Portugal), A.M. Queirós (Plymouth, UK) and P.M.J. Herman (Delft, Netherlands) .....	81
Analysing sustainability certification systems in the German housing sector from a theory of social institutions W. Rid (Stuttgart, Germany and Erfurt, Germany), J. Lammers (Berlin, Germany) and S. Zimmermann (Stuttgart, Germany) .....	97
Soil microbial indicators across land use types in the river oasis Bulgan sum center, Western Mongolia S. Goenster, C. Gründler, A. Buerkert and R.G. Joergensen (Witzenhausen, Germany).....	111
Economic growth and environmental impacts: An analysis based on a composite index of environmental damage T.A. das Neves Almeida (Campina Grande, Brazil and Salamanca, Spain), L. Cruz, E. Barata (Coimbra, Portugal) and I.-M. García-Sánchez (Salamanca, Spain).....	119
Assessment of carbon neutrality and sustainability in educational campuses (CaNSEC): A general framework S. Jain, A. Agarwal, V. Jani, S. Singhal, P. Sharma and R. Jalan (New Delhi, India) .....	131
Protected areas in the world's ecoregions: How well connected are they? S. Saura, L. Bastin, L. Battistella, A. Mandrici and G. Dubois (Ispra, Italy).....	144

Quantifying and mapping the vulnerability of estuaries to point-source pollution using a multi-metric assessment: The Estuarine Vulnerability Index (EVI) J.F. Bárcena, A.G. Gómez, A. García, C. Álvarez and J.A. Juanes (Santander, Spain) . . . . .	159
Robustness of the biotic indicators used for classification of ecological status of lotic water bodies: A testing method when the data series are short G. Rîşnoveanu, G. Chiriac and M. Moldoveanu (Bucharest, Romania) . . . . .	170
Assessing disturbance-sensitivity and generalism in mammals: Corroborating a hump-shaped relationship using a hemerobiotic approach C. Battisti, G. Fanelli, L. Mariani and D. Capizzi (Rome, Italy) . . . . .	178
Urban indicators for UK butterflies E.B. Dennis (Canterbury, UK and Wareham, UK), B.J.T. Morgan (Canterbury, UK), D.B. Roy (Wallingford, UK) and T.M. Brereton (Wareham, UK) . . . . .	184
Reorganisation of a long-term monitoring network using moss as biomonitor for atmospheric deposition in Germany S. Nickel and W. Schröder (Vechta, Germany) . . . . .	194
Spatial and temporal changes in epibenthic communities at deep, hard bottom aquaculture sites in Newfoundland F. Salvo, J. Mersereau, D. Hamoutene, R. Belley and S.C. Dufour (Canada) . . . . .	207
<i>Zostera noltii</i> development probing using chlorophyll a transient analysis (JIP-test) under field conditions: Integrating physiological insights into a photochemical stress index B. Duarte (Campo, Portugal), S. Pedro (Évora, Portugal), J.C. Marques (Coimbra, Portugal), H. Adão (Évora, Portugal) and I. Caçador (Campo, Portugal) . . . . .	219
Genotoxicity and oxidative stress in fish after a short-term exposure to silver nanoparticles C. Bacchetta, A. Ale, M.F. Simoniello, S. Gervasio, C. Davico, A.S. Rossi (Santa Fe, Argentina), M.F. Desimone (Buenos Aires, Argentina), G. Poletta (Santa Fe, Argentina), G. López (Argentina and Santa Fe, Argentina), J.M. Monserrat (Rio Grande, Brazil and Belo Horizonte, Brazil) and J. Cazenave (Santa Fe, Argentina) . . . . .	230
New ocean, new needs: Application of pteropod shell dissolution as a biological indicator for marine resource management N. Bednaršek, T. Klinger, C.J. Harvey (Seattle, WA, USA), S. Weisberg (Costa Mesa, CA, USA), R.M. McCabe, R.A. Feely, J. Newton and N. Tolimieri (Seattle, WA, USA) . . . . .	240
Quantification of the response of global terrestrial net primary production to multifactor global change P. Li (Yangling, China), C. Peng (Yangling, China and Montreal, Canada), M. Wang, W. Li, P. Zhao, K. Wang (Yangling, China), Y. Yang (Beijing, China) and Q. Zhu (Yangling, China) . . . . .	245
Methodological and empirical considerations when assessing freshwater ecosystem service provision in a developing city context: Making the best of what we have G. Brill, P. Anderson (Cape Town, South Africa) and P. O'Farrell (Stellenbosch, South Africa) . . . . .	256
Decision errors in evaluating tipping points for ecosystem resilience T. Prato (USA) . . . . .	275
A new class of composite indicators for measuring well-being at the local level: An application to the Equitable and Sustainable Well-being (BES) of the Italian Provinces M. Ciommi (Ancona, Italy), C. Gagliarano (Varese, Italy), A. Emili, S. Taralli and F.M. Chelli (Ancona, Italy) . . . . .	281
Study of Saharan dust influence on PM <sub>10</sub> measures in Sicily from 2013 to 2015 A. Cuspilici, P. Monforte and M.A. Ragusa (Italy) . . . . .	297
Comparative assessment of single and joint effects of diuron and Irgarol 1051 on Arctic and temperate microalgae using chlorophyll a fluorescence imaging S. Kottuparambil (Thuwal, Saudi Arabia and Incheon, Republic of Korea), M.T. Brown (Plymouth, UK), J. Park, S. Choi, H. Lee, H.-G. Choi, S. Depuydt (Incheon, Republic of Korea) and T. Han (Incheon, Republic of Korea) . . . . .	304
Correlation between production and consumption-based environmental indicators The link to affluence and the effect on ranking environmental performance of countries M. Simas (Trondheim, Norway), S. Pauliuk (Freiburg, Germany), R. Wood (Trondheim, Norway), E.G. Hertwich (New Haven, USA) and K. Stadler (Trondheim, Norway) . . . . .	317
A new tool for the assessment of severe anthropogenic eutrophication in small shallow water bodies L. Serrano, M. Reina, X.D. Quintana, S. Romo, C. Olmo, J.M. Soria, S. Blanco, C. Fernández-Aláez, M. Fernández-Aláez (Spain), M.C. Caria, S. Bagella (Italy), T. Kalettka and M. Pätzig (Germany) . . . . .	324
The effect of heterogeneous copper micro-supplementation on fatty acid profiles in the tissues of snails <i>Helix pomatia</i> (Gastropoda Pulmonata) D. Kowalczyk-Pecka (Poland), E. Kowalczyk-Vasilev and S. Pecka (Lublin, Poland) . . . . .	335
Characterizing spatiotemporal patterns of air pollution in China: A multiscale landscape approach Y. Liu (Beijing, China), J. Wu (Beijing, China and Tempe, AZ, USA) and D. Yu (Beijing, China) . . . . .	344
Co-construction of an assessment method of the environmental sustainability for cattle farms involved in a Protected Designation of Origin (PDO) cheese value chain, Cantal PDO C. Laurent (Clermont-Ferrand, France and Saint-Genès-Champanelle, France), S. Hulin (Aurillac, France), C. Agabriel, C. Chassaing, R. Botreau and V. Monteils (Clermont-Ferrand, France and Saint-Genès-Champanelle, France) . . . . .	357
Developing indicators for adaptation decision-making under climate change in agriculture: A proposed evaluation model F. Ndamani and T. Watanabe (Kochi City, Japan) . . . . .	366