

## Rector's Prize: Nature Index Articles 2018

### **|| Stoichiometric distribution models: ecological stoichiometry at the landscape extent**

Ecology Letters | Ing. Lucie Moudrá (née Šmejdivá)

### **|| A Webcast of Bird Nesting as a State-of-the-Art Citizen Science**

PLoS Biology-online | prof. Ing. Petr Sklenička, CSc., Ing. Markéta Zárybnická, Ph.D.

### **|| Multiple horizontal transfers of nuclear ribosomal genes between phylogenetically distinct grass lineages**

Proceedings of the national Academy of Sciences of the United States of America | Mgr. Karol Krak, Ph.D.

### **|| Functional evolution of Lepidoptera olfactory receptors revealed by deorphanization of a moth repertoire**

Nature Communications | Fredrik Schlyter

### **|| Breaking the cipher: ant eavesdropping on the variational trail pheromone of its termite prey**

Proceedings of the Royal Society B-Biological Sciences | doc. Mgr. Jan Šobotník, Ph.D.

### **|| Long-term carbon sink in Borneo's forests halted by drought and vulnerable to edge effects**

Nature Communications | Mgr. Stanislav Lhota, Ph.D.

### **|| Dietary species richness as a measure of food biodiversity and nutritional quality of diets**

Proceedings of the national Academy of Sciences of the United States of America | prof. Ing. Patrick Van Damme, Ph.D.

## Rector's Prize: Nature Index Articles 2019

### **|| Nano Zero-Valent Iron Mediated Metal(loid) Uptake and Translocation by Arbuscular Mycorrhizal Symbioses**

Environmental Science and Technology | Dr. Songlin Wu, Ing. Antonio Roberto Valero Powder, Manuel Teodoro, Ing. Zuzana Vaňková, Ph.D., prof. RNDr. Michael Komárek, Ph.D.

### **|| Rethinking Intensification of Constructed Wetlands as a Green Eco-Technology for Wastewater Treatment & Do laboratory scale experiments improve constructed wetland treatment technology?**

Environmental Science and Technology | prof. Ing. Jan Vymazal, CSc.

**|| Chromium isotope fractionation between modern sewerage and biogenic carbonates from the Great Barrier Reef, Australia: Implications for the paleo-sewerage  $\delta^{53}\text{Cr}$  reconstruction**

Earth and Planetary Science Letters | prof. RNDr. Jiří Frýda, Dr., Ing. Barbora Frýdová

**|| Calcium and strontium isotope systematics in the lagoon-estuarine environments of South Australia: Implications for water source mixing, carbonate fluxes and fish migration**

Geochimica et Cosmochimica Acta | prof. RNDr. Jiří Frýda, Mgr. Juraj Farkaš, Ph.D., Philip Benjamin Törber

**|| Circulation-conditioned wintertime temperature bias in EURO-CORDEX regional climate models over Central Europe**

Journal of Geophysical Research: Atmospheres | doc. RNDr. Jan Kyselý, Ph.D.

**|| Persistent multi-scale fluctuations shift European hydroclimate to its millennial boundaries**

Nature Communications | doc. RNDr. Jan Kyselý, Ph.D., Ing. Mgr. Ioannis Markonis, Ph.D., doc. Ing. Martin Hanel, Ph.D., doc. Ing. Petr Máca, Ph.D.

**|| Anthropogenic warming exacerbates European soil moisture droughts**

Nature Climate Change | Ing. Oldřich Rakovec, Ph.D.

**|| Abrupt events and population synchrony in the dynamics of Bovine Tuberculosis**

Nature Communications | Ing. Mgr. Ioannis Markonis, Ph.D.

**|| Equilibrium dynamics of European pre-industrial populations: the evidence of carrying capacity in human agricultural societies**

Proceedings of the Royal Society B | prof. Mgr. Miroslav Šálek, Dr., Ing. arch. Václav Fanta

**|| Global pattern of nest predation is disturbed by climate changes in shorebirds**

Science | prof. Mgr. Miroslav Šálek, Dr.

**|| Equilibrium dynamics of European pre-industrial populations: the evidence of carrying capacity in human agricultural societies**

Proceedings of the Royal Society B | prof. Ing. Petr Sklenička, CSc., Ing. Jan Zouhar, Ph.D.

**|| Calcium plus magnesium indicates digestibility: the significance of the second major axis of plant chemical variation for Ecological processes**

Ecology Letters | prof. RNDr. Michal Hejman, Ph.D. et Ph.D., Mgr. Pavla Mládková, Ph.D.

**|| Poleward migration of the destructive effects of tropical cyclones during the 20th century**

PNAS | Mgr. Tomáš Černý, Ph.D.

**|| Abrupt high-latitude climate events and decoupled seasonal trends during the Eemian**

Nature Communications | Niina Irina Kuosmanen

**|| Rampant Host Switching Shaped the Termite Gut Microbiome**

Current Biology | doc. Mgr. Jan Šobotník, Ph.D., Thomas Bourguignon

**|| Patterns and drivers of recent disturbances across the temperate forest biome**

Nature Communications | prof. Ing. Miroslav Svoboda, doc. RNDr. Tomáš Hlásny, PhD., Ph.D.,  
Tiphaine Després

**Rector's Prize: Nature Index Articles 2020**

**|| Microbial sulfidogenesis of arsenic in naturally contaminated wetland soil**

Geochimica et Cosmochimica Acta | doc. Ing. Vít Penížek, Ph.D.

**|| Unveiled feather microcosm: feather microbiota of passerine birds is closely associated with host species identity and bacteriocin-producing bacteria**

The ISME Journal | Mgr. Veronika Gvozdiková Javůrková, Ph.D.

**|| Regulatory changes in pterin and carotenoid genes underlie balanced color polymorphisms in the wall lizard**

Proceedings of the national Academy of Sciences of the United States of America | Mgr. Petr Maršík, Ph.D.

**|| Bedbugs Evolved before Their Bat Hosts and Did Not Co-speciate with Ancient Humans**

Current Biology | Mgr. Ondřej Balvín, Ph.D.

**|| Critical Review Biogeochemical Networking of Iron in Constructed Wetlands for Wastewater Treatment**

Environmental Science & Technology | prof. Ing. Jan Vymazal, CSc.

**|| A 250-Year European Drought Inventory Derived From Ensemble Hydrologic Modeling**

Geophysical Research Letters | Ing. Mgr. Ioannis Markonis, Ph.D., Ing. Vojtěch Moravec, Ing. Oldřich Rakovec, Ph.D., doc. Ing. Martin Hanel, Ph.D.

**|| Assessment of Water Cycle Intensification Over Land using a Multisource Global Gridded Precipitation Dataset**

Journal of Geophysical Research | Ing. Mgr. Ioannis Markonis, Ph.D., doc. Ing. Martin Hanel, Ph.D.,  
Simon Papalexiou, Mgr. Marta Martínková, Ph.D.

**|| Diagnostic Evaluation of Large-Domain Hydrologic Models Calibrated Across the Contiguous United States**

Journal of Geophysical Research | Ing. Oldřich Rakovec, Ph.D.

**|| How long do floods throughout the millennium remain in the collective memory?**

Nature Communications | Ing. arch. Václav Fanta, Ph.D., prof. Mgr. Miroslav Šálek, Dr.

**|| Response to Comment on "Global pattern of nest predation is disrupted by climate change in shorebirds"**

Science | prof. Mgr. Miroslav Šálek, Dr.

**|| How long do floods throughout the millennium remain in the collective memory?**

Nature Communications | prof. Ing. Petr Sklenička, CSc.

**|| Scrutinizing assortative mating in birds**

PLoS Biology-online | Mgr. Martin Bulla, Ph.D.

**|| Comment on "Global pattern of nest predation is disrupted by climate change in shorebirds"**

Science | Mgr. Martin Bulla, Ph.D.

**|| Make EU trade with Brazil sustainable**

Science | doc. Federico Morelli

**|| Climatic controls of decomposition drive the global biogeography of forest-tree symbioses**

Nature | prof. Ing. Miroslav Svoboda, Ph.D.

**|| Evolution of Termite Symbiosis Informed by Transcriptome-Based Phylogenies**

Current Biology | Mgr. Aleš Buček, doc. Mgr. Jan Šobotník, Ph.D., He Shulin, Thomas Bourguignon

**|| Comment on Naked mole-rat mortality rates defy Gompertzian laws by not increasing with age**

Elife | prof. RNDr. Hynek Burda, CSc.

**|| A meta-analysis of global fungal distribution reveals climate-driven patterns**

Nature Communications | Mgr. Martin Kopecký, Ph.D.

**|| Mutagenesis of odorant coreceptor Orco fully disrupts foraging but not oviposition behaviors in the hawkmoth *Manduca sexta***

Proceedings of the national Academy of Sciences of the United States of America | Ewald Grosse-Wilde

**|| The olfactory coreceptor IR8a governs larval feces-mediated competition avoidance in a hawkmoth**

Proceedings of the national Academy of Sciences of the United States of America | Ewald Grosse-Wilde

**|| Tree diversity regulates forest pest invasion**

Proceedings of the national Academy of Sciences of the United States of America | Andrew Liebhold

## **|| Population spatial synchrony enhanced by periodicity and low detuning with environmental forcing**

Proceedings of the Royal Society B-Biological Sciences | Andrew Liebhold

## **|| Global distribution of earthworm diversity**

Science | Ing. Radim Matula

## **|| Science-based wildlife disease response**

Science | Tomasz Pawel Podgórski

## **Rector's Prize: Nature Index Articles 2021**

### **|| Expanding conservation culturomics and iEcology from terrestrial to aquatic realms**

PLoS Biology-online | Ing. Karel Douda, Ph.D., prof. Ing. Lukáš Kalous, Ph.D.

### **|| Magnetic alignment enhances homing efficiency of hunting dogs**

Elife | prof. Ing. Luděk Bartoš, DrSc., Ing. Lucie Vynikalová

### **|| Serum amyloid A is a soluble pattern recognition receptor that drives type 2 immunity**

Nature Immunology | RNDr. Jan Dvořák, Ph.D.

### **|| Iceland is an episodic source of atmospheric ice-nucleating particles relevant for mixed-phase clouds**

Science Advances | Mgr. Pavla Dagsson-Waldhauserová

### **|| Nanoplastics Disturb Nitrogen Removal in Constructed Wetlands: Responses of Microbes and Macrophytes**

Environmental Science & Technology | prof. Ing. Jan Vymazal, CSc.

### **|| Persistent global marine euxinia in the early Silurian**

Nature Communications | prof. RNDr. Jiří Frýda, Dr.

### **|| Strong hydroclimatic controls on vulnerability to subsurface nitrate contamination across Europe**

Nature Communications | Ing. Oldřich Rakovec, Ph.D.

### **|| The effects of farmers place attachment and identity on water conservation moral norms and intention**

Water Research | Dr. Hossein Azadi

### **|| Expanding the mutualistic niche, parallel symbiont turnover along climatic gradients**

Proceedings of the Royal Society B-Biological Sciences | Kerry Kent Knudsen

## **|| Atmospheric Circulation as a Factor Contributing to Increasing Drought Severity in Central Europe**

Journal of Geophysical Research | doc. RNDr. Jan Kyselý, Ph.D., doc. Ing. Mgr. Ioannis Markonis, Ph.D.

## **|| The chemical composition of impact craters on Titan: I. Implications for exogenic processing**

ASTRONOMY & ASTROPHYSICS | Anezina Solomonidou, doc. Ing. Mgr. Ioannis Markonis, Ph.D.

## **|| Forest microclimate dynamics drive plant responses to warming**

Science | Martin Kopecký

## **|| Magnetic alignment enhances homing efficiency of hunting dogs**

Elife | Ing. Kateřina Benediktová, Ph.D., Ing. MgA. Jana Adámková, Ing. Jan Svoboda, Michael Scott Painter, Ph.D., Ing. Petra Nováková, Ph.D., doc. Ing. Vlastimil Hart, Ph.D., prof. RNDr. Hynek Burda, CSc.

## **|| Late-spring frost risk between 1959 and 2017 decreased in North America but increased in Europe and Asia**

Proceedings of the national Academy of Sciences of the United States of America | prof. Ing. Miroslav Svoboda, Ph.D.

## **|| Mate discrimination among subspecies through a conserved olfactory pathway**

Science Advances | Byrappa Ammagarahalli Munishamappa

## **|| Increased Mutation Rate Is Linked to Genome Reduction in Prokaryotes**

Current Biology | Thomas Bourguignon

## **|| Ocean currents promote rare species diversity in protists**

Science Advances | Thomas Bourguignon