

MATJAŽ GREGORIČ

Curriculum Vitae

Jovan Hadži Institute of Biology, Research Centre of the Slovenian Academy of Sciences and Arts, Ljubljana, Slovenia; Phone: +386 1 47 06 334; E-mail: matjaz.gregoric@gmail.com

EDUCATION

- PhD: 2013, University of Ljubljana, Slovenia
- B.S.: 2008, University of Ljubljana, Slovenia

PERSONAL

- Born 31. October 1981 in Maribor, Slovenia, Slovenian citizen
- Spoken languages: Slovenian (mother tongue), English (active), German (active), Serbo-Croatian (passive)

WORK

- **2015 – present:** Research associate at the Institute of Biology ZRC SAZU
- **2014:** Postdoctoral research fellow at the Department of Biology, University of Akron, USA
- **2009 – 2013:** PhD candidate, employed at Institute of Biology, Scientific Research Centre of the Slovenian Academy of Sciences and Arts
- **2003 – 2009:** Student work, volunteering:
 - Institute of Biology ZRC SAZU (2006 – 2009, laboratory and field work, biological curation)
 - Centre for Cartography of Fauna and Flora (2007 – 2008, field work in nature conservation projects)
 - Department of Biology, Biotechnical Faculty, University of Ljubljana (2008, curation of spider collection)
 - Biology Student Society (2003 – 2009, regular participant and mentor of the spider group at field days, weekends and camps, participant in several nature conservation activities)

GRANTS (contributed to raising ca. 1.3 million €)

- 2019-: Basic research project, ARRS – Slovenian Research Agency, titled “Towards working protocols for the use of eDNA from spider webs”, ca. 300,000 €
- 2017-2019: Postdoc, ARRS – Slovenian Research Agency, titled “Spider webs as a source of environmental DNA”, ca. 100,000 €
- 2017-2021: Postdoc (PIs T. Blackledge, J. Garb, I. Agnarsson), NSF – National Science Foundation, USA (IOS-1656460), titled "Collaborative Research: Comparative analyses of structural designs underlying functional performance of the toughest spider silk", \$903,385
- 2015-2017: ARRS – Slovenian Research Agency, grant “Promoting the employment of young PhDs”, 25,666.85 €
- 2011: Explorer’s Club, Exploration Fund 2011, titled “*Caerostris* spiders of Madagascar: extraordinary biology in rapidly diminishing forests”, \$3000
- 2011: Public Scholarship and Development Fund of the Republic of Slovenia, Public Grant of Scholarships and Co-Financing of Research Cooperation of Slovenian Doctoral Students Abroad in 2010 and 2011, 5000 €

OUTREACH

- Associate editor: The Science of Nature (2017-present)
- Organizing committee member: 27th European Congress of Arachnology, 2.-7. September 2012, Ljubljana, Slovenia; International Conference on River Drava, 23.-24. September 2010, Dravograd, Slovenia

- Society membership: International Society of Arachnology, European Society of Arachnology, Biology Student Society of Slovenia
- Ad hoc peer reviews for (alphabetical): Acta Biologica Serbica, Annales Zoologici Fennici, Arachnologische Mitteilungen, Behavioral Ecology, Biodiversity Data Journal, Biological Journal of the Linnean Society, Bulletin of the British Arachnological Society, Entomologia Croatica, Environmental Entomology, Ethology, Ethology Ecology & Evolution, European Journal Of Taxonomy, Journal of Arachnology, Journal of Asia-Pacific Entomology, Journal of Ethology, Journal of the Royal Society Interface, Natura Sloveniae, Oriental Insects, Peer J, PLOS ONE, Scientific Reports, Oriental Insects, Scientific Reports, The Science of Nature, Transactions of the Royal Society of South Africa, Zoological Journal of the Linnean Society
- Since 2015 I am the author of a biweekly science podcast *Metamorfoza*, presenting news and interesting stories from organismal biology, with the prime intention to popularize science and present it in a laymen-understandable fashion.
- I have given several interviews and oral opinions on science related topics: appearance in TV show “Ugriznimo v znanost” (2016, 2017); coworker at creating a five-part radio series for the show “Frekvenca X” (2019); interviews for newspapers *Delo* (2016), *Večer* (2018); comments for radio shows “Frekvenca X” and “Noetova banda” (both 2016); comments for daily TV news “Dnevnik” (2016), “Svet” (2016), and “24ur” (2015, 2016); interviews for the radio shows “Razkošje v glavi” (2019) “Frequenzia della scienza” (2016), podcasts “Metin čaj”, “Podrobnosti”, and “Številke” (all 2016), the online news portal “24ur” (2016), and for *Jana* journal (2002); written comments for the newspaper “Dnevnik” (2016) and the online news portal “MMC” (2015). I have written science opinions (Epicenter, 2007), have presented the European spider of the year to the Slovenian public (2008-2013, 2017; in collaboration with the European arachnological society), and have been an advisor for episode 1 of the science documentary “The Hunt” (BBC, UK).

INTERNATIONAL COLLABORATIONS

- Ingi Agnarsson, University of Vermont, USA (systematic and evolutionary biology, biodiversity)
- Paul Babb, University of Pennsylvania, USA (genomics)
- Todd Blackledge, University of Akron, USA (evolutionary ecology, biomaterials)
- Jason Bond, Auburn University, Auburn, USA (systematics)
- Ren-Chung Cheng, National Taiwan University, Taiwan (systematics, evolutionary biology)
- Jonathan Coddington, Smithsonian Institution, USA (systematic and evolutionary biology, biodiversity)
- Ali Dhinojwala, University of Akron, USA (biomaterials)
- Holger Frick, National Office of Environment, Liechtenstein (systematics, biodiversity)
- Jessica Garb, University of Massachusetts Lowell, USA (evolutionary biology, genomics)
- Charles Haddad, University of Free State, South Africa (biodiversity, spider ecology)
- Chris Hamilton, University of Florida, USA (systematics, genomics)
- Henrik Krehenwinkel, University Trier, Germany (biodiversity)
- Christian Kropf, Natural History Museum Berne, Switzerland (biodiversity)
- Denis Kutnjak, National Institute of Biology, Slovenia (systems biology)
- Alan R. Lemmon, Florida State University, USA (systematics, genomics)
- Daiqin Li, National University of Singapore, Singapore (evolutionary and behavioral ecology)
- Emily Moriarty Lemmon, Florida State University, USA (systematics, genomics)
- Maja Ravnikar, National Institute of Biology, Slovenia (systems biology)
- Meta Virant-Doberlet, National Institute of Biology, Slovenia (animal ecology, behavior)
- Benjamin Voight, University of Pennsylvania, USA (genomics)

TEACHING & MENTORSHIP

- University of Ljubljana, 2019-: Mentor, PhD thesis: Janko Šet
- University of Ljubljana, 2020: Co-mentor, Msc thesis: Janko Šet
- University of Ljubljana, 2018: Co-mentor, Msc thesis: Klavdija Šuen
- University of Ljubljana, 2018: Co-mentor, Msc thesis: Rok Golobinek

SCIENTIFIC PUBLICATIONS

- 30) Luo Y., Goh S. P., Li D., Gonzaga M. O., Santos A. J., Tanikawa A., Yoshida H., Haddad C. R., May-Collado L. J., **Gregorič M.**, Turk E., Kuntner M., Agnarsson I. 2020. Global diversification of *Anelosimus* spiders driven by long distance overwater dispersal and Neogene climate oscillations. *Systematic Biology* 69: 1122–1136.
- 29) Šilc U., Vreš B., Čelik T., **Gregorič M.** 2020. Biodiversity of Slovenia. In: *The Geography of Slovenia* (Springer).
- 28) Garb J. E., Haney R. A., Schwager E. E., **Gregorič M.**, Kuntner M., Agnarsson I. & Blackledge T. A. 2019. The transcriptome of Darwin's bark spider silk glands predicts proteins contributing to dragline silk toughness. *Communications Biology* 2: 275
- 27) Kralj-Fišer S., **Gregorič M.** 2019. Spider welfare. In: *The welfare of invertebrate animals* (Springer).
- 26) Quiñones Leborn S. G., **Gregorič M.**, Kuntner M. & Kralj-Fišer. 2019. Small size does not confer male agility advantages in a sexually-size dimorphic spider. *PLoS ONE* 14(5): e0216036.
- 25) Kuntner M., Hamilton C. A., Cheng R.-C., **Gregorič M.**, Lupše N., Lokovšek T., Moriarty Lemmon E., Lemmon A. R., Agnarsson I., Coddington J. A. & Bond J. E. 2019. Golden orbweavers ignore biological rules: Phylogenomic and comparative analyses unravel a complex evolution of sexual size dimorphism. *Systematic Biology* 68: 555–572.
- 24) Kuntner M., **Gregorič M.**, Cheng R. C. & Li D. Q. 2016. Leaf masquerade in an orb web spider. *Journal of Arachnology* 44:397–400.
- 23) Coddington J. A., Agnarsson I., Cheng R.C., Čandek K., Driskell A., Frick H., **Gregorič M.**, Kostanjšek R., Kropf C., Kweskin M., Lokovšek T., Pipan M., Videgar N. & Kuntner M. 2016. DNA barcode data accurately assign higher spider taxa. *PeerJ* 4: e2201.
- 22) Quiñones-Lebrón S. G., Kralj-Fišer S., **Gregorič M.**, Lokovšek T., Čandek K., Haddad C. R. & Kuntner M. 2016. Potential costs of heterospecific sexual interactions in golden orbweb spiders (*Nephila* spp.). *Scientific Reports* 6:36908.
- 21) **Gregorič M.**, Šuen K., Cheng R. C., Kralj-Fišer S. & Kuntner M. 2016. Spider sexual behaviors include oral sexual encounters. *Scientific Reports* 6:25128.
- 20) **Gregorič M.**, Blackledge T. A., Agnarsson I. & Kuntner M. 2015. A molecular phylogeny of bark spiders reveals new species from Africa and Madagascar (Araneae: Araneidae: *Caerostris*). *Journal of Arachnology* 43:293–312.
- 19) Čandek K., **Gregorič M.**, Kostanjšek R., Frick H., Kropf C. & Kuntner M. 2015. Corrigendum: Targeting a portion of central European spider diversity for permanent preservation. *Biodiversity Data Journal* 3:e4301.
- 18) **Gregorič M.**, Agnarsson I., Blackledge T. A. & Kuntner M. 2015. Phylogenetic position and composition of Zygiellinae and *Caerostris*, with new insight into orb-web evolution and gigantism. *Zoological Journal of the Linnean Society* 296:67–78.

- 17) **Gregorič M.**, Kuntner M. & Blackledge T. A. 2015. Does body size predict foraging effort? Patterns of material investment in spider orb webs. *Journal of Zoology* 296:67–78.
- 16) Kralj-Fišer S., **Gregorič M.**, Lokovšek T., Čelik T. & Kuntner M. 2013. A glimpse into sexual biology of the spider genus *Leviellus*. *Journal of Arachnology* 41:387–391.
- 15) Čandek K., **Gregorič M.**, Kostanjšek R., Frick H., Kropf C., Kuntner M. 2013. Targeting a portion of central European spider diversity for permanent preservation. *Biodiversity Data Journal* 1:e980
- 14) **Gregorič M.**, Kiesbüy H. C., Quiñones Lebrón S. G., Rozman A., Agnarsson I., Kuntner M. 2013. Optimal foraging, not biogenetic law, predicts spider orb web allometry. *Naturwissenschaften* 100:263–268.
- 13) Agnarsson I., **Gregorič M.**, Blackledge T. A. & Kuntner M. 2012. The phylogenetic placement of Psechridae within Entelegynae and the convergent origin of orb-like spider webs. *Journal of Zoological Systematics and Evolutionary Research* 51:100–106.
- 12) Kuntner M., Zhang S., **Gregorič M.** & Li, D. 2012. *Nephila* female gigantism attained through post-maturity molting. *Journal of Arachnology* 40:345–347.
- 11) Vamberger M., Lipovšek. G. & **Gregorič M.** 2012. First reproduction record of *Trachemys scripta* (Schoepff, 1792), in Slovenia. *Herpetozoa* 25:76-79.
- 10) Kuntner M., **Gregorič M.**, Zhang S., Kralj-Fišer S. & Li D. 2012. Mating plugs in polyandrous giants: Which sex produces them when how and why? *PLoS ONE* 7(7):e40939.
- 9) Kralj-Fišer S., Schneider J., Justinek Ž., Kalin S., **Gregorič M.**, Pekár S., Kuntner M. 2012. Mate quality, not aggressive spillover, explains sexual cannibalism in a size dimorphic spider. *Behavioral Ecology and Sociobiology* 66:145–151.
- 8) **Gregorič M.**, Agnarsson I., Blackledge T. A. & Kuntner M. 2011. How did the spider cross the river? Behavioral adaptations for river-bridging webs in *Caerostris darwini* (Araneae: Araneidae). *PLoS ONE* 6(10):e26847.
- 7) **Gregorič M.**, Agnarsson I., Blackledge T.A. & Kuntner M. 2011. Darwin's bark spider: Giant prey in giant orb webs (*Caerostris darwini*, Araneae: Araneidae)? *Journal of Arachnology* 39:287-295.
- 6) Kralj-Fišer S., **Gregorič M.**, Zhang S., Li D. & Kuntner M. 2011. Eunuchs are better fighters. *Animal Behaviour*. 81:933-939.
- 5) Kuntner M., **Gregorič M.** & Li D. 2010. Mass predicts web asymmetry in *Nephila* spiders. *Naturwissenschaften* 97:1097-1105.
- 4) **Gregorič M.**, Kostanjšek R. & Kuntner M. 2010. Orb web features as taxonomic characters in *Zygiella* s.l. (Araneae, Araneidae). *Journal of Arachnology* 38:319-327.
- 3) Kuntner M., Kralj-Fišer S. & **Gregorič M.** 2010. Ladder webs in orb-web spiders: ontogenetic and evolutionary patterns in Nephilidae. *Biological Journal of the Linnean Society* 99:849-866.
- 2) Kuntner M., Agnarsson I. & **Gregorič M.** 2009. Nephilid spider eunuch phenomenon induced by female or rival male aggressiveness. *Journal of Arachnology* 37:266-271.
- 1) **Gregorič M.** & Kuntner M. 2009. Epigeal spider diversity in the classical Karst. *Hacquetia* 8:67-78.

INVITED LECTURES

- 5) Conference of students of biological sciences – BIOSFERA, Ljubljana, Slovenia. 2016. Mreže in predivo pajkov: integracija vedenja, ekologije in biomehanike.

- 4) University of Nova Gorica, Slovenia. 2015. Spider webs and silk: integrating behavior, ecology and biomechanics.
- 3) Department of Biology, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia. 2012. Mreže in spolnost: raznovrstnost mrež in nenavadno spolno vedenje pri pajkih mrežarjih.
- 2) Department of Biology, University of Puerto Rico, Puerto Rico, USA. 2011. Webs and sex: web diversity and unusual sexual behavior in orb weaving spiders.
- 1) National Biodiversity Centre, National Parks Board, Singapore. 2010. Research in spider web biology.

PRESENTATIONS / ABSTRACTS

- 24) Dawson M., Haney R.A., Gregorič M., Kuntner M., Agnarsson I., Blackledge T.A. & Garb J.E. Molecular evolution of novel silk proteins in *Caerostris* bark spiders underlying the toughest silks. American arachnological society 2019 meeting, Lexington, Virginia, USA.
- 23) Garb J. E., Haney R.A., **Gregorič M.**, Kuntner M., Agnarsson I. & Blackledge T. A. 2019. Evolutionarily divergent silk proteins may explain the unrivalled toughness of Darwin's bark spider dragline used in giant orb webs. American arachnological society 2019 meeting, Lexington, Virginia, USA.
- 22) Htut, K. Z., Alicea-Serrano A., Singla S., Agnarsson I., Garb J.E., Kuntner M., **Gregorič M.**, Blackledge T.A. & Dhinojwala A. 2019. Hidden link between protein structure and mechanical properties of the world's toughest spider silk. American arachnological society 2019 meeting, Lexington, Virginia, USA.
- 21) Babb PL., **Gregorič M.**, Lahens N.E., Hogenesch J.B., Hayashi C.Y., Kuntner M., Agnarsson I. & Voight B.F. 2019. The draft genome of Darwin's bark spider (*Caerostris darwini*) reveals an expanded capture spiral genetic toolkit. 21st International Congress of Arachnology, Canterbury, New Zealand.
- 21) Kuntner M., Hamilton C.A., Cheng R.C., **Gregorič M.**, Lupše N., Lokovšek T., Lemmon E.M., Lemmon A.R., Agnarsson I., Coddington J.A. & Bond J.E. 2019. Golden orbweavers ignore biological rules: phylogenomic and comparative analyses unravel a complex evolution of sexual size dimorphism. 21st International Congress of Arachnology, Canterbury, New Zealand.
- 20) **Gregorič M.**, Kuntner M., Ravnikar M. & Kutnjak D. 2019. Spider webs as a source of eDNA. 21st International Congress of Arachnology, Canterbury, New Zealand.
- 19) Golobinek R., **Gregorič M.**, Kralj-Fišer S. 2019. The role of personality variation in the mating context. 21st International Congress of Arachnology, Canterbury, New Zealand.
- 18) **Gregorič M.**, Kuntner M., Ravnikar M. & Kutnjak D. 2018. Spider webs as a source of environmental DNA: A preliminary report. 31st European Congress of Arachnology, Vác, Hungary.
- 17) Quiñones-Lebrón S. G., **Gregorič M.**, Kralj-Fišer S. & Kuntner M. 2018. Gravity hypothesis cannot explain the maintenance of extreme sexual size dimorphism in *Nephilingis cruentata*. 31st European Congress of Arachnology, Vác, Hungary.
- 16) **Gregorič M.** 2016. Mreže in predivo pajkov: integracija vedenja, ekologije in biomehanike. Conference of students of biological sciences – BIOSFERA, Ljubljana, Slovenija.

- 15) Quiñones-Lebrón S.G., Kralj-Fišer S., **Gregorič M.**, Lokovšek T., Čandek K., Haddad C.R. & Kuntner M. 2016. Heterospecific sexual interactions among *Nephila* species. Annual Meeting of the Ethological Society, Göttingen, Germany.
- 14) **Gregorič M.**, Alicea A., Dhinojwala A., Blackledge T.A. 2015. Glue-coated capture threads of spiders are optimized for a certain humidity and pulling-rate. 29th European Congress of Arachnology, Brno, Czech Republic.
- 13) **Gregorič M.**, Agnarsson I., Blackledge, T.A. & Kuntner, M. 2013. Phylogeny and web evolution of enigmatic orbicularians: the new family Zygiellidae and bark spiders of the genus *Caerostris*. 19th International Congress of Arachnology, Kenting, Taiwan.
- 12) Čandek K., **Gregorič M.**, Lokovšek T. & Kuntner M. 2013. Utility of DNA barcodes in taxonomy and biogeography of spiders. 2013. 19th International Congress of Arachnology, Kenting, Taiwan.
- 11) **Gregorič M.**, Kiesbűy H. C., Quiñones Lebrón S. G., Rozman A., Agnarsson I., Kuntner M. 2012. Optimal foraging, not biogenetic law, predicts spider orb web allometry. 27th European Congress of Arachnology, Ljubljana, Slovenia.
- 10) Čandek K., **Gregorič M.**, Frick H., Kropf C. & Kuntner M. 2012. From Piz d'Err to Triglav: assessing and preserving spider diversity of Switzerland and Slovenia. 27th European Congress of Arachnology, Ljubljana, Slovenia.
- 9) Li D., Lee Q. Q., Oh J., Kralj-Fišer S., Zhang S., **Gregorič M.**, Ai H. & Kuntner M. 2012. Sexual conflict: Cause and effect of spider genital emasculation. 27th European Congress of Arachnology, Ljubljana, Slovenia.
- 8) Kuntner M., Čandek K., **Gregorič M.**, Cheng R. C., Vidergar N., Kostanjšek R., Coddington J. A., Driskell A., Frick H., Agnarsson I. & Kropf C. 2012. Towards permanent preservation of a fauna: deeply frozen and barcoded Central European spiders. 27th European Congress of Arachnology, Ljubljana, Slovenia.
- 7) Šuen K., Cheng R. C., **Gregorič M.**, Kralj-Fišer S. & Kuntner M. 2012. Field observations on the mating behavior of Darwin's bark spider. 27th European Congress of Arachnology, Ljubljana, Slovenia.
- 6) **Gregorič M.**, Blackledge, T.A. & Kuntner, M. 2011. Larger spiders use more silk: patterns of material investment in *Zygiella* s.l. 26th European Congress of Arachnology, Beer Sheva, Israel.
- 5) Agnarsson I., Piorkowski D., **Gregorič M.**, Kuntner M. & Blackledge T.A. 2011. Molecular and biomechanical insights into the parallel origin of orb-like webs in spiders. American Arachnological Society Annual Meeting 2011, Green Bay, Wisconsin, USA.
- 4) **Gregorič M.**, Agnarsson I., Blackledge, T.A. & Kuntner, M. 2010. Phylogeny and behavior of enigmatic orbicularians: Zygiellidae and the giant orbweaver *Caerostris*. 18th International Congress of Arachnology, Siedlce, Poland.
- 3) **Gregorič M.** & Kuntner M. 2009. Advances in systematics of Zygiellidae. 25th European Congress of Arachnology, Alexandroupoli, Greece.
- 2) **Gregorič M.**, Kuntner M. & Kostanjšek R. 2008. Orbweb features as taxonomically diagnostic characters in *Zygiella* (Araneae, Araneidae). 24th European Congress of Arachnology, Bern, Switzerland.
- 1) Kuntner M., Kralj-Fišer S. & **Gregorič M.** 2008. Orb-web allometry in *Herennia* and *Nephilengys* (Araneae, Nephilidae). American Arachnological Society Annual Meeting 2008, University of California, Berkeley, USA.