

# Gopal Murali

Nationality: Indian

Current place of residence: Arizona, United States

Current position: Fulbright-Kalam Postdoctoral fellow  
Department of Ecology and Evolutionary Biology,  
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United States.

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## EDUCATION

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- 2022 (Nov) Fulbright-Kalam Postdoctoral fellow (current position), University of Arizona, United States. Adviser: Prof. John J. Wiens.
- 2019-2022 SIDEER and PBC Postdoctoral fellow, Ben-Gurion University of the Negev, Israel. Advisers: Prof. Uri Roll and Prof. Shai Meiri.
- 2015-2019 Ph.D. (Thesis defended February 2020) Indian Institute of Science Education and Research Thiruvananthapuram (India). Dissertation: “Evolutionary Ecology of Antipredator Strategies in Motion”. Adviser: Dr. Ullasa Kodandaramaiah.
- 2013-2015 M.S. in Biology, Indian Institute of Science Education and Research Thiruvananthapuram (India)
- 2009-2013 B.Tech. in Bioengineering, The Shanmugha Arts, Science, Technology & Research Academy. SASTRA University (India).

## RESEARCH INTERESTS

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(1) Global change biology, macroecology, and macroevolution, (2) animal colouration and signalling, (3) intraspecific and ontogenetic trait variation.

I am an evolutionary ecologist interested in the origin, maintenance, and functioning of biological diversity spanning individual organism levels to large spatial scales. I employ experimental, theoretical, and broad-scale comparative approaches to (i) understand various eco-evolutionary processes that underlie macroevolutionary patterns such as biodiversity distribution patterns, and (ii) investigate how anthropogenic pressures and climate change are affecting these patterns and processes to inform global conservation. I am also (iii) interested in evolutionary ecological mechanisms pertaining to the functioning of diverse antipredator or signalling strategies involving colouration, with a particular focus on (iv) understanding the evolutionary forces that maintain variation through ontogeny and across individuals, such as colour polymorphisms.

## AWARDS, RECOGNITIONS, AND GRANTS

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1. Dean's list (2012-2013). The Shanmugha Arts, Science, Technology & Research Academy. SASTRA University.
2. International Society of Behavioral Ecology conference grant to attend the 16<sup>th</sup> International Society of Behavioral Ecology conference. USA. (2018).
3. Carl Gans travel grant to attend the 2<sup>nd</sup> Symposium on Mediterranean Lizards. Israel (2018).
4. The Swiss Institute for Dryland Environmental & Energy Research fellowship for outstanding postdoctoral fellow (2020-2022).
5. The Planning and Budget Committee Fellowship Program for Outstanding Chinese and Indian Post-Doctoral Fellows (2020-2022).
6. Fulbright-Kalam postdoctoral fellowship (2022-2024)

## PUBLICATIONS

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(\* ) denotes corresponding author; (^) denotes equal contribution

Google scholar ID: <https://scholar.google.com/citations?user=h4lynGcAAAAJ&hl=en>

### Peer-reviewed journal articles

1. Dubiner, S., Aguilar, R., Anderson, R.O., Arenas Moreno, D.M., Avila, L.J., Boada-Viteri, E., Castillo, M., Chapple, D.G., Chukwuka, C.O., Cree, A., Cruz, F.B., Colli, G.R., Das, I., Delaugerre, M.-J., Du, W.-G., Dyugmedzhiev, A., Doan, T.M., Escudero, P., Farquhar, J., Gainsbury, A.M., Gray, B.S., Grimm-Seyfarth, A., Hare, K.M., Henle, K., Ibarguengoytia, N., Itescu, Y., Jamison, S., Jimenez-Robles, O., Labra, A., Laspiur, A., Liang, T., Ludgate, J.L., Luiselli, L., Martín, J., Matthews, G., Medina, M., Méndez-de-la-Cruz, F.R., Miles, D.B., Mills, N.E., Miranda-Calle, A.B., Monks, J.M., Morando, M., Moreno Azocar, D.L., **Murali, G.**, Pafilis, P., Pérez-Cembranos, A., Pérez-Mellado, V., Peters, R., Pizzatto, L., Pincheira-Donoso, D., Plummer, M.V., Schwarz, R., Shermeister, B., Shine, R., Theisinger, O., Theisinger, W., Tolley, K.A., Torres-Carvajal, O., Valdecantos, S., Van Damme, R., Vitt, L.J., Wapstra, E., While, G.M., Levin, E., Meiri, S., 2024. A global analysis of field body temperatures of active squamates in relation to climate and behaviour. **Global Ecology and Biogeography**. <https://doi.org/10.1111/geb.13808>
2. **Murali, Gopal\***, Ullasa Kodandaramaiah, and Sami Merilaita. "Habitat heterogeneity limits prey color polymorphism when maintained via negative frequency-dependent selection". *Journal of Evolutionary Biology*. <https://doi.org/10.1093/jeb/voae013>
3. Raz, T., Allison, A., Avila, L.J., Bauer, A.M., Böhm, M., Caetano, G.H.d.O., Colli, G., Doan, T.M., Doughty, P., Grismer, L., Itescu, Y., Kraus, F., Martins, M., Morando, M., **Murali, G.**, Nagy, Z.T., Nogueira, C.d.C., Novosolov, M., Oliver, P.M., Passos, P., Pincheira-Donoso, D., Sindaco, R., Slavenko, A., Torres-Carvajal, O., Uetz, P., Wagner, P., Zimin, A., Roll, U., Meiri, S., 2024. Diversity gradients of terrestrial vertebrates – substantial variations about a common theme. **Journal of Zoology**. <https://doi.org/10.1111/jzo.13130>

4. **Murali, Gopal\***, Shai Meiri, and Uri Roll. "Chemical signalling glands are unlinked to species diversification in lizards." *Evolution* (2023): qpad101.
5. **Murali, Gopal\***, Takuya Iwamura, Shai Meiri, and Uri Roll. "Future temperature extremes threaten land vertebrates." *Nature* 615, no. 7952 (2023): 461-467.
6. Zimin, Anna, Sean V. Zimin, Richard Shine, Luciano Avila, Aaron Bauer, Monika Böhm, Rafe Brown... including **Gopal Murali**...et al. "A global analysis of viviparity in squamates highlights its prevalence in cold climates." *Global Ecology and Biogeography*. 31, no. 12 (2022): 2437-2452.
7. **Murali, Gopal^**, Gabriel Caetano^, Goni Barki^, Shai Meiri and Uri Roll\*. "Emphasizing declining populations in the Living Planet Report." *Nature*. 601(7894), pp. E20-24 (2022).
8. **Murali, Gopal**, Rikki Gumbs, Shai Meri, and Uri Roll\*. 2021. "Global determinants and conservation of evolutionary and geographic rarity in land vertebrates". *Science Advances*. 7.eabe5582.
9. Meiri, Shai\*, **Gopal Murali**, Anna Zimin, Lior Shak, Yuval Itescu, Gabriel Caetano, and Uri Roll. 2021. "Different solutions lead to similar life history traits across the great divides of the amniote tree of life." *Journal of Biological Research-Thessaloniki* 28, no. 1: 1-17.
10. **Murali, Gopal\***, Soumen Mallick, and Ullasa Kodandaramaiah. 2021. "Background complexity and optimal background matching camouflage." *Behavioral Ecology and Sociobiology* 75.4: 1-12.
11. **Murali, Gopal\***, and Ullasa Kodandaramaiah. 2020. "Size and unpredictable movement together affect the effectiveness of dynamic flash coloration." *Animal Behaviour* 162: 87-93.
12. Kodandaramaiah, Ullasa, Shuaib Palathingal, Gayathri Bindu Kurup, and **Gopal Murali\***. 2020. "What makes motion dazzle markings effective against predation?." *Behavioral Ecology* 31, no. 1: 43-53.
13. **Murali, Gopal\***, Kajal Kumari and Ullasa Kodandaramaiah. 2019. "Dynamic color change and confusion effect against predation". *Scientific reports* 9. no. 1:274.
14. **Murali, Gopal\***, Sami Merilaita, and Ullasa Kodandaramaiah. 2018. "Grab my tail: Evolution of dazzle stripes and colourful tails in lizards." *Journal of evolutionary biology* 31, no. 11:1675-1688. *Featured in: [Nature India](#), [Research Matters](#), [Scroll.in](#).*
15. Kodandaramaiah, Ullasa\*^, and **Gopal Murali^**.2018."What affects power to estimate speciation rate shifts?" *PeerJ* e5495.
16. **Murali, Gopal\***. 2018. "Now you see me, now you don't: dynamic flash coloration as an antipredator strategy in motion." *Animal Behaviour* 142: 207-220.
17. **Murali, Gopal\***, and Ullasa Kodandaramaiah. 2018. "Body size and evolution of motion dazzle coloration in lizards." *Behavioral Ecology* 29, no. 1: 79-86. *Featured in: [Inside Science](#), [Scroll.in](#), [Listed among top cited papers for the year 2018-2019](#).*
18. Tiatragul, Sarin^, **Gopal Murali^**, and James T. Stroud\*. 2017. "Digest: Different evolutionary dynamics led to the convergence of clinging performance in lizard toepads." *Evolution* 71, no. 10: 2537-2538.
19. **Murali, Gopal\***, and Ullasa Kodandaramaiah. 2016."Deceived by stripes: conspicuous patterning on vital anterior body parts can redirect predatory strikes to expendable posterior organs." *Royal Society open science* 3, no. 6: 160057. *Featured in: [Science Magazine](#),*

[Phys.org](#), [Scientific American's 60 Seconds Science Podcast](#), [IFLScience](#), [Mother Nature Network](#), [Scroll.in](#), Children's book titled "[The Secret of the Deceiving Striped Lizard](#)".

20. Viswanathan, Vivekanandan, **Gopal Murali**, Sakthivel Gandhi, Priyadharshini Kumaraswamy, Swaminathan Sethuraman, and Uma Maheswari Krishnan\*. 2014. "Development of thioflavin-modified mesoporous silica framework for amyloid fishing." *Microporous and Mesoporous Materials* 197: 40-47.

### Manuscripts under review/ In revision as first author

#### Natural history notes

1. G. Melvinselvan\*, D. Nibedita, and **Gopal Murali**. 2018. "Observations on the reproduction and feeding habit of a rare colubrid, Indian bridal Snake *Lycodon nympha* Daudin 1803 (Serpentes: Colubridae) from Southern India". *Captive and Field Herpetology* (2018). 2(1), 16-22.
2. **Murali, Gopal\***, and G. Melvinselvan. 2021. *Atretium schistosum* (Olive Keelback Watersnake). Color polymorphism. *Herpetological Review* 52 (1), 146.
3. **Murali, Gopal\***. 2022. Use of Guar (*Bos gaurus*) dung as a foraging site by Sarojamma's Leaping Frog (*Indirana sarojamma*). *Reptiles and Amphibians*. 29(1), 59-60.
4. **Murali, G.**, 2023. New locality record of Forest Spotted Gecko *Cyrtodactylus (Geckoella) cf. speciosus* (Beddome, 1870) (Reptilia: Squamata: Gekkonidae) from Thanjavur, in the eastern coastal plains of Tamil Nadu, India. *Journal of Threatened Taxa*. 15(10), pp 24120-24124.

### ORAL PRESENTATION AT SCIENTIFIC MEETINGS

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1. IISER-TVM - National University of Singapore Joint Symposium. 22<sup>nd</sup> September 2015, Thiruvananthapuram, Kerala.
2. 39<sup>th</sup> Annual Meeting of the Ethological Society of India. 30<sup>th</sup> October to 1<sup>st</sup> November 2015. IISER Mohali. India.
3. M K Chandrashekar Memorial Meeting. 4<sup>th</sup> and 5<sup>th</sup> February 2016. JNCASR. Bangalore, India.
4. GIAN course on Speciation and the Web of Life. Headed by Prof. Michael Arnold, University of Georgia, USA. 22<sup>nd</sup> August to 6<sup>th</sup> September. IISER TVM. Thiruvananthapuram, Kerala, India.
5. Pre-conference workshop on butterfly evolution. Biology of Butterflies 2018. 8<sup>th</sup> June 2018. IISER TVM. Thiruvananthapuram, Kerala, India.
6. 2<sup>nd</sup> Symposium on Mediterranean Lizards. June 18<sup>th</sup> to 21<sup>st</sup> 2018. Steinhardt Museum of Natural History, School of Zoology, Tel Aviv University, Tel Aviv, Israel.
7. 16<sup>th</sup> ISBE Conference. August 11<sup>th</sup> to 16<sup>th</sup>, 2018. University of Minnesota. United States of America.
8. Mitrani Department of Desert Ecology Fall seminar. December 17<sup>th</sup>, 2019. Ben Gurion University of the Negev, Israel. (*Invited*)
9. 56<sup>th</sup> Meeting of the Zoological Society of Israel, December 29<sup>th</sup>, 2019. Hebrew University of Jerusalem, Israel.

10. La Vida webinar series, July 2020. Biology club, Indian Institute of Science Education and Research Berhampur, India. (*Invited*)
11. Behaviour group meeting. November 12<sup>th</sup>, 2021. University of Minnesota. United States of America. (*Invited*)
12. 30<sup>th</sup> International congress for Conservation Biology (ICCB 2021). December 13<sup>th</sup> to 17<sup>th</sup> 2021. Kigali, Rwanda.
13. 58<sup>th</sup> Meeting of the Zoological Society of Israel, March 13<sup>th</sup>, 2022. Steinhardt Museum of Natural History, School of Zoology, Tel Aviv University, Tel Aviv, Israel.
14. Batsheva de Rothschild Seminar dedicated to past, present, & future of reptile diversity, May 8-11, 2022, Ben-Gurion University of the Negev, Israel.
15. The 5<sup>th</sup> GARD (Global Assessment of Reptile Distributions) international meeting. December 4-8, 2022, Steinhardt Museum of Natural History, School of Zoology, Tel Aviv University, Tel Aviv, Israel.
16. Species on the Move 2023. May 14-19, 2023. Bonita Springs, Florida, United States of America.
17. Invited speaker (online) for undergraduate course Herpetology BIOEE4700. October 5<sup>th</sup>, Cornell University. United States of America.

## STUDENT MENTORING

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### *Masters (×2)*

- 2016-2017 Shuaib Palathingal, (IISER TVM). Current position: Graduate student at Indian Institute of Science, Bangalore, India.
- 2017-2018 Soumen Mallick, (IISER TVM). Current position: Graduate student at University of Rennes, Rennes, France.

### *Bachelors (×4)*

- 2016-2018 Amina Mohammed (IISER TVM), Gayathri Bindu Kurup (IISER TVM), Kajal Kumari (IISER TVM) and Kartik T (IISER TVM)

## PROGRAMMING LANGUAGES AND SOFTWARE SKILLS

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R, MATLAB, C++, JAVA, ArcGIS, Linux and High Performance Computing (HPC) environments

## PROFESSIONAL MEMBERSHIPS

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Association for the Study of Animal Behaviour (ASAB); International society for Behavioral Ecology (ISBE); The Society for Conservation Biology (SCB); Society for the Study of Evolution (SSE)

## TEACHING EXPERIENCE

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Full time course on Macroecology and Macroevolution (S2) at Ben-Gurion University of the Negev, Israel (two semesters: 2020 & 2022).

Teaching assistant for the following undergraduate courses at the Indian Institute of Science education and Research Thiruvananthapuram (2016-2018): Biological diversity and evolution (BIO111), Biological diversity and evolution laboratory (BIO112), Introductory Ecology, Evolution and Behaviour (BIO211), and Introductory Ecology, Evolution and Behaviour laboratory (BIO212)

## PEER REVIEW

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Publons profile: <https://www.webofscience.com/wos/author/record/1574328>

Peer reviewed for the following journals (**total number of reviews - 50**): Biological reviews, Nature communications, Global Ecology and Biogeography, Proceedings of the Royal Society B, Journal of Animal Ecology, Conservation Biology, Biological conservation, Scientific Reports, Journal of Biogeography, BMC Ecology and Evolution, Behavioural Ecology, Journal of Evolutionary Biology, Evolutionary Ecology, Austral Ecology, Ecology and Evolution, Biological Journal of the Linnean Society, Austral Ecology, Ecological Research, PeerJ Journal of Zoology, and ZooKeys.

## ACADEMIC REFERENCES

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Dr. Ullasa Kodandaramiah (Ph.D adviser)  
Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM), India.  
[ullasa@iisertvm.ac.in](mailto:ullasa@iisertvm.ac.in)

Dr. Hema Somanathan (PhD committee member)  
Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM)  
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Dr. Sami Merilaita (Ph.D collaborator)  
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Prof. Uri Roll (Postdoc adviser)  
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Dr. Takuya Iwamura (Postdoc collaborator)  
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