

Gopal Murali

Nationality: Indian

Current place of residence: Bengaluru, India.

Current position: DST-INSPIRE faculty fellow,
Center for Ecological Sciences,
Indian Institute of Science, Bengaluru, Karnataka 560014,
India.

Contact details

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CURRENT APPOINTMENT

2024 (Oct) DST-INSPIRE Faculty fellow, Center for Ecological Sciences (CES), Indian Institute of Science, Bengaluru, India.

PAST APPOINTMENTS

2022-2024 Fulbright-Kalam Postdoctoral fellow, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, United States of America.
Adviser: [Prof. John J. Wiens](#).

2019-2022 SIDEER and PBC Postdoctoral fellow, Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev, Midreshet Ben-Gurion, Israel.
Advisers: [Prof. Uri Roll](#) and [Prof. Shai Meiri](#).

EDUCATION

2015-2019 Ph.D. (Thesis defended February 2020) Indian Institute of Science Education and Research Thiruvananthapuram, 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, Thiruvananthapuram, India.

2009-2013 B.Tech. in Bioengineering, The Shanmugha Arts, Science, Technology & Research Academy. SASTRA University, Thanjavur, India.

RESEARCH INTERESTS

(1) Biodiversity Informatics, Global Change Biology, Macroecology, and Macroevolution, (2) Animal Colouration and Signalling.

I am an evolutionary ecologist interested in the origin, maintenance, and functioning of biological diversity spanning individual organism levels to large spatial scales. While I often draw inspiration from reptiles and amphibians, my research spans diverse taxa and emphasizes a global perspective, leveraging biodiversity data, advanced modeling, and cross-disciplinary collaboration to address ecological and evolutionary challenges in a rapidly changing world. In specific, I employ experimental, theoretical, and broad-scale comparative approaches to (i) understand various eco-evolutionary processes that underlie macroevolutionary patterns such as global biodiversity distribution patterns, and (ii) investigate how anthropogenic pressures and climate change are affecting these patterns and processes to inform global conservation. I also study (iii) evolutionary mechanisms driving antipredator and signalling strategies, focusing on the forces maintaining variation, such as ontogenetic changes and colour polymorphisms.

AWARDS, RECOGNITIONS, AND GRANTS

1. Dean's list (2012-2013). The Shanmugha Arts, Science, Technology & Research Academy. SASTRA University.
2. International Society of Behavioral Ecology travel grant to attend the 16th International Society of Behavioral Ecology conference. USA. (2018).
3. Carl Gans travel grant to attend the 2nd Symposium on Mediterranean Lizards. Israel (2018).
4. The Swiss Institute for Dryland Environmental & Energy Research fellowship for outstanding postdoctoral fellow (2019-2021).
5. The Planning and Budget Committee (PBC) Fellowship Program for Outstanding Chinese and Indian Post-Doctoral Fellows (2020-2022).
6. Fulbright-Kalam postdoctoral fellowship (2022-2024)
7. DST-INSPIRE faculty fellowship (2024-2029)

PUBLICATIONS

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

Total citations: 524; H-index: 13; i10-index:15

Total published papers ($n=26$); under review/in revision ($n=8$)

First-author publications ($n=17$; 65%)

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

Peer-reviewed journal articles (ordered by year of publication; 2023 JCR Impact Factor; JIF Quartile)

1. Slavenko, A., Cooper., N., Meiri S., **Murali, G.**, Pincheira-Donoso, D., and Thomas, G., 2024. Evolution of sexual size dimorphism in tetrapods is driven by varying patterns of sex-specific selection on size. *Nature Ecology and Evolution*. [Link to paper](#). (IF – 14.1; Q1).
2. Lewin, A., **Murali, G.**, Rachmilevitch, S. and Roll, U., 2024. Global evaluation of current and future threats to drylands and their vertebrate biodiversity. *Nature Ecology & Evolution*, 8(8), pp.1448-1458. [Link to paper](#). (IF – 14.1; Q1).
3. 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., Ibarguengoytía, 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*. 33(4), p.e13808. [Link to paper](#). (IF – 6.3; Q1).
4. **Murali, G.***, Kodandaramaiah, U. and Merilaita, S., 2024. Habitat heterogeneity limits prey colour polymorphism maintained via negative frequency-dependent selection. *Journal of Evolutionary Biology*, 37(3), pp.274-282. [Link to paper](#). (IF – 2.1; Q3).
5. 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*. 322(2), pp.126-140. [Link to paper](#). (IF – 1.9; Q1).
6. **Murali, G.***, Meiri, S. and Roll, U., 2023. Chemical signaling glands are unlinked to species diversification in lizards. *Evolution*, 77(8), pp.1829-1841. [Link to paper](#). (IF – 3.1; Q2).
7. **Murali, G.***, Iwamura, T., Meiri, S. and Roll, U., 2023. Future temperature extremes threaten land vertebrates. *Nature*, 615(7952), pp.461-467. [Link to paper](#). (IF – 50.5; Q1).
8. Zimin, A., Zimin, S.V., Shine, R., Avila, L., Bauer, A., Böhm, M., Brown, R., Barki, G., Caetano, G.H.O., Castro Herrera, F., Chapple, D.G., Chirio, L., Colli, G.R., Doan, T.M., Glaw, F., Grismer, L.L., Itescu, Y., Kraus, F., LeBreton, M., Martins, M., Morando, M., **Murali, G.**, Nagy, Z.T., Novosolov, M., Oliver, P., Passos, P., Pauwels, O.S.G., Pincheira-Donoso, D., Ribeiro-Junior, M.A., Shea, G., Tingley, R., Torres-Carvajal, O., Trape, J.-F., Uetz, P.,

- Wagner, P., Roll, U., Meiri, S., A global analysis of viviparity in squamates highlights its prevalence in cold climates. *Global Ecology and Biogeography*. 31, no. 12 (2022): 2437 - 2452. [Link to paper](#). (IF – 6.3; Q1).
9. **Murali, G.**[^], de Oliveira Caetano[^], G.H., Barki, G.[^], Meiri, S. and Roll, U., 2022. Emphasizing declining populations in the Living Planet Report. *Nature*. 601. E20-E24.(doi: 10.1038/s41586-021-04165-z). [Link to paper](#). (IF – 50.5; Q1).
 10. **Murali, G.**^{*}, Gumbs, R., Meiri, S. and Roll, U., 2021. Global determinants and conservation of evolutionary and geographic rarity in land vertebrates. *Science Advances*, 7(42), p.eabe5582. [Link to paper](#). (IF – 11.7; Q1).
 11. Meiri, S., **Murali, G.**, Zimin, A., Shak, L., Itescu, Y., Caetano, G. and Roll, U., 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, pp.1-17. [Link to paper](#). (IF – 1.9; Q2).
 12. **Murali, G.**^{*}, Mallick, S. and Kodandaramaiah, U., 2021. Background complexity and optimal background matching camouflage. *Behavioral Ecology and Sociobiology*, 75, pp.1-12. [Link to paper](#). (IF –1.9; Q1).
 13. **Murali, G.**^{*} and Kodandaramaiah, U., 2020. Size and unpredictable movement together affect the effectiveness of dynamic flash coloration. *Animal Behaviour*, 162, pp.87-93. [Link to paper](#). (IF – 2.1; Q1).
 14. Kodandaramaiah, U., Palathingal, S., Bindu Kurup, G. and **Murali, G.**^{*}, 2020. What makes motion dazzle markings effective against predation?. *Behavioral Ecology*, 31(1), pp.43-53. [Link to paper](#). (IF – 2.5; Q1).
 15. **Murali, G.**^{*}, Kumari, K. and Kodandaramaiah, U., 2019. Dynamic colour change and the confusion effect against predation. *Scientific Reports*, 9(1), p.274. [Link to paper](#). (IF – 3.8; Q1).
 16. **Murali, G.**^{*}, Merilaita, S. and Kodandaramaiah, U., 2018. Grab my tail: evolution of dazzle stripes and colourful tails in lizards. *Journal of Evolutionary Biology*, 31(11), pp.1675-1688. [Link to paper](#). (IF – 2.1; Q3).
 17. Kodandaramaiah, U.[^] and **Murali, G.**[^], 2018. What affects power to estimate speciation rate shifts?. *PeerJ*, 6, p.e5495. [Link to paper](#). (IF – 2.3; Q2).
 18. **Murali, G.**^{*}, 2018. Now you see me, now you don't: dynamic flash coloration as an antipredator strategy in motion. *Animal Behaviour*, 142, pp.207-220. [Link to paper](#). (IF – 2.1; Q1).

19. **Murali, G.*** and Kodandaramaiah, U., 2018. Body size and evolution of motion dazzle coloration in lizards. *Behavioral Ecology*, 29(1), pp.79-86. [Link to paper](#). (IF – 2.5; Q1).
20. Tiatragul, S.^, **Murali, G.^** and Stroud, J.T., 2017. Digest: Different evolutionary dynamics led to the convergence of clinging performance in lizard toepads. *Evolution*, 71(10), pp.2537-2538. [Link to paper](#). (IF – 3.1; Q2).
21. **Murali, G.*** and Kodandaramaiah, U., 2016. Deceived by stripes: conspicuous patterning on vital anterior body parts can redirect predatory strikes to expendable posterior organs. *Royal Society Open Science*, 3(6), p.160057. [Link to paper](#). (IF – 2.9; Q1).
22. Viswanathan, V., **Murali, G.**, Gandhi, S., Kumaraswamy, P., Sethuraman, S. and Krishnan, U.M., 2014. Development of thioflavin-modified mesoporous silica framework for amyloid fishing. *Microporous and Mesoporous Materials*, 197, pp.40-47. [Link to paper](#). (IF – 4.8; Q1)

Natural history notes

1. Melvinselvan, G., Nibedita, D. and **Murali, G.**, 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 & Field Herpetology*, 2(1), pp.16-22.
2. **Murali, G***, and G. Melvinselvan. 2021. Atretium schistosum (Olive Keelback Watersnake). Color polymorphism. *Herpetological Review* 52 (1), 146.
3. **Murali, G***. 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.

TEACHING EXPERIENCE

Regularly taught courses (as main instructor)

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

Teaching assistant (graduate TA)

Biological diversity and evolution (BIO111), Indian Institute of Science Education and Research Thiruvananthapuram, India. (Two semesters: 2016 & 2018).

Biological diversity and evolution laboratory (BIO112), Indian Institute of Science Education and Research Thiruvananthapuram, India. (Two semesters: 2016 & 2018).

Introductory Ecology, Evolution and Behaviour (BIO211), Indian Institute of Science Education and Research Thiruvananthapuram, India. (Two semesters: 2016 & 2018).

Introductory Ecology, Evolution and Behaviour laboratory (BIO212), Indian Institute of Science Education and Research Thiruvananthapuram, India. (Two semesters: 2016 & 2018).

STUDENT MENTORING

Postgraduate level ($n=2$)

1. Shuaib Palathingal, (IISER Thiruvananthapuram)

Publication: Kodandaramaiah, U., Palathingal, S., Bindu Kurup, G. and Murali, G., 2020. *Behavioral Ecology*. (“What makes motion dazzle markings effective against predation?”)

2. Soumen Mallick, (IISER Thiruvananthapuram)

Publication: Murali, G.*, Mallick, S. and Kodandaramaiah, U., 2021. *Behavioral Ecology and Sociobiology*. (“Background complexity and optimal background matching camouflage”)

Undergraduate level ($n=7$)

1. Amina Mohammed (IISER Thiruvananthapuram)

2. Gayathri Bindu Kurup (IISER Thiruvananthapuram)

Publication: Murali, G.*, Mallick, S. and Kodandaramaiah, U., 2021. *Behavioral Ecology and Sociobiology*. (“Background complexity and optimal background matching camouflage”)

3. James Connors (University of Georgia '18)

4. Kartik T (IISER Thiruvananthapuram)

5. Kajal Kumari (IISER Thiruvananthapuram)

Publication: Murali, G., Kumari, K. and Kodandaramaiah, U., 2019. *Scientific Reports*. (“Dynamic colour change and the confusion effect against predation”).

6. Siddhartha Yaddanapudi (IISER Thiruvananthapuram)

7. Yogesh M (Rajalakshmi Engineering College)

EDITORIAL AND REFREE SERVICES

Web of Science reviewer profile: <https://www.webofscience.com/wos/author/record/1574328>

Peer-reviewed for the following journals (total number of reviews – 73 for 30 journals):

Biological Reviews, Nature Communications, Global Change Biology, 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, Climate Change Ecology, Biology Letters, Behavioural Ecology, Journal of Evolutionary Biology, Evolutionary Ecology, Ecology and Evolution, Biological Journal of the Linnean Society, Austral Ecology, Ecological Solutions and Evidence, Ecological Research, Ethology, PeerJ, Journal of Zoology, and ZooKeys.

Peer-reviewed grant proposals for the following granting organizations (total number of grant proposals reviewed – 2): National Science Center, Poland (<https://www.ncn.gov.pl/en>).

ORAL PRESENTATION AT SCIENTIFIC MEETINGS

1. IISER-TVM - National University of Singapore Joint Symposium. 22nd September 2015, Thiruvananthapuram, Kerala.

2. 39th Annual Meeting of the Ethological Society of India. 30th October to 1st November 2015. IISER Mohali. India.
3. M K Chandrashekar Memorial Meeting. 4th and 5th February 2016. JNCASR. Bangalore, India.
4. GIAN course on Speciation and the Web of Life. Headed by Prof. Michael Arnold, University of Georgia, USA. 22nd August to 6th September. IISER TVM. Thiruvananthapuram, Kerala, India.
5. Pre-conference workshop on butterfly evolution. Biology of Butterflies 2018. 8th June 2018. IISER Thiruvananthapuram. Thiruvananthapuram, Kerala, India.
6. 2nd Symposium on Mediterranean Lizards. June 18th to 21st 2018. Steinhardt Museum of Natural History, School of Zoology, Tel Aviv University, Tel Aviv, Israel.
7. 16th ISBE Conference. August 11th to 16th, 2018. University of Minnesota. United States of America.
8. Mitrani Department of Desert Ecology Fall seminar. December 17th, 2019. Ben Gurion University of the Negev, Israel. (*Invited*)
9. 56th Meeting of the Zoological Society of Israel, December 29th, 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 12th, 2021. University of Minnesota. United States of America. (*Invited*)
12. 30th International congress for Conservation Biology (ICCB 2021). December 13th to 17th 2021. Kigali, Rwanda.
13. 58th Meeting of the Zoological Society of Israel, March 13th, 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 5th 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, 2023, Cornell University. United States of America. (*Invited*).

MEDIA COVERAGE

Highlights

My research has attracted significant media attention, with coverage in major news outlets and interviews for popular science platforms such as [The Guardian](#), [WION News](#), [Sky News](#), and [Science by AAAS](#). My graduate research was highlighted in children's book titled [The Secret of the Deceiving Striped Lizard](#) (ISBN10: 0766086259) and in the [Scientific American 60 seconds podcast](#).

Coverage for specific papers

Lewin et al. 2024, *Nature Ecology & Evolution*. (“Global evaluation of current and future threats to drylands and their vertebrate biodiversity”)

Featured in: [Eureka Alert](#), [phys.org](#), [The Mirage](#), and [The msn](#).

Murali et al. 2023, *Nature*. (“Future temperature extremes threaten land vertebrates”)

Featured in: [The Guardian](#), [The Telegraph](#), [Mongabay](#), [The Print](#), and [89 other news outlets](#). Listed among the top 5% of all articles ever tracked by [Altmetrics](#).

Murali et al. 2021. *Science Advances*. (“Global determinants and conservation of evolutionary and geographic rarity in land vertebrates”)

Featured in: [The Jerusalem Post](#), [NewScientist](#), and [Edge of Existence blog](#).

Murali et al. 2018. *Journal of Evolutionary Biology*. (“Grab my tail: evolution of dazzle stripes and colourful tails in lizards”)

Featured in: [Nature India](#), [Research Matters](#), and [Scroll.in](#).

Murali et al. 2018. *Behavioral Ecology*. (“Body size and evolution of motion dazzle coloration in lizards”)

Featured in: [Inside Science](#), [Scroll.in](#), [Listed among top cited papers for the year 2018-2019](#).

Murali et al. 2016. *Royal Society Open Science*. (“Deceived by stripes: conspicuous patterning on vital anterior body parts can redirect predatory strikes to expendable posterior organs”)

Featured in: [AAAS Science News](#), [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’](#)(ISBN10: 0766086259).

PROFESSIONAL MEMBERSHIPS

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)

ACADEMIC REFERENCES

Dr. Ullasa Kodandaramiah (Ph.D adviser)

Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM), India.
ullasa@iisertvm.ac.in

Prof. Uri Roll (Postdoc adviser)

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Tel Aviv University, Israel.
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Prof. John J. Wiens (Postdoc adviser)
University of Arizona, United States.
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University of Turku, Finland.
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Dr. Hema Somanathan (PhD committee member)
Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM)
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Dr. Takuya Iwamura (Postdoc collaborator)
University of Geneva, Switzerland
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