

YUCHEOL SHIN

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EDUCATION

- Ongoing** **Ph.D. Comparative Biology** **Advisor: Dr. Frank T. Burbrink**
Richard Gilder Graduate School, American Museum of Natural History (AMNH), New York, NY, USA
- 2016 – 2024** **B.S. Biological Sciences** **Advisor: Dr. Daesik Park**
Kangwon National University, Chuncheon, South Korea
Thesis: Pleistocene range dynamics of the two distantly related lungless salamanders endemic to the Korean Peninsula
- 2018** **Study Abroad, Biology** **Advisor: Dr. Jenny Duggan**
California State University, Monterey Bay, Seaside, CA, USA
Project: Comparing the efficiency of different survey methods for detecting herpetofauna at the UC Fort Ord Natural Reserve

PUBLICATIONS

(All publications are available from: https://www.researchgate.net/profile/Yucheol_Shin)

* denotes co-first author papers

Research articles

19. A Borzée, A Angulo, H Meredith, J Groffen,, **Y Shin**, Y Bae, Z Wang, Z Qiu, R Pearce. 2024. Protecting Japanese Giant Salamanders (*Andrias japonicus*) in the Nawa River Basin, Japan: policy recommendations addressing water pollution and waterway disruption. *Frontiers in Amphibian and Reptile Science* 2: 1348251.
18. JY Jeon, **Y Shin**, AJ Mularo, X Feng, JA DeWoody. 2024. The integration of whole-genome resequencing and ecological niche modeling to conserve profiles of local adaptation. *Diversity and Distributions* 30: e13847.
17. I-K Park, **Y Shin**, H-J Baek, J Kim, D-I Kim, M Seok, Y Oh, D Park. 2024. Establishment potential across South Korea for two gecko species, *Gekko japonicus* and *G. swinhonis*, adapted to different climates. *NeoBiota* 93: 39-62.
16. A Borzée, **Y Shin**, Y Bae, D Jeong, H Amin, M-S Min, SN Othman. 2024. From Korean to northeast Asian endemism: on the occurrence of *Pelophylax chosonicus* along the Eastern Coastal Yellow Sea. *Frontiers of Biogeography* 16: e62301.
15. **Y Shin***, K Heo*, SN Othman, Y Jang, M-S Min, A Borzée. 2024. Tracing the geographic origin of a nonnative Red-banded Snake (Colubridae: *Lycodon rufozonatus*) found on Jeju Island, Republic of Korea. *Herpetologica* 80: 30-39.
14. Y Peng, Y Li, G Cao, H Li, **Y Shin**, Z Piao, F Perez, W Zhu, A Borzée. 2023. Estimation of habitat suitability and landscape connectivity for Liaoning and Jilin clawed salamanders (Hynobiidae: *Onychodactylus*) in the transboundary region between the People's Republic of China and the Democratic People's Republic of Korea. *Global Ecology and Conservation* 48: e02694.
13. J Li, **Y Shin**, M Hong, Y Jang, A Borzée. 2023. Is ultra-violet fluorescence a trait related to breeding in the Mongolian racerunner (*Eremias argus*; Lacertidae, Reptilia)? *Journal of Biological Research – Thessaloniki* 30: 3.
12. A Borzée, M Rodriguez, N Bhatni, YI Kim,, VK Prasad, Y Jang, **Y Shin**, SN Othman. 2023. Policy recommendation on the *Rana* trade towards the Republic of Korea. *Frontiers in Environmental Science* 11: 1097849.

11. D Jeong, **Y Shin**, B Lim, H Serret, Y Jang. 2023. Do Barn Swallows (*Hirundo rustica gutturalis*) prefer to breed in inhabited houses in South Korea? The Wilson Journal of Ornithology 134: 633-641.
10. **Y Shin**, K Kim, J Groffen, D Woo, E Song, A Borzée. 2022. Citizen science and roadkill trends in the Korean herpetofauna: the importance of spatially biased and unstandardized data. Frontiers in Ecology and Evolution 10: 944318.
9. SN Othman, **Y Shin**, H-T Kim, M-F Chuang, Y Bae, J Hoti, Y Zhang, Y Jang, A Borzée. 2022. Evaluating the efficiency of popular species identification methods, and comparative workflow using morphometry and barcoding bioinformatics for taxonomy and origin of traded cryptic brown frogs. Global Ecology and Conservation 38: e02253.
8. A Borzée, **Y Shin**, N Poyarkov, JY Jeon, HJ Baek, CH Lee, J An, YJ Hong, M-S Min. 2022. Dwindling in the mountains: description of a critically endangered and microendemic *Onychodactylus* species (Amphibia, Hynobiidae) from the Korean Peninsula. Zoological Research 43: 750–755.
7. **Y Shin**, M-S Min, A Borzée. 2021. Driven to the edge: Species distribution modeling of a Clawed Salamander (Hynobiidae: *Onychodactylus koreanus*) predicts range shifts and drastic decrease of suitable habitats in response to climate change. Ecology and Evolution 11: 14669-14688.
6. A Borzée, SN Litvinchuk, K Ri, D Andersen, TY Nam, GH Jon, HS Man, JS Choe, S Kwon, SN Othman, K Messenger, Y Bae, **Y Shin**, A Kim, I Maslova, J Luedtke, L Hobin, N Moores, B Seliger, F Glenk, Y Jang. 2021. Update on distribution and threat status of amphibians in the Democratic People's Republic of Korea: conclusions based on field surveys, landscape modeling, molecular analyses, and call properties. Animals 11: 2057.
5. **Y Shin**, Y Jang, A Borzée. 2021. Snakebite envenomings in the Republic of Korea from the 1970s to the 2020s: a review. Toxicon 196: 8-18.
4. **Y Shin***, KR Messenger*, KS Koo, SC Lee, M Hou, A Borzée. 2021. How threatened is *Scincella huanrenensis*? An update on threats and trends. Conservation 1: 58-72.
3. D Macias, **Y Shin**, A Borzée. 2021. An update on the conservation status and ecology of Korean terrestrial squamates. Journal for Nature Conservation 60: 125971.
2. **Y Shin**, Y Jang, SJR Allain, A Borzée. 2020. Catalogue of herpetological specimens of the Ewha Womans University Natural History Museum (EWNHM), Republic of Korea. ZooKeys 965: 103-139.
1. A Borzée, KR Messenger, S Chae, D Andersen, J Groffen, YI Kim, J An, SN Othman, K Ri, TY Nam, Y Bae, J-L Ren, J-T Li, M-F Chuang, Y Yi, **Y Shin**, T Kwon, Y Jang, M-S, Min. 2020. Yellow sea mediated segregation between North East Asian *Dryophytes* species. PLoS ONE 15: e0234299.

Book chapters

3. A Borzée, K Milto, L Borkin, X Ji, W Zhao, **Y Shin**. 2022. *Takydromus wolteri*. In: The IUCN Red List of Threatened Species 2022 : e.T47756012A214715587.
2. K Milto, L Borkin, X Ji, W Zhao, **Y Shin**. 2021. *Takydromus wolteri*. In: The IUCN Red List of Threatened Species 2021: e.T47756012A47756021.
1. V Orlova, K Milto, L Borkin, W Zhao, **Y Shin**. 2021. *Takydromus amurensis*. In: The IUCN Red List of Threatened Species 2021: e.T47755997A47756006.

Short communications

7. I-K Park, **Y Shin**, D Park. 2024. Predation on a metamorphosing tadpole of the American Bullfrog, *Aquarana catesbeiana* (Shaw, 1802), by the fishing spider *Dolomedes sulfureus*, in the Republic of Korea. Herpetology Notes 17: 531-533.

6. **Y Shin**, J Miller, JM Duggan. 2021. Observations on the year-round communal use of an artificial structure by Northern Pacific rattlesnakes (*Crotalus oreganus oreganus*) in coastal Central California. *Herpetological Bulletin* 155: 25-27.
5. **Y Shin**, A Borzée. 2020. Melanism in the Ussuri pitviper (*Gloydius ussuriensis*) from the Republic of Korea, with remarks on color variations. *Jordan Journal of Natural History* 7: 60-63.
4. **Y Shin**, J Ambu, A Borzée. 2020. Observations on heterospecific amplexus in Asiatic toads (Anura: Bufonidae: *Bufo gargarizans*) in the Republic of Korea. *Herpetology Notes* 13: 411-413.
3. **Y Shin**, D Jeong, A Borzée. 2020. Mass displacement of Korean clawed salamanders (*Onychodactylus koreanus*) and the threat of road-kill. *Herpetological Bulletin* 151: 28-31.
2. **Y Shin**, Y Jang, T Kim, A Borzée. 2020. A specimen of *Karsenia koreana* (Caudata: Plethodontidae) misidentified as *Hynobius leechii* 27 years before the species' description and additional historical record. *Current Herpetology* 39: 75-79.
1. **Y Shin**, Y Jang, A Borzée. 2020. Limb malformations in *Bombina orientalis* (Anura; Bombinatoridae) in the Republic of Korea based on museum specimens. *Herpetology Notes* 13: 29-31.

Natural history & distribution notes

8. J-J Strydom, **Y Shin**. 2022. *Gloydius brevicauda* (Short-tailed Pitviper). Diet. *Herpetological Review* 53: 697-698.
7. K Heo, **Y Shin**, K Messenger. 2022. *Hynobius notialis* (Southern Korean Salamander). Behavior. *Herpetological Review* 53: 642.
6. D Jeong, B Lim, **Y Shin**. 2022. *Dryophytes japonicus* (Japanese Treefrog). Predation. *Herpetological Review* 53: 467-468.
5. **Y Shin**, D Jeong, B Lim. 2021. *Kaloula borealis* (Boreal Digging Frog). Hibernaculum. *Herpetological Review* 52: 828-829.
4. **Y Shin**, MD Cho, A Borzée. 2021. *Gloydius ussuriensis* (Ussuri Pitviper). Diet. *Herpetological Review* 52: 157-158.
3. K Messenger, H Dahn, D Andersen, **Y Shin**, Y Yi, Y Bae, A Borzée. 2020. *Bufo stejnegeri* (Korean Water Toad). Geographical distribution. *Herpetological Review* 51: 532.
2. **Y Shin**, Y Jang, A Borzée. 2020. *Gloydius saxatilis* (Rock Mamushi). Dicephalism. *Herpetological Review* 51: 143-144.
1. **Y Shin**, Y Jang, A Borzée. 2020. *Gloydius ussuriensis* (Ussuri Mamushi). Disease. *Herpetological Review* 51: 144.

PRESENTATIONS

* denotes the presenter. All delivered in English unless stated otherwise.

- 2024 **Y Shin***, A Borzée. Establishment potential of non-native brown frogs (*Rana*) in the Republic of Korea. Oral presentation. 15th Student Conference on Conservation Science-New York (SCCS-NY). American Museum of Natural History, New York, USA.
- 2024 **Y Shin***, A Borzée, D Park. Climatic data sources influence the prediction of past habitat suitability and niche comparisons for two distantly related lungless salamanders. Oral presentation. 10th World Congress of Herpetology. Kuching, Sarawak, Borneo.
- 2024 **Y Shin***, SN Othman, DB Kohler, I Maslova, K Messenger, A Borzée. Contributions to the knowledge of pitvipers (genus *Gloydius*) in the Democratic People's Republic of Korea. Poster. 10th World Congress of Herpetology. Kuching, Sarawak, Borneo.

- 2024** H Amin*, SN Othman, **Y Shin**, M-S Min, KR Messenger, A Movahedi, D Ghosh, DB Kohler, VK Prasad, X Zhang, Y Yi, Y Jang, H Ruan, A Borzée. An integrative analysis for the reconsideration of species boundaries in East Asian *Pelophylax* species. Oral presentation. 10th World Congress of Herpetology. Kuching, Sarawak, Borneo.
- 2024** VK Prasad*, A Ramachandran, X Zhang, **Y Shin**, R Rastogi, M Rais, B Shrestha, D Andersen, D Kohler, G Shahabuddin, KP Dinesh, A Borzée. Climatic modeling predicts high-elevation endemic amphibians habitat replacement by expanding generalist widespread amphibians in the Himalayas. Oral presentation. 10th World Congress of Herpetology. Kuching, Sarawak, Borneo.
- 2023** **Y Shin***. Where did you come from? Using molecular phylogenetics to trace the geographic origin of a non-native Red-banded Snake (*Lycodon rufozonatus*) found on Jeju Island, Republic of Korea. Oral presentation [in Korean]. KNU College of Natural Sciences Undergraduate Research Competition.
- 2023** **Y Shin***. Pleistocene range dynamics of the two distantly related lungless salamanders endemic to the Korean Peninsula. Oral presentation [in Korean]. KNU Department of Biological Sciences Senior Research Thesis Presentation.
- 2023** **Y Shin***, D Park. Pleistocene range dynamics of the two distantly related lungless salamanders endemic to the Korean Peninsula. Poster. The 10th EAFES International Congress. Jeju, Republic of Korea.
- 2022** **Y Shin***, K Kim, J Groffen, A Borzée. Citizen science and roadkill trends in the Korean herpetofauna. Poster. 13th Student Conference on Conservation Science-New York (SCCS-NY). American Museum of Natural History, New York, USA.
- 2021** **Y Shin***, M-S Min, A Borzée. Distribution modeling of *Onychodactylus koreanus* predicts drastic decrease of suitable habitats in response to climate change. Poster. Joint Meeting of Ichthyologists and Herpetologists. Phoenix, Arizona, USA (**SSAR George B. Rabb Undergraduate Poster Award**).
- 2021** JY Jeon*, **Y Shin**, M-S Min, DK Lee. The effects of climate change on the distribution of Gori Salamander (*Hynobius yangi*). Oral presentation [in Korean]. Meetings of the Korean Society of Climate Change Research. Suwon, Republic of Korea (**Best Poster Presentation Award**).
- 2020** **Y Shin***, Y Jang, A Borzée. A metanalysis of snakebites in South Korea: bridging the knowledge gap in snakebite envenomation. Poster. 9th World Congress of Herpetology. Dunedin, New Zealand.
- 2018** **Y Shin***, JM Duggan. Comparing survey methods and habitat associations for herpetofauna at the UC Fort Ord Natural Reserve. Poster. The Wildlife Society Annual Wildlife Symposium. San Luis Obispo, California, USA.
- 2018** **Y Shin***, JM Duggan. Comparing efficiency of different survey methods for detecting snakes at the UC Fort Ord Natural Reserve: preliminary observations. Poster. 5th Annual Summer Research Symposium, California State University, Monterey Bay. Seaside, California, USA.

RESEARCH EXPERIENCES

2024 – present **Ph.D. Student**

Advisor: Dr. Frank T. Burbrink

Department of Herpetology, Division of Vertebrate Zoology, American Museum of Natural History (AMNH)

2022 – 2024 **Undergraduate Researcher**

Advisor: Dr. Daesik Park

Laboratory of Herpetology, Kangwon National University

- Investigation of contemporary niche overlaps, Pleistocene range dynamics, and range formation processes of Korean endemic salamanders *Onychodactylus koreanus* and *Karsenia koreana*.
- Investigation of courtship behaviors in the Asian plethodontid *Karsenia koreana*.
- Participated in herpetological surveys across South Korea.

- 2019 – 2024 Research Assistant Advisor: Dr. Amaël Borzée**
Laboratory of Animal Behaviour and Conservation, Nanjing Forestry University
- Ecological niche modeling of northeast Asian herpetofauna.
 - Collaboration in multiple projects on the systematics, ecology, and conservation of northeast Asian herpetofauna.
- 2019 Herpetology Curatorial Assistant Advisors: Dr. Amaël Borzée, Dr. Yikweon Jang**
Ewha Womans University Natural History Museum (EWNHM)
- In charge of photographing and cataloging 1554 formalin-fixed specimens deposited in the herpetological collection.
- 2019 Research Intern Advisors: Dr. Amaël Borzée, Dr. Yikweon Jang**
Laboratory of Animal Communication, Ewha Womans University
- Collaboration in multiple projects on the systematics, ecology, and conservation of northeast Asian herpetofauna.
 - Participated in herpetological surveys across South Korea.
- 2018 Undergraduate Researcher Advisor: Dr. Jenny Duggan**
Terrestrial Wildlife Ecology Lab, California State University, Monterey Bay
- Conducted herpetofauna surveys using coverboards and drift fence arrays on the UC Fort Ord Natural Reserve during 193 survey days.

FELLOWSHIPS, GRANTS, AND AWARDS

- 2024** David L. Stephan Grants in Herpetology (1,000 USD). North Carolina Herpetological Society
- 2023** Excellent Presentation Award (200,000 KRW). KNU College of Natural Sciences Undergraduate Research Competition
- 2022** SSAR Roger Conant Grant-in-Herpetology, Undergraduate Research (500 USD). Society for the Study of Reptiles and Amphibians
- 2022** KNU Foundation Scholarship (1,140,500 KRW). Kangwon National University
- 2022** Scholarship for Outstanding Academic Performance (862,000 KRW). Kangwon National University
- 2021** George B. Rabb Undergraduate Poster Award (250 USD). Society for the Study of Amphibians and Reptiles
- 2021** Best Poster Presentation Award. The Korean Society of Climate Change Research
- 2018** Undergraduate Summer Research Equipment Grant (390 USD). Undergraduate Research Opportunities Center, California State University, Monterey Bay
- 2018** KNU Learning Core Program Student Mentor Award (650,000 KRW). Kangwon National University
- 2018** BEST KNU Scholarship - Highest academic honors (2,101,000 KRW). Kangwon National University
- 2017** Scholarship for Outstanding Academic Performance (1,725,000 KRW). Kangwon National University
- 2017** BEST KNU Scholarship - Highest academic honors (2,101,000 KRW). Kangwon National University
- 2016** BEST KNU Scholarship - Highest academic honors (2,101,000 KRW). Kangwon National University
- 2016** Freshmen English Proficiency Award - 1st place (100,000 KRW). Kangwon National University

RESEARCH SKILLS

- Ecological niche modeling and niche analyses in R
- Data processing, statistical analyses, and data visualization in R
- Geospatial analyses and visualization in QGIS and ArcMap
- Phylogenetic analyses