

TOPIC 1: Eco-evolutionary dynamics & life histories

Group 1: Jary Ladislav, Kohnen Evelyn Grace, Johnsonova Nicole

Guiding question: Does the fast-slow continuum adequately capture life history variation across taxa, or do we need multiple axes of life-history strategy?

Key concepts: Life-history (strategies/traits), slow-fast continuum, pace-of-life syndromes

Classic: Stearns, S. C. (1977). The evolution of life history traits: a critique of the theory and a review of the data. *Annual review of ecology and systematics*, 145-171.

Recent: Stott, I., Salguero-Gómez, R., Jones, O. R., Ezard, T. H., Gamelon, M., Lachish, S., ... & Hodgson, D. J. (2024). Life histories are not just fast or slow. *Trends in Ecology & Evolution*, 39(9), 830-840.

TOPIC 2: Population ecology essentials

Group 2: Roithmeier Martina, Garcia Gallo Antonio, Sobotka Vojtech, Vadher Jaydeep

Guiding question: Allee effects: ecological curiosity or fundamental driver of population dynamics?

Key concepts: Allee effect (component vs demographic), strong vs weak Allee, rescue/immigration effects

Classic: Stephens, P. A., Sutherland, W. J., & Freckleton, R. P. (1999). What is the Allee effect?. *Oikos*, 185-190.

Recent: Muir, E. J., Lajeunesse, M. J., & Kramer, A. M. (2024). The magnitude of Allee effects varies across Allee mechanisms, but not taxonomic groups. *Oikos*, 2024(7), e10386.

TOPIC 3: Species interactions & coexistence

Group 3: Naing Htin Lin, Sithu Kyaw, Cutova Lujza

Guiding question: Top-down control or bottom-up release: Is there evidence for predation's grip on prey numbers?

Key concepts: predation-prey interactions, top-down vs bottom-up control, trophic cascades

Classic: Krebs, C. J., Boutin, S., Boonstra, R., Sinclair, A. R. E., Smith, J. N. M., Dale, M. R., ... & Turkington, R. (1995). Impact of food and predation on the snowshoe hare cycle. *Science*, 269(5227), 1112-1115.

Recent: Krebs, C. J., Boonstra, R., & Boutin, S. (2018). Using experimentation to understand the 10-year snowshoe hare cycle in the boreal forest of North America. *Journal of Animal Ecology*, 87(1), 87-100.

TOPIC 4: Food webs & network ecology

Group 4: Kocaturkmen Sena, Pereira de Barros Helena, Turan Aleya, Polackova Nela Anna

Guiding question: From keystone to rewiring: does food-web complexity build local biodiversity?

Key concepts: Keystone species, interaction strength, network modularity, network rewiring

Classic: Paine, R. T. (1966). Food web complexity and species diversity. *The American Naturalist*, 100(910), 65-75.

Recent: Bartley, T. J., McCann, K. S., Bieg, C., Cazelles, K., Granados, M., Guzzo, M. M., ... & McMeans, B. C. (2019). Food web rewiring in a changing world. *Nature ecology & evolution*, 3(3), 345-354.

TOPIC 5: Macroecology & biogeography 1

Group 5: Gurbanzade Mahmud, Pastrana Jessel Varinka, San Khin Chuu, Harrison Nate

Guiding question: Latitudinal gradients in biodiversity (and its dimensions) - how and why?

Key concepts: Latitudinal diversity gradient, evolutionary rates & diversification, taxonomic/functional/phylogenetic diversity

Classic: Willig, M. R., Kaufman, D. M., & Stevens, R. D. (2003). Latitudinal gradients of biodiversity: pattern, process, scale, and synthesis. *Annual review of ecology, evolution, and systematics*, 34(1), 273-309.

Recent: Brodie, J. F., & Mannion, P. D. (2023). The hierarchy of factors predicting the latitudinal diversity gradient. *Trends in Ecology & Evolution*, 38(1), 15-23.

TOPIC 6: Macroecology & biogeography 2

Group 6: Azat Aibar, Novruzov Elvin, Choi Inseo

Guiding question: How many species do we actually have on Earth? Why is it so hard to estimate?

Key concepts: species concept, cryptic diversity, extrapolation

Classic: Mora, C., Tittensor, D. P., Adl, S., Simpson, A. G., & Worm, B. (2011). How many species are there on Earth and in the ocean?. *PLoS biology*, 9(8), e1001127.

Recent: Wiens, J. J. (2023). How many species are there on Earth? Progress and problems. *PLoS biology*, 21(11), e3002388.

TOPIC 7: Global change ecology

Group 7: Skokanova Simona, Efe Egemen, Henriques Kaelin

Guiding question: Are we facing a sixth mass extinction?

Key concepts: Background vs contemporary extinction rates, extinction debt, "Big Five" mass extinctions & sixth mass extinction

Classic: Ceballos, G., Ehrlich, P. R., Barnosky, A. D., García, A., Pringle, R. M., & Palmer, T. M. (2015). Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science advances*, 1(5), e1400253.

Recent: Wiens, J. J., & Saban, K. E. (2025). Questioning the sixth mass extinction. *Trends in Ecology & Evolution*, 40(4), 375-384.

TOPIC 8: Drivers of biodiversity crisis

Group 8: Cusumano Julia, Estanol Carrion Clara, Kadlec Lukas, Malik Parv

Guiding question: What are the main drivers of the current biodiversity crisis?

Key concepts: Biodiversity crisis, direct vs indirect drivers, biomass reallocation (humans/livestock)

Reading 1: Jaureguiberry, P., Titeux, N., Wiemers, M., Bowler, D. E., Coscieme, L., Golden, A. S., ... & Purvis, A. (2022). The direct drivers of recent global anthropogenic biodiversity loss. *Science advances*, 8(45), eabm9982.

Reading 2: Bar-On, Y. M., Phillips, R., & Milo, R. (2018). The biomass distribution on Earth. *Proceedings of the National Academy of Sciences*, 115(25), 6506-6511.

TOPIC 9: Biodiversity ↔ ecosystem functioning/services

Group 9: Abilhasanov Jeyhun, Kolowrat Alexie, Garcia Ramis Clara, Tan Hao

Guiding question: From services to contributions: valuing nature in a human world

Key concepts: Ecosystem services, intrinsic/instrumental/relational value, nature-based solutions

Classic: Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., ... & Van Den Belt, M. (1997). The value of the world's ecosystem services and natural capital. *Nature*, 387(6630), 253-260.

Modern: Díaz, S., Pascual, U., Stenseke, M., Martín-López, B., Watson, R. T., Molnár, Z., ... & Shirayama, Y. (2018). Assessing nature's contributions to people. *Science*, 359(6373), 270-272.

TOPIC 10: Applied ecology: New tools & data streams

Group 10: Alkan Selin, Hahn Dennis, Cherchelanova Elena, Kotrous Matej

Guiding question: From new dawn to new standard: citizen science in ecology

Key concept: Citizen science, Ten Principles of Citizen Science, Participation levels (e.g., Haklay typology)

Classic: Silvertown, J. (2009). A new dawn for citizen science. *Trends in ecology & evolution*, 24(9), 467-471.

Modern: Fraisl, D., Hager, G., Bedessem, B., Gold, M., Hsing, P. Y., Danielsen, F., ... & Haklay, M. (2022). Citizen science in environmental and ecological sciences. *Nature reviews methods primers*, 2(1), 64.