

Tan Jian Xiong David

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Education

- 2019 - 2024 (expected): University of New Mexico, NM, USA – PhD Biology
- 2010 - 2015: National University of Singapore, Singapore – BSc (Hons) in Life Science, specialisation in Environmental Biology; University Scholars Programme
- 2012 - 2013: Yale University, CT, USA – Visiting International Student

Research Interests

My research focuses primarily on the biogeography, evolution, and conservation of Southeast Asian birds. Much of my work centres around integrating the use of natural history collections, vouchered tissue samples, geospatial datasets, and modern genomic techniques.

As a PhD student at the University of New Mexico, I am interested in the evolution, biogeography, movement ecology, and conservation genetics of the true Pittas (genus *Pitta*), a colourful and secretive group of birds that range from tropical Africa to Melanesia. Part of my research focuses on how these birds diversified in insular Southeast Asia, and how the evolution and loss of migratory behaviour may have affected the rate of diversification in this charismatic group of birds.

I also pioneered the avian carcass collection effort in Singapore in 2013, and have been salvaging dead birds from across Singapore's urban areas (mostly window collisions and roadkill) to augment the contemporary genetic and specimen holdings of the Lee Kong Chian Natural History Museum and to enhance our understanding of Southeast Asian birds.

My other areas of research interest the phylogeography of the endemic crabs of Christmas Island, the population genetics of forest edge-dwelling birds, the ectoparasite diversity of Southeast Asian birds, and the molecular assessment of bird diets from salvaged carcasses.

Employment History/Research Experience

- **Curatorial Assistant, Museum of Southwestern Biology (2019 - 2020):** Specimen accessioning and loan processing at the Division of Genomic Resources (DGR).
- **Research Assistant, Lee Kong Chian Natural History Museum (2018 - 2019):** Phylogenomics, population genomics, and demographic history of the endemic land crabs of Christmas Island using ddRAD-Seq.
- **Lead Content Consultant/Researcher, GSMprjct Singapore/Montreal (2018 - 2019):** Scientific consultant for the design of the Mandai Bird Park in Singapore.
- **Avian Field Technician, University of Cambridge (2018 - 2019):** Bird surveyor for the Biodiversity Ecosystem Function in Tropical Agriculture (BEFTA) and Riparian Ecosystem Restoration in Tropical Agriculture (RERTA) projects (University of Cambridge) in Riau Province, Sumatra.
- **Research Assistant, National University of Singapore (2017 - 2017):** Hidden butterfly extinctions modelling project at the Theoretical Ecology and Modelling Lab.
- **Research Assistant, National University of Singapore (2015 - 2017):** Administrative assistant and bioinformatics technician at the Southeast Asian Biodiversity Genomics Center (SEABIG).
- **Intelligence Assistant, Open Source Centre, Joint Intelligence Directorate, Ministry of Defence (2008 - 2010):** Assistant project manager for an IT project, and technical support crew

Peer Reviewed Papers

- Lee, L, **Tan DJX**, Oboña J, Gustafson DR, Ang YC, Meier R (2022). Hitchhiking into the future on a fly: Toward a better understanding of phoresy and avian louse evolution (Phthiraptera) by screening bird carcasses for phoretic lice on hippoboscids flies (Diptera). *Systematic Entomology*, 1–10. doi: 10.1111/syen.12539
- Theng M, Jusoh WFA, Jain A, Huertas B, **Tan DJX**, Tan HZ, ... Chisholm RA (2020). A comprehensive assessment of diversity loss in a well-documented tropical insect fauna: Almost half of Singapore's butterfly species extirpated in 160 years. *Biological Conservation*, 242, 108401. doi:10.1016/j.biocon.2019.108401
- Luke SH, Advento AD, Aryawan AAK, Adhy DN, Ashton-Butt A, Barclay, H., ..., **Tan DJX**, ... Turner, E. C. (2020). Managing Oil Palm Plantations More Sustainably: Large-Scale Experiments Within the Biodiversity and Ecosystem Function in Tropical Agriculture (BEFTA) Programme. *Frontiers in Forests and Global Change*, 2. doi:10.3389/ffgc.2019.00075
- **Tan DJX**, Chattopadhyay B, Garg KM, Cros E, Ericson PGP, Irestedt M, Rheindt FE (2018) Novel genome and genome-wide SNPs reveal early fragmentation effects in an edge-tolerant songbird population across an urbanized tropical metropolis. *Scientific Reports*, 8, 12804. (Impact factor: 4.12)
- **Tan DJX**, Yong DL, Low BW, Owyong A, Chia A (2017) Anthropogenic sources of non-migratory avian mortalities in Singapore. *International Journal of Tropical Veterinary and Biomedical Research*, 2 (2), 17 - 27
- Low BW, Yong DL, **Tan DJX**, Owyong A, Chia A (2017) Migratory bird collisions with man-made structures in South-East Asia: a case study from Singapore. *BirdingAsia*, 27, 107-111.
- **Tan DJX** (2016) A quantitative survey of avian population densities in a heterogeneous tropical urban landscape. *Raffles Bulletin of Zoology Supplement*, 32, 95–104. (Impact factor: 0.851)
- Sadanandan KR, **Tan DJX**, Schjølberg K, Round PD, Rheindt FE (2015) DNA reveals long-distance partial migratory behavior in a cryptic owl lineage. *Avian Research*, 6, 1-7. (Impact factor: 1.06)

Other Publications/Popular Science Writing

- **Tan DJX** (2015) Baiting Has No Place in Photography. *The Straits Times*, B21–B22.
- **Tan DJX**, Ang A, Ang YC, Meier R (2015) Lee Kong Chian Natural History Museum Mobile Web Experience App, Writer: <http://nat-hist.sg/map>
- **Tan DJX** (2012) The Birds of NUS: <http://nusavifauna.wordpress.com>
- **Tan DJX**, Sze J, Soh E (2012) Singapore Got Wildlife, Meh? (Documentary), YouTube, Singapore.

Scientific Presentations

- **British Ornithologists' Union 2016 Annual Conference**, University of Leicester, UK, 5 - 7 April 2016: Population genomics of *Mixornis gularis* in a fragmented urban-dominated landscape, Poster presentation
- **Biodiversity of Singapore Symposium IV**, National University of Singapore, Singapore, 1 August 2015: How fragmented are Singapore's forests? Population dynamics of the Striped Tit-Babbler in Singapore, Talk
- **International Max Planck Research School Selection Symposium 2017**, Max Planck Institute for Ornithology, Germany, 26 - 30 March 2017: A Forest-dependent Passerine in a Tropical Metropolis: The Landscape Genetics of the Striped Tit-Babbler, Talk
- **27th International Ornithological Congress**, International Ornithological Union, Vancouver, Canada, 20 - 26 August 2018: Novel genome and genome-wide SNPs reveal early fragmentation effects in an edge-tolerant songbird population across an urbanized tropical metropolis, Poster presentation

Teaching Experience

Courses Taught

- National University of Singapore, Spring 2018, ULS2208 Biodiversity and Natural History in Singapore (Guest lecturer on avian biology and ecological sampling techniques, 21 Feb 2018 - 7 Mar 2018)

Teaching Assistantships

- National University of Singapore, Fall 2013, LSM1103 Biodiversity
- National University of Singapore, Fall 2014, LSM1103 Biodiversity
- University of New Mexico, Fall 2020 – Spring 2022, BIOL 1150 Biodiversity

Undergraduate Mentorship

- Mr. Leshon Lee, AY2018/2019, Bachelor of Science (Life Sciences), "Elucidating the species diversity of avian ectoparasites in Singapore". Undergraduate Research Opportunities in Science (UROPS) project (co-supervised with Rudolf Meier and Mackenzie Kwak)
- Ms. Lee Jia Wei, AY2014/2015, Bachelor of Environmental Sciences major, "Reproductive Behavior of Mynas in Singapore - Recent Changes in Response to Urbanization", Honours project (co-supervised with Frank Rheindt)
- Ms. Edrea Poon, AY2014/2015, Bachelor of Environmental Sciences major, "A baseline population study of the Asian Koel (*Eudynamys scolopaceus*) in Singapore, and perceptions towards the species", Honours project (co-supervised with Frank Rheindt)

Public Outreach and Education

Citizen Science Projects

- Wildlife Reserves Singapore Biannual Biodiversity Surveys, 2014 - 2018
- Urban avian mortalities of Singapore, 2013 - 2020

Invited Talks

- University of New Mexico School of Architecture, 25 Oct 2019, "Greening the Garden City: Managing Singapore's Urban Biodiversity"
- Millenia Institute, Singapore, 17 Apr 2018, "Speaking for the Trees – Conservation and Development in Singapore"
- Singapore Institute of Landscape Architects, Singapore, 6 Sep 2017, "Designing Bird-Friendly Cities: An Ecological Perspective"
- Millenia Institute, Singapore, 23 Aug 2017, "Speaking for the Trees – Conservation and Development in Singapore"
- Meridian Junior College, Singapore, 21 Apr 2017, "Speaking for the Trees – Conservation and Development in Singapore"
- National University of Singapore Political Society, Singapore, 23 Aug 2016, "Singapore Got Wildlife, Meh? – The Biodiversity of Singapore's Forests"
- Each Blade of Grass, Each Shrub, Each Tree (Art Exhibition), The Substation, Singapore, 7 May 2016, "Why Do Birds Fall Out of the Sky?"
- Millenia Institute, Singapore, 1 Apr 2016, "Singapore Got Wildlife, Meh? – The Biodiversity of Singapore's Forests"
- National Library, Singapore, 12 Mar 2016, "Singapore Got Wildlife, Meh? – The Biodiversity of Singapore's Forests"
- Asia-Pacific Centre for Environmental Law (APCEL), National University of Singapore, Singapore, 19 Feb 2016, "Wildlife in Our Rainforests – Threats and Opportunities"
- Dunman High School, Singapore, 5 Dec 2015, "Consider the Birds – Ornithological Research in Singapore"
- Science Cafe Singapore, Singapore, 19 Nov 2015, "How Fragmented Are Singapore's Forests?"
- DHI Singapore, Singapore, 18 Nov 2015, "How Fragmented Are Singapore's Forests?"
- Tanjong Katong Girls' School, Singapore, 16 Oct 2015, "Singapore Got Wildlife, Meh? – Adventures in Singapore's Wild Places"
- Cantik Lah Singapore, Orchard Library, Singapore, 19 Sept 2015, "(Mis)Representing the Natural World – The Ethics and Aesthetics of Nature Photography"
- National University of Singapore High School of Math and Science, Singapore, 13 Jul 2015, "Why Do Birds Fall Out of the Sky?"
- Tierra Design, Singapore, 2 Jul 2015, "How Fragmented Are Singapore's Forests?"
- Changi-Simei Community Centre, Singapore, 21 Jun 2014, "Whatever Happened to the Dinosaurs?"
- Lee Kong Chian Natural History Museum, Singapore, 16 May 2014, "Guiding with Specimens"
- Victoria School, Singapore, 10 Mar 2014, "Speaking for the Trees – Nature Advocacy in Singapore"

- Mayflower Primary School, Singapore, 28 Oct 2013, "Singapore Got Wildlife, Meh? – Adventures in Singapore's Wild Places"

Other Outreach Activities

- Each Blade of Grass, Each Shrub, Each Tree (Art Exhibition), The Substation, Singapore, 5 - 15 May 2016, Art Exhibition/Installation featuring specimens from urban avian mortality collection
- Feather Forensics: Part of the Railtrack Songmaps Project, M1 Singapore Fringe Festival, Singapore, 13 - 14 Jan 2016, Art Exhibition/Installation featuring imaged specimens from urban avian mortality collection

Media Appearances/Coverage

- Tan A (2017) Skyscrapers pose fatal risk to migratory birds: Study. The Straits Times.
- Tan A (2015) Meet Singapore's own "bird man." The Straits Times, B14.
- Avian migration and urban avian mortality research featured on Discovery Channel Asia documentary "Man vs Birds" (2015)
- Urban avian mortality research featured on local documentary series "Secret Singapore" (2014)
- Feng Z (2013) Team flocks to collect dead birds for research. The Straits Times, 41.

Awards and Honours

- Donald Caughran Memorial Scholarship (2019): \$1,500
- Alvin R. and Caroline G. Grove Summer Research Scholarship (2019): \$1,250
- American Museum of Natural History Frank M. Chapman Small Grant Award (2020): \$1,900
- Society of Systematic Biologists Graduate Student Research Award (2020): \$2,790.40
- Synthesys+ Transnational Access Call 3 (2021): \$2,601.19