ABSTRACTS FOR POSTER PRESENTATIONS

Parallel frameworks in ecology? Biological invasions and natural colonisation — the Australia-origin case of Welcome Swallows

Takayasu Charles Amano
Nagasaki University, Nagasaki, Japan
bb53421001@ms.nagasaki-u.ac.jp

The unified framework for biological invasions was proposed by Blackburn *et al*. (2011) to describe processes of human-mediated introductions, and it has since stimulated substantial debate (e.g. Essl *et al*. 2016; Richardson *et al*. 2016). In this study, rather than engaging with those debates, we adopt Blackburn's framework in a parallel manner to examine cases of natural colonisation. Specifically, we extrapolated observational data of naturally established species in New Zealand and considered how the framework might be refined to capture their establishment processes. By developing such a parallel framework, we aim to evaluate how and why natural colonisation occurs and to identify which barriers are most relevant. In New Zealand, naturally colonised bird species include the Masked Lapwing, White-faced Heron, and Welcome Swallow, all of which are thought to originate from Australia. Among these, the Welcome Swallow was selected as a model species because of its aerial feeding strategy and broad habitat use. The species now breeds on both the North and South Islands, but its populations decline in the South Island during winter, reflecting its partial migratory behaviour. However, quantitative studies of its distribution and abundance remain lacking. To address this gap, we investigated the winter land-use patterns of Welcome Swallows in the South Island, where survival is most constrained. Our quantitative data show that Welcome Swallow populations decline in the South Island during winter. This may indicate that a barrier to full establishment remains, or alternatively, that migratory behaviour provides a successful strategy to overcome seasonal constraints.

Population trends of migratory and resident shorebirds of Botany Bay, New South Wales, over a nineteen-year period between 2001 and 2020

Debbie Andrew, Michael Fleming
Australasian Wader Study Group, NSW, Australia
deba55@tpg.com.au

Population trends of four migratory and one resident shorebird are examined over a nineteen-year period (2001-2020) using monthly counts in Botany Bay, a large estuarine tidal embayment in south-eastern Australia. Counts were conducted from a boat by experienced volunteers within two hours either side of high tide and covered all known shorebird roost sites within Botany Bay. The four migratory species, Far Eastern Curlew, Alaskan Bar-tailed Godwit, Whimbrel and Grey-tailed Tattler all showed population declines but at different rates. The resident Pied Oystercatcher showed an increasing trend. These contrasting trends suggest differing responses by each species to environmental and human driven impacts at local and global scales. Possible explanations such as varied life cycles, critical feeding and roosting sites, habitat loss and behavioural differences are explored.

Sex-Role reversal in the Brown Kiwi (*Apteryx mantelli*): Female expression of male-typical traits and male-exclusive parental care

Isabel Castro, Caitlin McLeod, Wei Hang Chua, Barbara Durrant Stephen Marsland, Maurice Alley
Massey University, Palmerston North, New Zealand
i.c.castro@massey.ac.nz

Sex-role reversal (where typical patterns of behaviour, physiology, and reproductive investment are exchanged between the sexes) offers valuable insight into the flexibility of sexual selection and parental strategies. In all five Kiwi species, females are larger than males and possess disproportionately long bills, a striking example of reverse sexual dimorphism. In the North Island Brown Kiwi (*Apteryx mantelli*), this is coupled with male-exclusive incubation, a caregiving role more commonly performed by females in most bird species. While male incubation in Kiwi has been described, the expression of male-typical traits in females remains largely unexplored in birds. Here, we present behavioural, hormonal, and anatomical evidence showing that female Brown Kiwi express a suite of traits more commonly associated with males in other avian taxa. During the breeding season, females frequently take the leading role in courtship displays (behaviour that is typically male-biased in other species). Hormonal data show elevated androgen levels in females both during and outside the breeding period. Anatomically, we found that Kiwi females possess a prominent clitoris structurally equivalent to the male penis. Conversely, males assume sole responsibility for incubation and nest care, roles typically associated with females. Together, these findings demonstrate a striking case of sex-role reversal in Brown Kiwi, with both sexes exhibiting trait profiles usually associated with the opposite sex. This makes Kiwi a powerful model for exploring the ecological and evolutionary mechanisms underlying sex-role flexibility in birds.

Home range and juvenile dispersal behaviour in Wedge-tailed Eagles and implications for wind-farm developments

Simon Cherriman, Trish Fleming, Jill Shephard, Penny Olsen
Murdoch University, Perth, WA, Australia
waalitj84@gmail.com; @waalitj84wa

This study calculated Wedge-tailed Eagle breeding home range size estimates, and quantified space use by attaching GPS/Argos Satellite Platform Terminal Transmitters (PTTs; mean 17 GPS fixes/day for 110 days to 3.8 years) to two adult (one male, one female) and 18 pre-dispersive juvenile eagles from two ‘populations’. The 95% aKDEC figures for Matuwa eagles (average 15.8 ± 7.4 km^2, range 8.2–24.6 km^2, n = 9) and Mundaring (15.9 ± 10.0 km^2, range 2.9–29.5 km^2, n = 11) were not significantly different. Post-dispersal, juvenile Wedge-tailed Eagles are known to travel considerable distances, yet current knowledge of post-fledging behaviour and dispersal movements is limited. We used 119,199 GPS fixes to determine fledging and emigration dates then analysed the movement patterns of 22 juvenile Wedge-tailed Eagles originating from an arid site in central Western Australia (n = 10: 5 males; 5 males) and a mesic site in the State’s south-west (n = 12: 7 males; 5 females) between fledging and the end of the first year of independence. Juvenile eagles remained in their natal home range for an average of 157 days, with the mean dispersal date being 30 April. Most eagles made long movements immediately after leaving their natal sites, with minimum displacement distances (for hourly GPS fixes during daylight) averaging 1,207 km per month (range 192–2,212 km per month), and cumulative distances in the first year of independence averaging 18,470 km (range 11,230–27,093 km). Movement decisions may be linked to rainfall distribution patterns. These findings are comparable with those for other large eagles and provide new insights into the biology of the country’s largest raptor.

What the cluck?! Does incubation lighting prime birds for reduced stress at hatching?

Breanna Chippindall, Caleb Wellard, Kate Buchanan
Deakin University, Geelong, VIC, Australia
blchippindall@deakin.edu.au

Birds are photosensitive long before hatching, but lighting conditions during incubation are rarely considered when designing captive breeding programs. Yet, it is entirely possible that cycles of light/dark, as well as cyclic temperature regimes may affect avian embryo development and post-hatch welfare. These factors also have relevance to commercial production in the poultry industry. Within the broiler industry eggs are typically incubated in constant darkness and temperature, but hatched into nearly constant light. Poultry research has typically focussed on the effects of incubation light on hatchability and growth rate, but no studies have investigated the combined effects of cyclic temperature fluctuations and photoperiods on stress responses post-hatch. Our study sought to determine whether rhythmic light and temperature conditions during incubation, would influence stress responses at hatching. To test this, we used commercial poultry as a model to test the impact of incubation conditions on post-hatch welfare. We incubated broiler eggs (Ross 308) in 6 consecutive batches under 4 different treatment groups (12:12h light and dark, 12:12h light and dark with a daily temperature drop, 24h darkness, 24h darkness with a daily temperature drop). After hatching, chicks from all incubation treatments were co-housed and were randomly allocated to two different housing conditions: 12:12h light/dark or one that replicated commercial industry conditions (23L:1D at hatch with decreasing photoperiod). To assess stress levels, we blood sampled chickens at days 1 and 5 post-hatch and assessed their circulating levels of corticosterone, the main avian stress hormone. Here, we compare the baseline and peak corticosterone levels of chicks raised under four different pre-hatch incubation conditions and two different post-hatch housing conditions. Specifically, we predicted that exposure to predictable daily cycles of light and dark would reduce corticosterone levels at hatch. Our findings have considerable implications, not only for the welfare of commercial broiler chicks, but for the design of captive breeding programs, as well as for an understanding of the impacts of anthropogenic light on wild birds at night.

A new and comprehensive guide to ageing and sexing birds in Queensland

Jon Coleman
Queensland Wader Study Group & Queensland Bird Research and Banding Group, Brisbane, QLD, Australia
janetandjon@hotmail.com

Effective resources to assist in the ageing and sexing of wild birds are essential for high quality ornithological research, however such resources within Australia are relatively limited. To address this, the Queensland Bird Research and Banding Group has been collecting morphological data from across Queensland since 2006 with the aim of producing an ageing and sexing guide for birds of the state. Between 2006 and 2024, 68,897 birds of 348 species have been caught and banded, with an additional 17,989 previously banded bird recaptured. Birds had range of standard morphological measurements taken, and evidence of wing moult was recorded. Most birds were photographed with spread wing, spread tail, and a series of profile photographs taken on first capture and subsequent recapture event (resulting in a database of 87,000 photographs). The collection of data across a large area has provided a unique opportunity to understand morphometric variation geographically and at a subspecies level for Queensland species. In addition, the recording of moult and the use of photographs of known age birds has provided the opportunity to identify detailed and new ageing and sexing criteria based on plumage, morphometrics and moult. Accounts have been written for 225 species to promote more accurate recording of the ageing and sexing of birds and are currently being prepared for publication online to provide a resource available for all researchers in Australia. Several examples are showcased in the poster presentation to show the value and potential use cases of the work done to date.

Determining habitat utilisation of the little known Eyrean Grasswren *Amytornis goyderi*

Lucy Coleman
University of Queensland, Brisbane, QLD, Australia
lucy.coleman@student.uq.edu.au

Understanding habitat requirements is essential for the conservation of cryptic species such as the Eyrean Grasswren (*Amytornis goyderi*). While currently listed as Least Concern, significant gaps remain in understanding its habitat

preferences and range, limiting accurate habitat modelling and conservation planning. While typically associated with mature stands of Sandhill Canegrass (*Zygochloa paradoxa*), recent observations suggest potential use of other structurally similar vegetation. Using Ethabuka Nature Reserve as a test case, my honours project addresses this gap by investigating the degree to which *A. goyderi* is dependent on *Z. paradoxa*, and, critically, what structural characteristics, such as clump height, density, and post-fire age, are required to support occupancy. During June to September, we will undertake ~ 70 stratified transect surveys across dune crest and interdunal habitats, encompassing stands of both *Z. paradoxa* and *Triodia basedowii*, and spanning a gradient of fire scar ages. Across ~ 700 fixed points, we will survey for Eyrean Grasswrens and measure vegetation structure and species composition. These data will be used to model occurrence and territory density in relation to vegetation characteristics, allowing broader inferences about habitat suitability across the species' range. Although fieldwork is yet to begin, we hypothesise that Eyrean Grasswrens are restricted to mature, dense *Z. paradoxa* clumps, reflecting strong habitat specialisation and informing post-fire management strategies. This talk will provide a summary of the result and provide the first quantitative assessment of Eyrean Grasswren habitat use within a key part of its range and inform management at Ethabuka Nature Reserve by identifying vegetation attributes and recovery stages that support the species.

Environmental and human impacts on foraging and roosting behaviour in the Critically Endangered Far Eastern Curlew (*Numenius madagascariensis*)

Jon Coleman, Lucy A. Coleman, Robert A. Bush
Queensland Wader Study Group & Queensland Bird Research and Banding Group, Brisbane, QLD, Australia
janetandjon@hotmail.com

Migratory shorebirds are increasingly threatened by a range of environmental and human pressures, with many species showing precipitous population declines. Amongst these, the Far Eastern Curlew has shown to be highly sensitive to human disturbance yet the impacts of these pressures on foraging and roosting behaviour remains poorly understood. We fitted Platform Terminal Transmitters to Far Eastern Curlew at several locations within Moreton Bay Marine Park, Queensland, to establish home range patterns and understand the factors influencing the usage of feeding and roosting sites. Birds showed a high degree of home range fidelity both within and between years suggesting resource partitioning by birds across the bay. Tidal height had a significant impact on available roost sites with higher tides reducing available sites. Feeding and roosting behaviour differed between weekdays and weekend days the latter when more human disturbance occurs. At weekends birds used more remote roost sites and fed further away from popular recreation areas. These effects were more pronounced in habitat restricted areas in the North of Moreton Bay with effects less noticeable in less restricted areas. The impacts of high tides and human disturbance are cause for concern as tidal heights have visibly increased in recent history, and the increasing regional population has resulted in more foreshore development and recreational use of the bay. There is evidence that protected roost sites provided some sanctuary, and this with effective zoning to protect feeding and roosting areas may assist in arresting declines in the species in non-breeding locations.

The impacts of extreme weather events on a lowland tropical rainforest bird community in Cape York, Australia

Jon Coleman, Lucy A. Coleman, Brendan Doohan
Queensland Bird Research and Banding Group, Brisbane, QLD, Australia
janetandjon@hotmail.com

As climate-induced weather events continue to increase in extent and severity, there is growing need to understand how resilient avian populations are to such threats. This is particularly the case in Australia's remnant tropical rainforests which contain high numbers of endemic and taxonomically distinct species. Since 1990, a longitudinal study of avian communities has been conducted at Kutini-Payamu National Park, a lowland tropical rainforest habitat in Eastern Cape York. The park was visited every 2 to 3 years, and birds were banded at predetermined sites, allowing for trends in catch rates, survival rates and juvenile proportions to be calculated. In 2019, a category four cyclone (Cyclone Trevor) passed directly over the national park, resulting in widespread destruction of the rainforest canopy. Prior to the cyclone event, the bird community was stable with no statistically significant changes in juvenile proportions, catch rates, species proportions caught, recapture rates or adult survival. Recapture rates while consistent demonstrated the highly sedentary and long-lived nature of the species present. The 2020 survey recorded

the lowest recapture rate to date (7.3% compared to a mean of 14.7% between 1997 and 2018) with most recaptures (90.7%) from the prior two surveys in 2011 and 2018. Conversely the catch rate was the highest recorded to date. In 2023 the catch rate was the lowest recorded to date. Proportionally, smaller species were encountered less than prior to the cyclone, suggesting the impacts of such adverse weather events have the capacity to greatly alter community composition.

A meta-analysis of parrot tracking studies reveals the difficulties of transmitter attachment to Little Corella (*Cacatua sanguinea*)

Ruth Cope, Rebecca Boulton, John M. Martin, Liberty Olds, Rowan Mott, and Phillip Cassey
The University of Adelaide, Adelade, SA, Australia
ruth.cope@adelaide.edu.au

Little Corellas (*Cacatua sanguinea*) are known for damaging crops and ornamental trees and are considered an overabundant nuisance native in some urban areas. Understanding their habitat use and movement patterns ideally requires the deployment of tracking devices. Here, we describe an attempt to attach GPS transmitters to Little Corellas using the backpack and keel-strap harness method. However, all five deployed units were removed by the birds within 48 hours. To complement our study, we conducted a literature review of parrot (Psittacine) tracking studies. We investigated attachment styles and potential reasons for past device removals. Of the 46-relevant studies, neck collars were the most common attachment method (38.8%), followed by backpack harnesses (24.5%). Transmitter removal was documented in 28.3% of studies, with removals being most common for medium-sized (500–1000 g) species, and for combination (simultaneous back- and tail-mounts; n = 4) and backpack harness attachments (n = 6). Although relatively few parrot telemetry studies have been conducted to date, their number is increasing. Future studies will require considerable innovation and collaboration to overcome attachment style challenges for difficult species, like the Little Corella. Importantly, lessons learned from such attachment attempts can be transferable to other bird species, reinforcing the need for continued collaboration and technological advancement in movement ecology.

Tiny Birds, Big Impact: Outcomes of Operation SoHo

Monique Cugliari, Han Auld
Office of the Conservation Regulator, Department of Energy, Environment and Climate Action, Barwon, VIC, Australia
monique.cugliari@deeca.vic.gov.au

Operation SoHo (Save our Hoodies) is the first of its kind, targeted regulatory operation for the protection of the Hooded Plover (*Thinornis rubricollis*), a beach nesting bird that is currently vulnerable under both the Victorian Flora & Fauna Guarantee Act 1988 and the Commonwealth Environment Protection & Biodiversity Act 1999. Operation Soho entered its fifth year for the 2025- 2026 breeding season, led by Office of the Conservation Regulator (OCR) in partnership with Parks Victoria and BirdLife Australia. Both non-authorised and Authorised officers got their boots sandy along Victoria's coast undertaking educational interactions and enforcement patrols to reduce human interference at nesting and breeding sites of Hooded Plovers, enforcing relevant legislation relating to disturbance and destruction of wildlife. The Victorian Conservation Regulator's regulatory priorities for 2025–2027 include illegal campfires, illegal take of firewood, cruelty to wildlife, protection of threatened species, and illegal vehicle use. These priorities are determined by a state-wide risk assessment and are focused on addressing the greatest risks to the environment and community. Operation Soho is delivered under the protection of threatened species priority which advanced due to a risk-based intelligence led approach.

Tracking birds: What technology is out there and what can we do with it

Sarah Deans
Lotek UK, Dorset, United Kingdom
sdeans@lotek.com
@lotektelemetry.bsky.social; @LotekWireless

For over four decades, Lotek has provided ornithologists with insights into avian behaviour that far surpass what binoculars and notebooks alone can offer. Recent exciting advances in miniaturization and power efficiency have made these technologies increasingly suitable for a wider range of bird species. This means that tracking highly mobile or wide-ranging land birds—such as migratory songbirds, raptors, or seabirds—has become feasible where traditional manual methods once fell short. Modern tracking options utilise recent advancements in technology to provide improved location accuracy and reduced power consumption in smaller packages. This also means there is now a wide range of options for researchers to choose from. Small species can be fitted with VHF tags that when used with the Motus Wildlife Tracking System offer a collaborative international network of automated radio-receiving stations to track movement across large landscapes. Geolocators and Store-on-Board GPS tags provide long-term movement data at the fraction of a bird's bodyweight. Birds as small as just 70g can be monitored using GPS tags with remote download capabilities or PTT satellite tags. This growing range of technologies can make selecting the most appropriate tool for a given species or study objective challenging. This talk will explore the strengths and limitations of each tracking method and provide guidance on their application to bird research across a range of habitats and life histories. With insights from a pioneer in this industry we aim to provide a comprehensive guide for researchers to make the most informed choice for their project.

Twenty years of bird monitoring on the Canning River, Perth, Western Australia

Lauren Gilson, Aurora Popescu, Lorien Watts, Pam Agar
Canning River Bird Surveys Team, Perth, WA, Australia
Lauren.Gilson@curitn.edu.au

Since November of 2003, members of the Canning River Regional Park Volunteers organisation have been surveying bird communities twice annually along approximately 6.25 km of the Canning River (Djarlgarra beeliar). This stretch of water lies 9.3 km west of the river's confluence with the Swan Estuary (Derbal yerrigan), and 14.4 km inland from the Indian Ocean at North Fremantle. Fringing bushland habitat extends from 275m at its narrowest to 1km at its widest around the watercourse; the closest private residences are less that 50m from open water. Saltwater incursion from the estuary extends only as far as the Kent Street Weir, the midpoint of these surveys. Water quality above the weir is managed by Western Australia's Department of Biodiversity, Conservation, and Attractions (DBCA). To date (April 2025; may update in November), 114 species have been identified by ear/eye within the Canning River Regional Park. Species counts per survey (March-April or October-November) range from 47-77, with an average of 60 species per session. Breeding songbirds, parrots, ducks, and waders have been recorded along all six survey routes, and new species are detected at a rate of 0.3 per year. Here we describe annual tallies of functional groups of species observed, and trends of increase and decrease in the Canning River Regional Park of the past 22 years. This project is entirely staffed by citizen scientist volunteers.

Using citizen science to conserve south-eastern Glossy Black-cockatoo habitats in southeast Queensland

Liz Gould, Shannon Mooney, Daniella Teixeira, Elizabeth Williams, Gabriel Conroy, Guy Castley, Adrian Caneris
Connect4Conservation, QLD, Australia
lizgould@connect4conservation.com.au
#glossyblackcockatoo #habitatmapping #citizenscience #threatenedspecies #conservation planning

In 2016, core foraging habitats and known nest sites for south-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*) in the southeast Queensland bioregion were legislated as essential habitat. Mapping of non-core habitats was also made available to governments, researchers and conservation organisations to support decision-making and improve conservation outcomes for the species. In 2019-2020, bushfires raged across eastern Australia impacting 4% of mapped habitat in the SEQ bioregion. These fires followed an extensive drought that had already degraded habitat quality and reduced the availability of water and food resources across southern Queensland, exacerbating fire impacts on wildlife. Flood events along the east coast, particularly in 2022, are also likely to have impacted habitat. The subspecies was subsequently listed as nationally vulnerable, leading to increased interest from government, scientists and the community. In 2025, the Glossy Black Conservancy (supported by a WIRES Pat Connors Avian grant) revised and updated the habitat mapping using the considerable scientific knowledge and data accumulated since 2015. The updated mapping includes regrowth vegetation, reflecting the species' documented use of young trees as food resources. Preliminary results indicate a wider use of vegetation communities (regional

ecosystems) than previously recognised, and that habitat clearing continues, particularly in the north of the bioregion. The findings also underscore the critical role of citizen science in conservation of south-eastern Glossy Black-cockatoo.

Two years of continuous monitoring of a Tasmanian masked owl roosting tree

Charley Gros, **Jane Ogilvie**, Matt H. Webb
Bob Brown Foundation, TAS, Australia
charley.gros@gmail.com

The Tasmanian masked owl (*Tyto novaehollandiae* subsp. *castanops*) is a threatened species relying on old forest features that are declining across its range in Lutruwita / Tasmania. Its elusive behaviour and large territory make monitoring challenging, resulting in significant knowledge gaps that hinder conservation efforts. Passive acoustic monitoring has proven effective for detecting this species and assessing habitat use. Using an array of acoustic recorders and a triangulation algorithm, we identified a masked owl roosting tree in a dry eucalypt native forest inside a logging site. Over two years, we conducted nightly passive acoustic monitoring to quantify the species' vocal activity around this roosting tree. We will present the temporal distribution of vocal activity and identify patterns associated with roosting tree use. This case study enhances our understanding of the species' ecology, informing conservation efforts.

Territory-level vegetation characteristics drive differences in survival in Superb Fairy-wrens (*Malurus cyaneus*)

Franziska Hacker, Samuele Ramellini, Helen Osmond, Andrew Cockburn, Damien R. Farine
The Australian National University, Canberra, ACT Australia
franziska.hacker@anu.edu.au

Suitable vegetation is key to animals' foraging success and efficiency as well as predation avoidance, potentially exerting a strong effect on survival. However, assessing how such drivers affect animal survival proves challenging, as it requires longitudinal datasets on both individual life-history data and fine-scale spatiotemporal information on the habitat. Here, we combine long-term data (>30 years) on the survival of a small Australian passerine, the Superb Fairy-wren, with Light Detection and Ranging (LiDAR) vegetation data, aiming to determine whether territory-level variation in vegetation metrics (vegetation volume, vegetation height, horizontal variability, distribution of forest gaps, and ground availability) affects the winter and summer survival of individuals. To do this, we fit a Cox proportional hazards model that investigates whether these vegetation characteristics are conducive to higher survival in superb fairy-wrens. We predict that forest gaps and higher ground availability will be important for successful foraging, especially in winter, and thus survival. Additionally, vegetation volume is expected to positively influence survival since birds need to trade off foraging with predation avoidance – breeding territories that contain open areas surrounded by dense vegetation are thus expected to have highest survival rates. Preliminary results show that vegetation volume significantly affects adult male survival. Our novel approach shows how remotely sensed vegetation data can be used to assess habitat quality in an ecologically relevant way. Our results can provide guidance for targeted conservation interventions aimed at creating and maintaining key habitats that could stop or even reverse the decline of threatened species.

Innovating for coexistence: Technology-driven solutions for wind and wildlife

Jessica Harvey
HiDef Aerial Surveying, Cumbria, UK
Jess.Harvey@hidefsurveying.co.uk

As Australia plans for significant wind energy growth to meet renewable energy targets, balancing infrastructure development with biodiversity conservation is critical for sustainable outcomes. Wind farms, particularly in areas with species of high conservation value, pose risks to bird and bat populations, making effective mitigation a key consideration during project planning and operation. This presentation will explore the effectiveness of both established and emerging methods for mitigating impacts on birds and bats. It will review passive and active

deterrence techniques as well as curtailment methods, including radar- and camera-based systems. Recent advancements in Artificial Intelligence (AI) provide innovative tools for addressing these challenges. For example, AI-powered camera systems for species-specific deterrence and curtailment have successfully reduced bird collisions while supporting renewable energy production. These systems leverage advanced detection and tracking technologies to identify at-risk species, assess collision risks, and implement targeted turbine curtailment. Additionally, they contribute to baseline data collection by monitoring bird behaviour, migration patterns, flight heights, and seasonal usage, informing both impact assessments and long-term conservation strategies. By integrating advanced monitoring and mitigation technologies, stakeholders can better manage ecological and consenting risks and support the sustainable development of wind farms. These approaches promote a balance between wind energy growth and biodiversity conservation to facilitate sustainable wind energy expansion.

Describing the vocal culture of the critically endangered Western Ground Parrot

Joseph Jantke, Sarah Comer, Allan Burbidge, Abby Berryman, Brent Barrett
The University of Adelaide, Adelaide, SA, Australia
josephjantke365@outlook.com.au

Vocal culture in songbirds refers to the repertoire of vocalisations individuals learn as juveniles to communicate with and differentiate conspecifics. The vocal culture of the Kyloriny, like many threatened and cryptic bird species, is incompletely documented and poorly understood. An understanding of vocal culture can be applied usefully when assessing the current and past viability of populations, and when conducting advanced acoustical analyses, such as identifying individual birds and the number of calling birds in audio recordings. Our study in progress is documenting the vocal culture of the Kyloriny and how it has changed over the last 20 years of declines to determine the vulnerability of the species to culture loss, and to widen the scope of acoustic analyses researchers can use to study the species' ecology and demography in their natural range. We compiled and quantified a vocalisation repertoire for the Kyloriny by analysing 380 hours of current and historic audio recordings of wild and captive populations. With a set of linear and non-linear dimensionality reduction algorithms we quantified variation between vocalisation types and determined the set of acoustical features on which vocalisations can be quantitatively compared. We present an initial compilation and description of the vocal culture of the Kyloriny over the last two decades. Additional research is necessary to quantify the cost to fitness incurred by loss of vocal culture in the species.

Urban birds and the road ahead: Making road ecology research matter beyond academia

Christopher Johnson, Tony Matthews, Matthew Burke, Darryl Jones
Griffith University, Brisbane, QLD, Australia
christopher.johnson5@griffithuni.edu.au
https://www.linkedin.com/in/christopher-johnson-1160a198/

Urban environments present growing threats to biodiversity, with linear transport infrastructure (LTI)—including roads, railways, and bridges—fragmenting habitats and impeding bird movement. Road ecology offers practical tools to mitigate these impacts, including fauna-sensitive road design (FSRD) strategies like wildlife crossings and exclusion fencing. However, despite strong scientific evidence supporting their use, such measures are often inconsistently applied across Australian cities. This presentation draws on a recent policy and practitioner study evaluating FSRD implementation in Queensland and Victoria, highlighting the need to better connect ecological research with the realities of transport planning. Through policy analysis and interviews with engineers, planners, and consultants, we identify institutional barriers, legislative shortfalls, and communication breakdowns that limit the uptake of science-based mitigation. Our findings show that road ecology must evolve to speak beyond academia—producing tools, data, and guidance tailored for use by professionals who build and manage infrastructure. We propose practical steps for reframing urban bird conservation in infrastructure projects, including clearer technical standards, cross-disciplinary training, and knowledge-sharing platforms. As urbanisation continues to intensify, bridging the gap between ecological insight and real-world decision-making is essential to ensure cities remain permeable and habitable for birds.

Towards a DNA reference library for all Australian bird species: an update on CSIRO's National Biodiversity DNA Library

Anna Kearns, Stephen Bent, Troy Denyer, Julian Hausner, Todd McLay, Amanda Reid, Leonardo Goncalves Tedeschi, Jesse Wallace, Mark Wallace, Nerida Wilson, Claire Yang, Andreas Zwick, Jenny Giles
CSIRO - ANWC/NBDL, Canberra, ACT, Australia
anna.kearns@csiro.au

Reliable and appropriate DNA resources are essential to the success of DNA-based species identification. While a wealth of DNA reference data is available in public repositories, patchy taxonomic and genomic coverage and unverifiable taxonomic origin remain barriers to the accurate DNA identification of Australian taxa, especially in settings such as environmental DNA (eDNA) metabarcoding. CSIRO's National Biodiversity DNA Library (NBDL) is working with the collections community to provide authoritative DNA reference data from expertly identified animal and plant specimens. As part of this initiative, we are generating complete mitochondrial genomes for all Australian bird species (including vagrant and introduced species) from specimens held in Australian natural history collections. These data and the wider NBDL will support a wide range of applications, from eDNA-based monitoring of threatened species and dietary analyses from scats to wildlife forensics such as identification of species involved in bird-aircraft collisions or illegal wildlife trade. The NBDL will be an open access resource providing critical data infrastructure for the uptake of eDNA technologies in Australia and supporting biomonitoring, research, conservation, forensics and biosecurity.

A call to explore moult strategies of Australia's landbirds

James Kennerley, Jonathan Coleman
Cornell Lab of Ornithology, New York, United States of America
jak564@cornell.edu

Effective conservation of Australia's rich yet threatened avifauna requires a detailed understanding of species' annual cycles. While breeding and movement often receive considerable research attention, moult—a comparably energetically demanding and time-consuming process—remains overlooked despite its ecological importance. For most species, feathers must undergo annual replacement in a precise sequence to ensure critical functions such as flight, thermoregulation and courtship displays are not compromised during regrowth. This has led to the evolution of a diverse range of moult strategies adapted to a species and individuals' environment. While variation in moult strategies is widely recognised, key knowledge gaps persist for many species including timing and patterns of feather loss and regrowth and, especially for Australia's landbirds, generalisable patterns at the community-level. We are initiating a broad-scale, citizen science effort to systematically collect moult data during bird banding activities. The study aims to identify generalisable patterns and adaptive strategies in moult behaviour, and to explore how these strategies have been shaped by seasonal and year-to-year weather variation, and ecological and environmental gradients. Findings will provide crucial insights into how Australian landbirds adjust their time and energy budgets in response to weather extremes and, over the longer-term, to climate change. Understanding these adaptations will provide a more holistic picture of the avian annual cycle, informing individual species and community-level conservation strategies that consider the interplay between breeding, movement and moult.

Metagenomic characterisation of bacterial and viral diversity in the Critically Endangered Australian parrots.

Natalie Klukowski, Jen Wood, Kerry Fanson
La Trobe University, Melbourne, VIC, Australia
natklukowski@gmail.com; Instagram: Nataliexkl; LinkedIn: Nataliexkl

The prevalence of emerging infectious diseases (EID) within endangered populations are increasing rapidly, with many species under threat of extinction. As infectious disease continues to spread among wild populations, the potential of pathogens transmission to from captive populations worsens. Species such as the Swift Parrot (*Lathamus discolor*), Orange-bellied Parrot (*Neophema chrysogaster*, OBP), and the Western Ground Parrot *(Pezoporus flaviventris*) are greatly impacted by the increase in prevalence of EIDs. Whilst release programs of captive bred individuals are in place to mitigate the effects of climate change, anthropogenic influences, and disease on their population, the risk of extinction remains. Little research has been conducted on the wild populations virome or bacterial diversity, and it is unknown how the microbiome of the captive population compares to that of the wild population, which highlights the need for further research on the viral and bacterial diversity and prevalence of

pathogens in this critically endangered species. The potential of introducing a novel disease into wild population is also unknown. Therefore, this study aims to bridge this gap by characterising the microbiome and virome of several endangered parrot species using high-throughput Next Generation Sequencing (NGS) technology to determine viral and bacterial diversities and identify any unique or novel pathogens.

Advancing animal behaviour recognition: A methodological transition from supervised to unsupervised machine learning

Guozheng Li, Hui Yu, Marcel Klaassen, Jian Deng
Druid Technology Co.,Ltd. Sichuan, China
yanlin@druid.tech

Automated animal behavioural recognition revolutionises wildlife monitoring and behavioural research but faces scalability constraints due to dependency on manually labeled training data. Animals tracked by biologging devices with on-board accelerometer need to be observed by researcher for training data collection. Whereas direct observation of free-roaming wild animals might be impractical due to e.g., large scale movements or landscape challenges. This study presents a methodological evolution addressing this bottleneck. Building on our prior supervised learning approach that quantified activity patterns of Pacific Black Ducks (*Anas superciliosa*), we now introduce an unsupervised learning pipeline requiring minimal field effort. The framework integrates: 1) Dimensionality reduction via UMAP to distil high dimensional features derived from raw accelerometer data into 2 interpretable dimensions; 2) Behavioural clustering using K-means (with user-specified cluster number); 3) Crucially, this method operates on just 1-2 days of raw acceleration data encompassing natural behaviour repertoires, eliminating extensive annotation. The animal behaviour recognition pipeline could be integrated on-board of biologgers for long-term behavioural monitoring. In this talk we would like to share the findings from the validation of unsupervised approach against legacy datasets with human observation records, as well as the new potentials in behavioural ecology studies and challenges.

AviaNZ: Open-Source Bioacoustic Analysis

Stephen Marsland, Isabel Castro
Victoria University of Wellington, Wellington, New Zealand
stephen.marsland@vuw.ac.nz

Passive acoustic recording units that monitor soundscapes have been widely available for many years, generating huge datasets with vast potential to inform us about the diversity of animals in an area. However, until recently, methods to process the recordings, particularly machine learning tools to allow machines to recognise birds from their calls, have lagged far behind. Two key advances have changed this: the use of convolutional neural networks and similar methods to learn how the calls of different birds appear on spectrograms, and the curation of large, user-labelled datasets through citizen science that can be used to train the models. In this talk we will introduce our freely available, open-source software platform AviaNZ and use it to demonstrate the importance of these two components, together with a user-friendly interface that can be used by anybody, from backyard enthusiast to wildlife manager to researcher. We will consider the question of how to evaluate the results of these machine learning tools for real-world ecological applications. We will describe some of the challenges -- technological, practical, and ecological - that remain and how they might be overcome, and consider how statistical methods can be used for the analysis of call data in order to estimate call density. Finally, we will briefly discuss those places where acoustics is an appropriate monitoring method, and where care needs to be taken in interpreting the results.

Transferability of fine-scale species distribution models across islands: can they predict suitability of potential reintroduction sites for threatened island birds?

Melanie Massaro, Rachel Whitsed, Dan L. Warren, Archie MacFarlane, James V. Briskie
Charles Sturt University, Albury, NSW, Australia
mmassaro@csu.edu.au

Species distribution models (SDMs) have been recognised for their use in planning reintroduction programmes. To assess potential release sites, SDMs may be useful to accurately predict a species' distribution in a proposed reintroduction site, but few studies have tested the transferability of fine-scale, high-resolution SDMs across areas using empirical data on threatened species. Here we tested whether fine-scale SDMs can accurately predict the suitability of potential reintroduction sites by using empirical data on threatened *Petroica* robins. We developed independent SDMs for four island populations of two robin species. By transferring each SDM to the other three islands that varied in size, topography and habitat availability, the accuracy of the transferred models was validated. We then applied a novel approach to assess the effects of each predictor variable on the transferability of models between islands by using a modified version of a variable importance for transferability test. Transferability of models was not affected by differences between the robin species. When environmental conditions were similar between calibration and transfer area, models generally transferred accurately across islands. Even when calibration and transfer areas differed in environmental conditions, SDMs could still be used to assess transferability, especially when extrapolation was considered. However, transferability of models was poor if the calibration area did not include the full environmental range of selected predictor variables observed in transfer areas. In some cases, variables that were informative for predictions on the calibration island were uninformative or actively misleading when models were transferred to other islands. The application of SDMs prior to reintroductions can identify the most suitable island release sites. However, understanding the context of predictor variables for each topographically different island and their correlations with other potential predictor variables was important when transferring models across islands.

The stares of suburbia – seasonal dynamics of a communal Bush Stone-curlew roost

Golo Maurer, Casuarina N. Maurer, Xander R. Maurer
BirdLife Australia, Cairns, QLD, Australia
golo.maurer@birdlife.org.au

Rare and threatened in the southern part of their range Bush Stone-curlews, *Burhinus grallarius*, appear to thrive in suburban northern Australia, even forming regular loose aggregations or 'stares'. In this study we followed a stare over nine years conducting at least monthly counts. We detected seasonal variation with counts peaking at over 70 birds in the dry season and the lowest counts during the wet season. This suggests that birds join stares when they are not breeding, either because they do not yet hold a territory or after failed breeding attempts. We also noticed a decline in maximum stare size after the removal of horses from the area. In addition to horses, other features of the area where birds congregate include: vicinity to sports fields with artificial lighting and watering, a large population of Agile Wallaby, Macropus agilis, fencing that largely keeps out dogs and human traffic, mowing keeping the vegetation low and the vicinity to the coast. We suggest undisturbed, 'wild' open areas are important to sustain Bush Stone-curlews in suburban areas.

Key Biodiversity Areas in Australia: help shape the next chapter!

Anna McCallum, Janice Chanson, James Watson
BirdLife Australia, Melbourne, VIC, Australia
anna.mccallum@birdlife.org.au

Key Biodiversity Areas (KBAs) are sites that contribute to the global persistence of biodiversity and are identified using a standardised science-based approach. Found across land, freshwater, and marine environments, the KBA Standard is designed to identify sites of significance for rare and threatened species and ecosystems, as well as key biological processes. In Australia, there are currently 334 KBAs, most of which were first identified as Important Bird Areas (IBAs) or Alliance for Zero Extinction (AZE) sites. BirdLife Australia is currently reviewing and updating legacy IBA sites to ensure they meet the KBA Standard. This process includes a technical review of the latest data on species populations, in addition to stakeholder engagement regarding a site's management. We are calling on species and ecosystem experts, as well as land managers to collaborate to ensure the KBA site network represents biodiversity across taxa and ecosystems. Learn more about recent KBA nominations and how you can get involved.

Acoustic monitoring of Blue-winged Parrots during breeding season in west coast Tasmania: a pilot study

Jane Ogilvie, Charley Gros
Bob Brown Foundation Tasmania Australia
janey@bobbrown.org.au

Blue-winged Parrots (*Neophema chrysostoma*) are small ground-feeding parrots that are threatened by the loss and degradation of grassland and forest habitats. A large subpopulation migrates to Lutruwita/Tasmania to breed, but knowledge of its breeding ecology in wild areas remains limited, and monitoring is challenging as the parrot is wide-ranging and evasive. To begin addressing these gaps, we conducted a pilot study during the 2024–2025 breeding season near Whaleback Ridge in the Meredith Range Regional Reserve, southwest Tayakna, where the species has been opportunistically recorded. This area includes extensive buttongrass moorlands and wet eucalypt forests. We trialled a dual approach using repeated ground surveys and passive acoustic monitoring over late November to late March. To analyse recordings, we developed a neural network model to automatically detect blue-winged parrot calls. Our acoustic monitoring generated over 5300 hours of recordings from 27 sites, and we detected over 2800 calls at 21 sites, demonstrating the method's efficiency and the parrot's broad use of the area. We will present the spatial and temporal distribution of these calls to inform understanding of the parrot's vocal activity. We also mapped potential nesting habitat and identified some areas with high densities—up to 11 hollow-bearing trees per hectare. Our findings suggest that Whaleback Ridge provides crucial breeding and feeding habitat for this declining species, though despite this, the area is threatened by a proposed wind farm development. This study provides a foundation for future research and conservation efforts and highlights the value of acoustic monitoring for blue-winged parrots.

Birds with Altitude: Citizen science monitoring across the Wet Tropics

Ceri Pearce, Amanda N. D. Freeman
BirdLife Northern Queensland, Cairns, QLD, Australia
Ceridwen.Pearce@bigpond.com

The Birds with Altitude (BWA) project is a citizen science-driven initiative developed by BirdLife Northern Queensland in 2022. With 14 bird species and sub-species in the region listed as threatened or near threatened (Garnett & Baker, 2021), BWA aims to collect long-term abundance and distribution data, train community volunteers in bird monitoring, and promote conservation across five Key Biodiversity Areas (KBAs): Atherton, Coastal Wet Tropics, Daintree, Paluma, and Wooroonooran. It is one of the few projects seeking to track altitudinal shifts in rainforest bird populations across multiple Wet Tropics KBAs. Initial funding from a Queensland Government Sustainability Action Grant supported a pilot in Wooroonooran National Park, encompassing annual surveys across six sites from lowland to upland rainforest. Through training workshops and educational resources, 22 volunteers were equipped with the skills and tools needed for standardised Birdata surveys. By 2025, there has been a 25% increase in project participation and over 600 surveys had been submitted across all five KBAs, with participation steadily increasing through field events, annual challenges, and regional partnerships. The program has demonstrated how community-led science can contribute valuable data on bird distribution and habitat health across altitudinal gradients, while building capacity for long-term monitoring in vulnerable ecosystems. Recognition through the 2024 Cassowary Awards highlights its conservation impact. As climate pressures intensify, BWA offers a replicable model for engaging communities in adaptive, science-based bird monitoring.

Long-term large-scale changes in the breeding ecology of Australian Pelicans

John Porter, Kate Brandis, Jenny Spencer, Gary Matthews, Greg Johnston, Deb Sullivan
NSW Department of Climate Change Energy Environment and Water, Sydney, NSW, Australia
john.porter@environment.nsw.gov.au

The Australian Pelican (*Pelecanus conspicillatus*) is one of Australia's most well-known and iconic waterbirds that is widely distributed across the continent. Long range nomadic dispersal and highly adaptable behaviour enable it to capitalise on a diverse range of aquatic habitats from the tropics to the southern temperate coast. Despite the

pelican's importance as a top order predator in aquatic ecosystems, surprisingly little is known about some key aspects of their ecology. One poorly understood factor of pelican ecology is their breeding. In addition, long-term population monitoring has shown that their numbers are declining across eastern Australia. Unpredictable, erratic rainfall events drive breeding habitat availability in the arid interior of the continent, fuelling boom and bust patterns of productivity that support large (>10,000 nests) pelican breeding colonies. In coastal estuaries more predictable habitat and food supply supports regular (±annual) small scale breeding events (<5,000 nests). We investigated changes in pelican breeding sites across Australia using historical records, published literature, banding, online data repositories and long-term monitoring. We then assessed conservation status of breeding sites and major threats impacting them. Arid inland areas (Lake Eyre and Murray-Darling river basins) supported the largest (>50,000 nests) pelican breeding colonies. Coastal estuaries with more predictable habitat and food supply supported regular (±annual) small scale breeding events (usually <5,000 nests). Six of the 10 largest breeding sites (all inland) were located within National Parks while the remaining four were on leasehold or crown lands.

Why are there more birds in urban green parks

Anees Ur Rahman
Beijing Forestry University, China/Pakistan
anis9003617@gmail.com

As cities expand, urban parks serve as important habitats for a diverse range of life forms and many bird species. Bird species richness, changes by season, and connections to different habitats were studied in four urban parks in Chaoyang District: Olympic Forest Park, Chaoyang Park, Dongba Country Park, and Wenyuhe River Park. By conducting standardized point-count surveys four times a year at 80 randomly selected plots, we identified 68 bird species from 25 different families. The number of species found in each park varied from 23 to 41, with a mean richness of 15.3 ± 4.2 in each plot. The Wenyuhe River Park had the highest diversity thanks to its many wetland areas and the wide range of its habitat features. The most significant changes in richness and species diversity occurred during spring and autumn, primarily due to the presence of migratory birds. Most of the evaluated species, including the Endangered *Anser cygnoides* and the Vulnerable *Acrocephalus tangorum*, were found in wetland habitats. Using NMDS, park communities exhibited apparent differences, primarily influenced by the structure of vegetation and water. Our findings underscore the importance of these urban green spaces in enhancing bird diversity, both for resident species and those that migrate through. We emphasize the importance of preserving wetlands as part of city plans, as they play a crucial role in enhancing bird diversity and are home to many of the evaluated species.

Fine-scale environmental changes drive the emergence of the Superb Fairywren (*Malurus cyaneus*) multilevel society

Samuele Ramellini, Franziska Hacker, Damien R. Farine
Australian National University, Canberra, ACT, Australia
samuele.ramellini@anu.edu.au

The seasonal onset of sociality in birds offers an opportunity to study the role of environmental conditions in driving the variation in social behaviour. On the one hand, seasonal breeders concentrate their breeding efforts in a short life-history stage, during which they can show high territoriality. On the other hand, during the non-breeding season, seasonal breeders' territories break down and, in some of these species, individuals can aggregate with others forming larger social groups. Furthermore, these social decisions can be expressed at the group level so that multiple hierarchical levels of social structure emerge – the so-called multilevel societies. Here, we combine social network analyses with local weather conditions to study the emergence of a multilevel society in the Superb Fairywren *Malurus cyaneus*. We show that individuals can finely modulate their social behaviour according to environmental conditions, especially the minimum temperature during the day. We found that superb fairywren groups were larger at lower minimum temperatures, resulting in denser social networks. In fact, breeding groups coalesced by preferentially associating with neighbouring breeding groups, thus forming higher-level supergroups. By associating with others, groups also exploited larger home-ranges encompassing multiple breeding territories as well as areas outside the breeding territories. Overall, our results highlight a critical role of environmental conditions in driving the emergence of

complex social structures. Extending these results can provide significant insights into the evolutionary drivers of complex social structures.

The agricultural fields as increasingly preferred habitat areas by the Sarus Crane (*Grus antigone*) in Northern India

Varsha Rani, Amita Kanaujia
University of Lucknow, Lucknow, Uttar Pradesh, India
varshharaj@gmail.com

The Sarus Crane (*Grus antigone*), the tallest flying bird in the world, is native to India and widely distributed across its the northern states of Uttar Pradesh, Rajasthan, and Gujarat. However, its population appears to be in decline. This study was conducted from 2020 to 2024 to locate the crane's preferred habitat areas in and around the Unnao district of Uttar Pradesh. Although the Sarus crane is a wading bird, yet the majority were observed in agricultural fields adjacent to villages, with fewer sightings near water bodies such as canals, ponds, marshes, and wetlands. A significant number of Sarus cranes, often seen in pairs or flocks, were reported near agricultural areas during the pre-monsoon season (May–June), which corresponds to their match-finding (congregation) period. The aim of this study is to document Sarus habitat sites during both breeding and non-breeding seasons and to recommend appropriate conservation measures to protect them in their natural habitats, thereby contributing to ecological balance.

Dominant birds perform better during problem solving, regardless of neophobia

Yazmin Rizk, Diane Colombelli-Negrel, Lauren Common
Flinders University, Adelaide, SA, Australia
yazmin.rizk@flinders.edu.au

In fluctuating environments, animals may be selected to adapt to novel challenges to ensure their survival. Increased problem-solving abilities can help animals overcome these challenges, but this may be constrained by factors such as social status and neophobia (fear of novelty). In this study, we investigated whether social status (dominant, subordinate) and/or neophobia influenced problem-solving in wild cooperative breeding Superb Fairy-wrens, *Malurus cyaneus*. To do so, we first investigated whether social status influenced neophobia during two distinct contexts (territory defence and at the nest) and examined whether neophobia remained consistent across these contexts. Then, we assessed whether social status and/or neophobia influenced problem-solving at the nest using an obstacle removal task. We found that social status did not influence neophobia, neither during territory defence nor at the nest, and that there was no consistency in neophobia across these two contexts. In addition, we found that social status had a significant influence on problem-solving performance, as dominant birds (regardless of their sex) were much faster problem-solvers compared to male subordinates. Our results demonstrate the importance of context, social environment, and motivation in assessments of neophobia and problem-solving. These findings contribute to our broader understanding of the factors influencing behavioural plasticity and survival in wild native songbirds.

Ruddy good timing: Shorebird migratory behaviour in the face of global change processes in the East-Asian Australasian Flyway

Sara Ryding, Simeon Lisovski, Marcel Klaassen
Deakin University, Geelong, VIC, Australia
s.ryding@deakin.edu.au

Earlier migrations induced by climate change have been documented in a wide range of birds but may be especially significant for shorebirds with Arctic breeding ranges that are warming at an accelerated pace. The East Asian-Australasian Flyway (EAAF) has also experienced significant habitat degradation in recent decades which may contribute to changed migration conditions. Here, we analyse an extensive dataset of ruddy turnstone tracking data along the EAAF, spanning 13 years and over 250 tracks, to determine changes in migration timing, duration, and how these may be driven by climatic variables at the breeding and non-breeding ground. Using data from light-level geolocators, we can link changes in migration to nesting and brooding activities, providing an indication on the relationship between migration timing and breeding success. We show that Ruddy Turnstones depart the Arctic

breeding grounds later when temperatures are warm and when they have brooded young. However, arrival at the Australian non-breeding grounds is not affected by these factors – rather, journey duration is increasing through time. The northward migration contrasts to this: departure from the Australian non-breeding grounds is not changing much, but arrival at the Arctic breeding grounds is slightly influenced by temperature. Probability of nesting and brooding appears largely unaffected by arrival date but does increase through time. Our results on changes in migratory timing and journey duration have critical impacts on population dynamics but also on disease spread, especially when considering the southward journey to the Australian non-breeding ground and potential for disease incursion.

Strategic sustainability in volunteer-driven avian rescue: A case study of Western Australian Seabird Rescue Inc. (WASR)

Lori-Ann Shibish
Western Australian Seabird Rescue Inc. WA, Australia
lashibish@gmail.com
#waseabirdrescue #wasr

This study examines the strategic challenges and opportunities facing WASR, a non-profit organisation dedicated to the rescue and rehabilitation of sea and water birds in Western Australia. Employing a strategic planning framework encompassing situational analysis, goal articulation, and implementation strategies, this research investigates the organisation's trajectory amidst evolving ecological, regulatory and funding pressures. Founded in 2003, WASR has witnessed significant growth in volunteer engagement and rescue activity, demonstrating a robust volunteer network and a flexible operational model. However, the organisation confronts challenges including financial instability, volunteer attrition, communication inefficiencies, and the absence of standardised training protocols. External factors such as increased human impacts of fishing activity entangling wildlife, escalating plastic pollution, growing frequency of botulism outbreaks, and climate change necessitate adaptive organisational strategies. A situational analysis reveals WASR's strengths and weaknesses, highlighting the need for a strategic realignment. The overarching vision of eliminating human-induced suffering in sea and water birds is operationalised through specific goals: rapid and effective rescue and rehabilitation, safeguarding volunteer and avian welfare, ensuring financial sustainability, meeting legal and ethical obligations, protecting urban avian habitats, and behavioural change to reduce fishing-related entanglements. These goals are underpinned by core values of collaboration, education, efficiency, and competency. Strategic partnerships with government agencies, research institutions, and community organisations are critical. This study underscores the importance of strategic planning in enhancing the operational effectiveness and sustainability of volunteer-driven wildlife rescue organisations. By systematically addressing internal challenges and external environmental pressures, WASR aims to strengthen its capacity to contribute to avian conservation.

Assessing genetic change over time in the smallest gull population in the world: the Galápagos lava gull, using both modern and 120-yr old museum samples

Alice Skehel, Jessica Martin, Dominique Potvin, Vera Ferran, Carlos Valle, Jack Dumbacher, Jaime Chaves
University of Sunshine Coast, QLD, Australia
alice.skehel@student.usc.edu.au

Lava gulls (*Leucophaeus fuliginosus*) are an elusive, endemic species in the Galápagos Archipelago and the world's rarest gull, with population estimates stating ~600-900 breeding adults. Despite their conservation status, we know very little about their population genetics, demographic history, or responses to anthropogenic pressures. We used high and low-coverage whole genome sequencing to investigate temporal changes in population genetic diversity across six sites on four islands, comparing contemporary samples with museum specimens spanning approximately 120 years. Through analysis of genome-wide SNPs and complete mitochondrial genomes, we assessed changes in kinship patterns, inbreeding, effective population size, genetic diversity, and population structure to understand demographic processes and identify potential source-sink dynamics among breeding sites. Mitogenomic analysis provided insights into maternal lineage diversity and phylogeographic patterns across the archipelago. Our genomic approach provides critical baseline data for assessing extinction risk and informing evidence-based conservation strategies for the lava gull and other threatened Galápagos endemics facing similar anthropogenic pressures.

Understanding bioaccumulation of heavy metals in Australian Pelicans at Gippsland Lakes Ramsar site

Deb Sullivan, Kate Brandis, John Porter, Daniel Ramp
University of Technology Sydney, VIC, Australia
deborah.a.sullivan-1@student.uts.edu.au

Gippsland Lakes, a key Ramsar wetland and one of the last two remaining pelican rookery sites in south-east Australia, is critical for wetland biodiversity. The Australian pelican (*Pelecanus conspicillatus*), as a top-order predator, is a valuable bioindicator of wetland health. However, the Gippsland Lakes ecosystem faces increasing threats due to urbanisation, agricultural practices, coal mining, commercial fishing, and military activity. Pelicans in the area are exposed to environmental contaminants, including human wastes, which can exacerbate the risks of heavy metal accumulation. This study investigates the bioaccumulation of heavy metals in Australian pelicans from Gippsland Lakes. Liver, kidney, blood and feather samples were collected from pelicans, and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) was used to analyse heavy metal concentrations. While the study is still in its early stages, initial results show elevated levels of zinc, lead, and copper in the tissues. Previous studies have reported high levels of mercury in mussels and other species such as dolphins in the region, indicating significant environmental contamination. These early findings raise concerns about the potential impacts of heavy metals on pelican health, including liver and kidney function, neurological effects, and reproductive success. The findings underscore the need for continued monitoring and conservation efforts to protect both pelican populations and the health of the Gippsland Lakes Ramsar site.

Adaptation to environmental change: dispersal, cooperation, and evolution in Red-winged Fairy-wrens

Archi Tulsian, Lyanne Brouwer
James Cook University, QLD, Australia
archi.tulsian@my.jcu.edu.au

Understanding and predicting the impacts of environmental change on nature has become a key priority. Animals can adapt behaviourally to changes more rapidly than through evolution, but such responses can be more limited and costly. Thus, there is concern that populations cannot keep up with the current rapid change. In the long run, populations facing ongoing environmental change must adapt though microevolution to survive. Australia's avifauna is notable for its high incidence of cooperative breeding, where individuals delay dispersal to help raise the next brood. Both helping and dispersal are key to population dynamics and gene flow, yet habitat fragmentation can constrain dispersal and alter the evolutionary pressures shaping these behaviours. For my PhD research I propose to examine the potential for microevolutionary responses in helping behaviour and dispersal using the Red-winged Fairy-wren as a model system. By combining quantitative genetic analyses on existing long-term data with innovative field experiments, I will be able to distinguish between genetic and environmental effects on behaviour. Additionally, the fragmented layout of the study area provides an opportunity to assess how fragmentation affects the potential for adaptive change. This work will enhance our understanding of behavioural and evolutionary responses to environmental pressures and inform conservation strategies tailored to Australia's unique cooperative breeders.

Investigating the influence of urbanisation on the presence and behaviour of Oystercatchers

Emma Vanderzon, Diane Colombelli-Negrel, Ryan Baring
Flinders University, Adelaide, SA, Australia
emma.vanderzon@flinders.edu.au

Coastal ecosystems provide important habitat and feeding opportunities for shorebirds, depending on food resources and suitable habitat characteristics. With increasing urbanisation along coastal areas, shorebirds are subjected to anthropogenic pressures from human activity that can directly impact their habitat use and food availability. Here, we studied the presence of foraging and breeding Oystercatchers at beach sites in South Australia, in relation to

urbanisation and human disturbance. We surveyed 150 coastal beach sites, recording Oystercatcher numbers and observed behaviour, along with site usage (foraging, roosting, nesting), habitat characteristics (landscape features and urban classification), environmental conditions, and human activities. We used generalised linear mixed models to investigate the associations between habitat characteristics, food availability, and human disturbance to Oystercatcher presence and behaviours (foraging and breeding). The results from this study are in the preliminary stages of analysis, with final results and conclusions being prepared for conference attendance. Understanding factors that influence shorebird presence and behaviours is crucial to supporting management and conservation policies for both the shorebirds and their habitats in rapidly urbanised landscapes.

Cockies cohabit: Habitat enrichment leads to breeding success on a private conservation reserve

Johannes Edmund Wajon, Donna Wajo, Lauren Gilson
Wajon Conservation Reserves, WA, Australia
wajonpub@bigpond.com

Between 2006 and 2024, twenty artificial nesting hollows (cockytubes) were installed on a 46-ha private conservation reserve in Southwestern WA. There is now a successful breeding population of the endangered Carnaby's Black Cockatoos where no previous nesting was known to occur. Occupancy has typically been greater than 70%. Breeding pairs have had up to 73% hatching success, with up to 98% fledging success; some nests fledge two chicks. This local population of Carnaby's Black Cockatoos west of the Stirling Ranges now appear to have a 'search image' for nesting resources that includes these artificial hollows, as indicated by some competitive behaviours recorded: two females laying eggs in the same cockytube and fighting over access, a female moving from an older-style cockytube to a newer one as soon as it was erected, and another landing on the rim of a cockytube as it was being installed. Maintenance practices that promote nesting success are briefly summarised.

Evolutionary dynamics of dietary specialisation—insights from Neotropical mistletoe-dependent frugivores

David Watson
Charles Sturt University, NSW, Australia
dwatson@csu.edu.au
@drdave.bsky.social

Mistletoes occur worldwide, with most relying on birds to disperse their sticky seeds to suitable host trees. There has been considerable ecological research on these interactions, emphasising those birds dependent on mistletoe fruit as their principal food source, but the origins of these specialists have rarely been considered. Of the ten lineages of mistletoe fruit specialists, five are from the Tyrannides infraorder of South American songbirds comprising mannakins, cotingas, tyrant flycatchers and allies. Integrating current understanding of early songbird evolution with dietary information, two sets of findings emerged. First, dependence on mistletoe fruit is conserved over time, with strong evidence that the 137 mistletoe-dependent species in nine groups scattered among suboscines arose from a rapid radiation in the late Oligocene. Although interpreted as a single origin of mistletoe fruit dependency, the degree of dependence was dynamic, mistletoe fruit specialists evolving from more generalised mistletoe-dependent lineages on five separate occasions as they radiated into the Neotropics from Gondwanan connections. Second, variation in diversity of modern mistletoe specialist frugivores can be explained by time. Considering both representatives from the neotropical groups evaluated here and the other five families across modern birds, mistletoe fruit specialists initially spread rapidly, colonising new areas and speciating, then eventually becoming restricted to single regions represented by low diversity lineages with divergent morphologies. After exploring the historic basis, evolutionary implications and ecological relevance of these findings, I consider alternative explanations and articulate testable predictions to corroborate or refute these inferences and guide future work.

Empowering earth and environmental research through national-scale data infrastructure and FAIR Services

Andrew White, Robert Clemens
Australian Research Data Commons (ARDC), University of Queensland, QLD, Australia
andrew.white@ardc.edu.au

The ARDC Planet Research Data Commons (Planet RDC) delivers national-scale digital infrastructure to support researchers, policy makers, and environmental managers tackling Australia's most pressing environmental challenges. In response to calls for improved data coordination from the 2021 State of the Environment report and the EPBC Act Review, the Planet RDC enables trusted, interoperable environmental data to be shared and reused across sectors. Built through long-term partnerships with research, government, and industry, the Planet RDC integrates diverse data sources and accelerates model and analytics development. To deliver on its mission, the Planet RDC supports four national platforms. Open EcoAcoustics enables the storage, processing, and sharing of ecoacoustic data using open standards and automated species recognisers, integrated with facilities like TERN and ALA. EcoCommons offers an accessible modelling environment with trusted datasets, species distribution tools, Jupyter notebooks, and training resources. WildObs is building national-scale infrastructure for processing and sharing wildlife camera data, while Biosecurity Commons provides a secure platform for modelling biosecurity risk and surveillance strategies. These platforms are supported by ARDC's core infrastructure. The Nectar Research Cloud delivers scalable computing for workflows and machine learning. Nectar's research services include access to virtual desktops, Jupyter Notebooks, BinderHub, National GPU services and Preemptible Instances. Research Link Australia enhances project visibility and collaboration, while Research Data Australia facilitates data discovery and access. Together, these capabilities form a coordinated, national ecosystem that advances environmental research, supports FAIR data practices, and enables informed decision-making for a more resilient Australia.