THE OFFICIAL MAGAZINE OF THE INTERNATIONAL ORNITHOLOGISTS' UNION

INTERNATIONAL ORNITHOLOGISTS' UNION

THE FLUTTER

www.internationalornithology.org

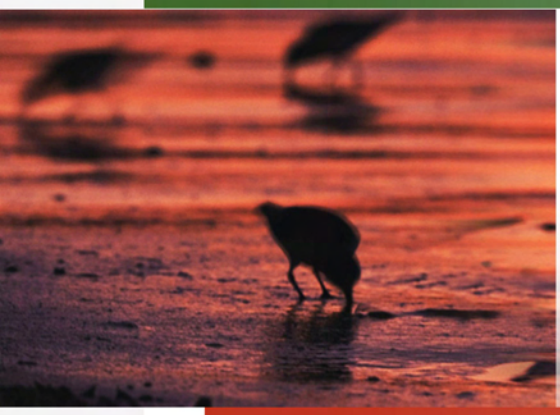
WING IT! Creativity and collaboration in ornithology...

INSIDE

The mysterious shoebill; colorful toucans; surprising same-sex pairs; fiery pyrodiversity, and more...

DISCOVER THE FASCINATING STORIES OF BIRDS IN THIS ISSUE OF THE FLUTTER!

VOLUME 5 · ISSUE 3 · AUGUST 2023



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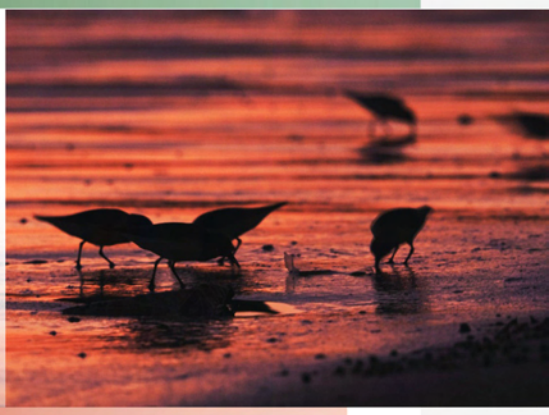

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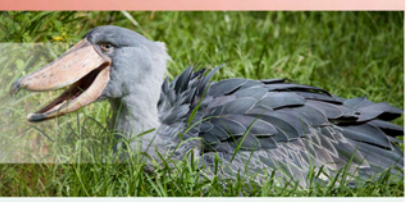

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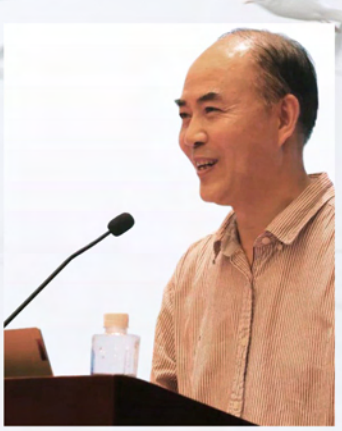
Cover: Shoebill (Balaeniceps rex), Melissa Askew, Unsplash.

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

PRESIDENT'S MESSAGE

Migrate birds to the IOU *and stay true to the mission!*



PROF. LEI FUMIN
President, International Ornithologists' Union

BIRDS ARE FASCINATING ANIMALS that migrate seasonally between their breeding and wintering grounds, crossing many countries along the way. This remarkable behavior has intrigued researchers for centuries and has called for more international cooperation. The International Ornithological Committee (IOC), the predecessor of the International Ornithologists' Union (IOU), was founded in 1877 by European countries that wanted to coordinate their efforts in studying bird migration. Thanks to the support of Crown Prince Rudolf of the Austro-Hungarian Empire, the first International Ornithological Congress was held in Vienna in 1884. One of the three topics discussed at this congress was the establishment of bird observation stations in more countries to monitor bird migration. Since then, migration has remained a hot topic in almost every International Ornithological Congress. In this issue of the IOU *Flutter*, I would like to briefly talk about migration, in honor of the IOU's original vision.

> *"One of the topics discussed at the very first International Ornithological Congress held in Vienna in 1884, was bird migration."*

Migration is one of the 125 most challenging scientific frontiers identified by Science magazine, meaning that people will continue to work on this question in the next quarter century - How do migratory animals know where they're going? Bird migration is a remarkable natural phenomenon that occurs between breeding and wintering grounds. Long-term observations at migration straits, such as ringing or banding, provide detailed records of bird movements. More than 3 million ring recoveries have been collected to analyze the migratory behavior and migration changes of many species in response to global warming and time. Large-scale weather surveillance radar networks have also been used to monitor migration flyways or hotspots, but it is difficult to identify the relationship between large-scale macroecological patterns and bird migration strategies at the species or individual level based on this method.

Migration, Unsplash.

Bird migration research has progressed along with the development of bird-tracking technology in the past 120 years. New tracking devices (e.g., geolocators, radio, satellite, or GPS transmitters) have surpassed traditional monitoring methods. Integrating multiple sensors (e.g., magnetometers, gyroscopes, and pressure sensors) and tracking devices has enabled more detailed insights into individual behavior, physiology, and social interactions. Satellite (e.g., Argos, ICARUS) and ground-based (e.g., MOTUS, GSM) networks have facilitated global data transmission and retrieval. Considering the long distances that migrants travel, solar-powered tracking devices have offered the possibility of long-term tracking. Technological innovations have greatly assisted the collecting of location data (e.g., GPS points). Various platforms, websites, and tools to store and analyze big data on migration movements (e.g. Movebank, UVA Bird Tracking System, www.uvabits.nl, Birdlife International, http://seabirdtracking.org, EURING Migration Mapping Tool) are available to answer questions of how birds migrate.

Black-browed Albatross (Thalassarche melanophris), Unsplash.

Birds need to invest a lot of energy and time, and undertake risk in moving from one location to another, especially when they migrate over long distances. Recent studies using advanced tracking technology have shown that small land birds can reduce these costs by flying with favorable winds, uplifts, or high altitudes, and by adjusting their flight height over deserts and seas. Moreover, migratory birds make consistent decisions at the population level about when to leave, which route to take, and where to stop, depending on food availability and weather conditions. By synchronizing their migration and stopovers with the spring green-up of vegetation, they can benefit from the peak in nutritional quality (the green wave hypothesis), and they can also optimize their food intake during migration. Furthermore, environmental factors, such as temperature, air pressure, wind, rainfall and so on, can influence the start of migration. To understand the mechanisms behind these decisions, we need to consider multiple resource landscapes simultaneously and quantify the trade-offs involved. The location of a bird is basic information, so we need tracking technology that can transmit as many GPS points as possible in a short time interval and identify the behavior as 'flying' or 'stationary' during the whole migration. Measuring physiological variables (e.g., blood gases, body temperature, heart rate, and glucose levels) is another key to understanding the proximate causes of migration decisions and the balance between food intake and energy expenditure, which is an innovative direction for tracking technology.

"Migratory birds make consistent decisions at the population level about when to leave, which route to take, and where to stop, depending on food availability and weather conditions."

Unsplash.

"Advanced tracking techniques have revealed some extreme "moving stars", such as the Arctic Tern, which has the longest migration circuit of over 80,000 km."

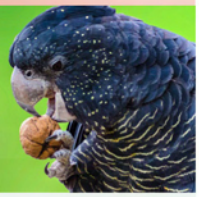
Migration can affect the population divergence, speciation, and regional faunal assembly of birds. The advanced genomic sequencing method has been used to investigate the changes in migratory behavior, such as migration loss or gain, flight route divergence, migration distances, and so on. The differentiation in migratory behavior due to genetic divergence is especially interesting from a genomic perspective. This differentiation may be reflected in genetic changes related to genes involved in energy metabolism, circadian rhythm, nervous system, memory, and so on. This behavior change may also result from different adaptations to wintering grounds, breeding grounds, flight routes, or migratory timing regimes. Compared to the GPS or GSM tracking techniques that monitor bird migration at a macro-scale, the genomic sequencing technique will play an important role in exploring the underlying mechanisms of migratory behavior at a micro-scale.

Birds are the most fascinating animals with migratory behavior. Some birds can fly hundreds or thousands of kilometers during a single migration journey. Some extreme "moving stars" have been discovered with advanced tracking techniques, such as the Arctic Tern (*Sterna arctica*) for its longest migration circuit of over 80,000 km, and the Bar-tailed Godwit (*Limosa lapponica baueri*) for its longest non-stop flight lasting 8 days. The IOU, since its original aspiration, is the most influential global organization for answering such scientific questions. I am here again to promote the IOU as a global organization dedicated to research, which aims to support global ornithological research and conservation cooperation through its platform. In the context of migration, we welcome more colleagues to register on this platform and become IOU members, and we appreciate more contributions of tracking devices, techniques, and databases, which are essential for enhancing this global cooperation on birds.

PROF. LEI FUMIN
President
International Ornithologists' Union
www.internationalornithology.org

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

IMMEDIATE PAST PRESIDENT'S MESSAGE



THIS MESSAGE WILL CONSIST OF TWO PARTS - one part on exciting developments within the IOU, and the other part with reflections on the importance of citizen scientists for eco-ornithological research such as my own.

The IOU Council has accepted the applications of two new IOU Working Groups, namely the Working Group African Ornithology (WGAF) and the Working Group Urban Birds (WGUB). The two working groups are currently developing their internal organization and working plans. Their webpage on the IOU website will shortly appear. The IOU is congratulating these new working groups for having identified specific areas of ornithology deserving a focused and global approach and will provide support and encouragement.

An existing IOU Working Group, the WG Avian Morphology (WGAM, https://www.internationalornithology.org/avian-morphology) is experiencing a major step forward under its executive editor, Professor Ron Meyers, who is transforming the *Nomina Anatomica Avium* (NAA) from a scanned copy of the original book (Baumel 1993) into a searchable web page. Once this project has been accomplished, avian morphologists from around the world will be invited to serve as section editors for particular regions of the avian body to integrate data of studies published since 1993. The new edition of the NAA will be a useful reference for ornithologists and especially for those who are not trained as morphologists.

And now on to the topic of the day - the importance of non-professional ornithologists and "regular people" in supporting research performed in the field where, in contrast to a lab setting, conditions cannot be easily planned and controlled.

I am writing this message while driving with my husband across Australia to study the comparative feeding behavior and ecology of red-tailed Black-Cockatoos in the broad sense, which include the Glossy Black-Cockatoo and the eight subspecies of the Red-tailed Black-Cockatoos in the strict sense (see Higgins 1999). It is my ninth visit to Australia to pursue this long-term research project. Some of you may have heard my plenary lecture on the evolutionary history of cockatoos and parrots at the virtual IOCongress2022. At the lively subsequent Q&A session, one interlocutor perceptively noted that my long-term work was

DOMINIQUE G. HOMBERGER
Immediate Past President, International Ornithologists' Union

> *"This work could not be accomplished without invaluable help from farmers, shopkeepers, motel managers, and other chance encounters across Australia."*

Red-tailed Black Cockatoo, (Calyptorhynchus b. banksii), Charter Towers QLD, 18 July 2023, © DG Homberger.

"detective work". This research program started with my doctoral dissertation on the feeding and drinking mechanism of cockatoos and parrots. It elucidated, among other things, the critical function of the filing ridges on the internal surface of the upper bill tip for the mechanism of seed-shelling. Already at that time, I was intrigued by a note (Finsch 1867) that the bill of the Australian endemic Black-Cockatoos is devoid of these ridges.

Some years later, as I planned my first sabbatical, I decided to spend a year in Australia, which has the greatest supra-specific diversity of Psittaciformes, to check how (1) my observations on captive parrots and cockatoos would stand up to observations in the natural habitat; and (2) the various Black-Cockatoos were using their beak for feeding and drinking.

While working at the CSIRO and the Australian National Wildlife Collection (ANWC) in Canberra under the tutelage of its director Richard Schodde, I was able to confirm Finsch's (1867) observation. Moreover, I discovered that some Black-Cockatoos have a distinctly mobile upper beak that takes on instrumental tasks during the manipulation of complex seed-containing woody fruits. Since I have a special interest in the transition between micro- and macro-evolution, I decided to focus my ecological studies on the various subspecies of Red-tailed Black-Cockatoo (short "RTBC"; *Calyptorhynchus banksii* spp.) and on the elusive Glossy Black-Cockatoo (short "Glossies"; *Calyptorhynchus lathami*).

"A stop at a bakery in NSW led to a chance meeting with a farmer who invited us to his farm to see RTBCs drinking at a water trough for his cattle."

My Australian colleagues have since often teased me by asking whether I could not have chosen a more challenging group to study. The eight subspecies of RTBCs are geographically widely separated from one another and dispersed across Australia. Except for two subspecies in south-western Australia (*C. b. naso*) and coastal Queensland (*C. b. banksii*) of which some populations have become urbanized, RTBCs are found in areas that are difficult to access. They are also difficult to locate, and they keep their distance from humans. In short, this research has required some fortitude, perseverance, and an investment of time and resources as it involves traveling the long distances between the various populations with no guarantee that the birds will be found as the cockatoos can travel far and are unpredictable in their choice of feeding location.

Glossy Black Cockatoo, (Calyptorhynchus lathami), Urungu NSW, 7 August 2023, © DG Homberger.

This work could not be accomplished without the invaluable support and help I have received not only from colleagues at Australian universities and museums, but also, and especially so, from farmers, shopkeepers, motel managers, and other chance encounters across Australia in small towns often hundreds of miles from cities. A stop at a bakery in Menindee NSW led to the chance meeting with a farmer who invited us to his farm to see RTBCs drinking at a water trough for his cattle. A chat with the hotel manager in Alice Springs NT revealed that the local RTBCs had been seen on the grounds of the airport. A gallery owner in Bourke NSW hosted us for several days in her home in order for us to study the local population of RTBCs. A farmer in Charters

A family of Red-tailed Black-Cockatoos (Calyptorhynchus banksii). From left to right: juvenile, male and female. North Bourke NSW, 2 July 2023, © DG Homberger.

Towers QLD alerted us to RTBCs feeding in the eucalypt tree behind their home. A fire expert in Coonabarabran NSW shared his observations of the feeding behavior of Glossies. The owner of a cattle station in the extreme west of Queensland hosted us and helped finding the local RTBCs. In short, my research has benefited immeasurably from the contact and information-exchange with non-ornithologists. Many of them have become friends we have visited and re-visited during our subsequent trips to Australia.

Ornithology, like astronomy, is one of the fortunate research areas that are supported by amateur and citizen scientists. The IOU is a professional organization that recognizes and welcomes its amateur and citizen ornithologists and aims to foster the fruitful collaborations between professional and amateur ornithologists.

With best wishes and kind regards,

DOMINIQUE G. HOMBERGER
Immediate Past President (2022 - 2026)
International Ornithologists' Union
www.internationalornithology.org

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CREATIVITY AND COLLABORATION IN ORNITHOLOGY

FROM THE EDITOR'S DESK

DEAR FELLOW ORNITHOLOGISTS,

It is a pleasure to welcome you to the latest issue of ***The Flutter***, the newsletter of the International Ornithologists' Union (IOU). In this issue, we bring you exciting news and updates from the world of birds, research in ornithology, birdwatching, and conservation.

VIDYA PADMAKUMAR
Editor, The IOU Flutter

Feeling fascinated, I wanted to share with you a challenging bird that had captivated me for a long time, the Dulit Partridge (*Rhizothera dulitensis*). This enigmatic galliform, which is endemic to the highlands of Borneo, is one of the least known and most elusive birds and has not been recorded since 1902 when the last of only eight known specimens was collected. No one has seen or heard of this bird since then, despite several attempts to find it.

Very little is known about this mysterious partridge. It is similar to the Long-billed Partridge (*R. longirostris*), but differs from it by having a wider gray breast-band and paler underparts. It inhabits lower montane forests, presumably between 1,000 and 2,000 m elevation. Like other partridges, the bird feeds on

Dulit Partridge (Rhizothera dulitensis). Artwork by Vidya Padmakumar

"As ornithologists, a unique opportunity and responsibility to contribute to the knowledge and conservation of this bird rests on us."

seeds, fruits, and insects and has a distinctive call, like other *Rhizothera* species. However, all these are assumptions based on very limited information.

There are several possible explanations for why this bird is so rare and elusive and has a very restricted range and low population density. It is very secretive and wary of humans and would have suffered from habitat loss and degradation due to logging, agriculture, and fire. It could also have been hunted to extinction by local people or predators. Still, there is a possibility of its existence in some remote and inaccessible areas, waiting to be rediscovered. However, if it still exists, it may be best to leave it undisturbed and let it survive in hiding.

The conservation status of this bird is currently uncertain and outdated. It is listed as Vulnerable by the IUCN Red List, based on the assumption that it still survives in some parts of its potential range. However, a recent paper by Berryman and Boakes (2023) suggested that the species is probably best listed as Data Deficient, as there is no reliable information on its current distribution, population size, and population trend.

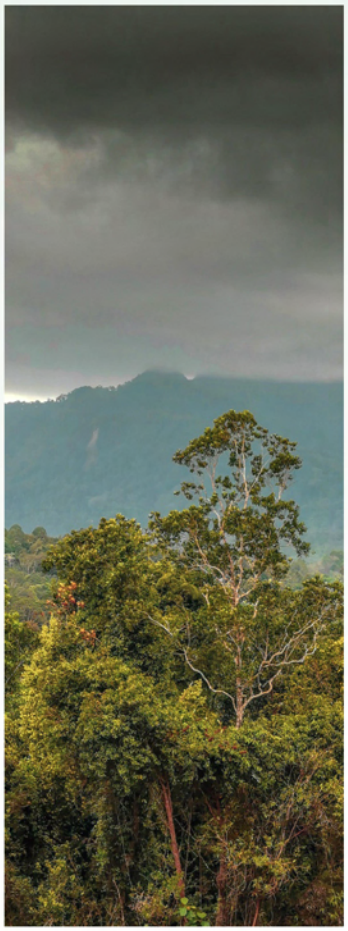
As ornithologists, a unique opportunity and responsibility to contribute to the knowledge and conservation of this bird rests on us. A comprehensive search for the Dulit Partridge in Borneo, in collaboration with local researchers, communities and authorities, and with a sense of awareness and protection of its habitat, is vital to prevent this species from going extinct.

The Dulit Partridge is a rare and mysterious bird that needs our help. Let's join the search for this hidden gem and save it from extinction!

I sincerely hope you get to discover new things about our winged wonders in this edition of ***The Flutter***. Thank you for being involved in the IOU and for your encouragement. Undoubtedly, we welcome your feedback and suggestions for future topics. Please feel free to contact me at the email address below.

VIDYA PADMAKUMAR
Editor, The IOU Flutter
flutter@internationalornithology.org

"The Dulit Partridge is a rare and mysterious bird that needs our help. Let's join the search for this hidden gem and save it from extinction!"



Montane forest, Borneo. Unsplash

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CREATIVITY AND COLLABORATION IN ORNITHOLOGY

MEMBER SPOTLIGHT

JÖRN THEUERKAUF

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Professor Jörn Theuerkauf

Kagu or cagou (Rhynochetos jubatus) © Jörn Theuerkauf

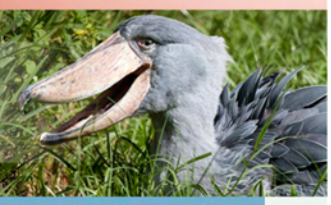
I GREW UP WATCHING THE SERIES "Born Free" on television. It was a time when climate change had not yet affected the wet climate of my native home in north-western Germany. I was most impressed by the fact that the main male character could wear shorts all the time, a pleasure I only had a few days per year. I knew that this was exactly what I wanted as well, so I later studied biology in Bremen and Marburg and then did my Ph.D. in Munich in cooperation with the Mammal Research Institute in east Poland. I started working in ornithology only when I moved to New Caledonia, where I have been living since 2001.

> *"It was a time when climate change had not yet affected the wet climate of my native home in north-western Germany."*

My previous background studying forest elephants and wolves led my research to focus first on the impact of invasive mammals on endemic birds of New Caledonia, including the flightless Kagu (*Rhynochetos jubatus*) and several parakeet species. Later, my focus shifted more and more to the interesting behavioral and evolutionary ecology of New Caledonian birds. One topic is the co-evolutionary arms race between the Fan-tailed Gerygone (*Gerygone flavolateralis*) and the Shining Bronze-cuckoo (*Chrysococcyx lucidus*), which involves advanced discrimination of nestlings even with polymorphism in nestlings of both species. Another topic is a developed social system in the Kagu, in which related families form clans and offspring regularly visit their parents even long after they have established their own families. I have been involved in the IOU as co-coordinator for Australasia of the Working Group Psittaciformes from 2010 to 2018, as an IOU fellow since 2018, and the chair of the Working Group Gondwanan Ornithology since 2019.

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

TRAILBLAZERS OF ORNITHOLOGY



Ugandan Women Birders and their Enigmatic Shoebill

"In Uganda, efforts to protect the Shoebill have led to the establishment of protected areas."

Shoebill (Balaeniceps rex) © Jean-Louis Carlo

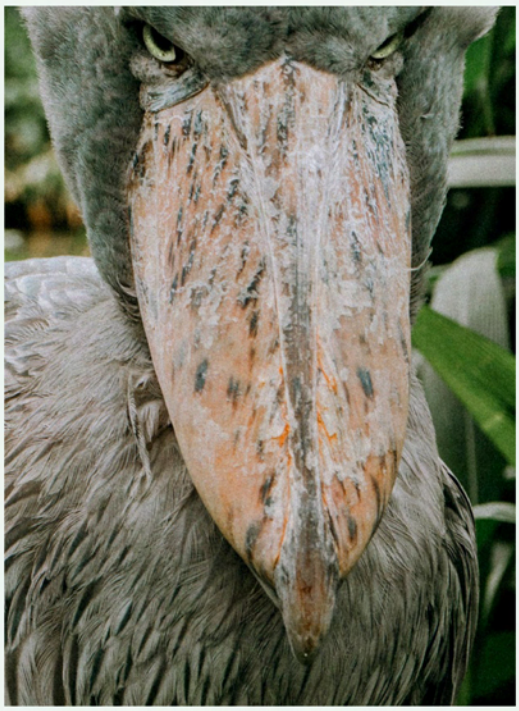
UGANDA, THE "PEARL OF AFRICA," is known for its stunning landscapes and diverse wildlife. One extraordinary species that captures the attention of nature enthusiasts worldwide is the Shoebill (*Balaeniceps rex*).

Standing tall at 4 to 5 feet with a wingspan of 8 feet, this bird is instantly recognizable by its enormous shoe-shaped bill. With its striking appearance and deliberate hunting style, the Shoebill has become a vulnerable species due to its limited distribution.

In Uganda, efforts to protect the Shoebill have led to the establishment of protected areas, such as the Mabamba Wetland. Conservation organizations and local communities are working together to raise awareness and preserve the wetland ecosystems crucial for the survival of these magnificent birds.

The allure of encountering the Shoebill in its natural habitat has attracted visitors from around the world. Local guides and ornithologists play a vital role in educating visitors about the conservation needs of the Shoebill, benefiting both the bird and local communities.

"The allure of encountering the Shoebill in its natural habitat has attracted visitors from around the world."



Shoebill (Balaeniceps rex), Unsplash.

Uganda women birders team

Ugandan women birders (https://ugandawomenbirders.org/) are making significant contributions to bird conservation and ornithology in the country. Breaking gender stereotypes, they actively participate in birdwatching, research, conservation, and community engagement. Through their passion and dedication, they inspire future generations to pursue careers in science and conservation of the Shoebill (https://shoebillwatch.org/).

To support the future of the Shoebill, you can join forces with Uganda Women Birders and Shoebill Watch by contributing to their crowdfunding campaign. Your support will help equip Shoebills with transmitters for monitoring and research, as well as install camera traps to gather valuable data on their behavior and habitat usage.

FOLLOW THE JOURNEY OF THE SHOEBILL

with Judith Mirembe,

Chairperson of Uganda Women Birders, and Shoebill researcher, by watching her lecture at

Friday4birds webinar
https://www.youtube.com/watch?v=_T4eert-kiw

TO CONTRIBUTE TO THE CROWDFUNDING CAMPAIGN

and support Shoebills visit:

https://gofund.me/42210612

Shoebill (Balaeniceps rex), Unsplash.

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

NEWS ALERT

FOSTERING KNOWLEDGE SHARING AND COLLABORATION

Friday4Birds, l'heure de l'Ornithologie africaine

Friday4Birds marks one year with a new Instagram account!

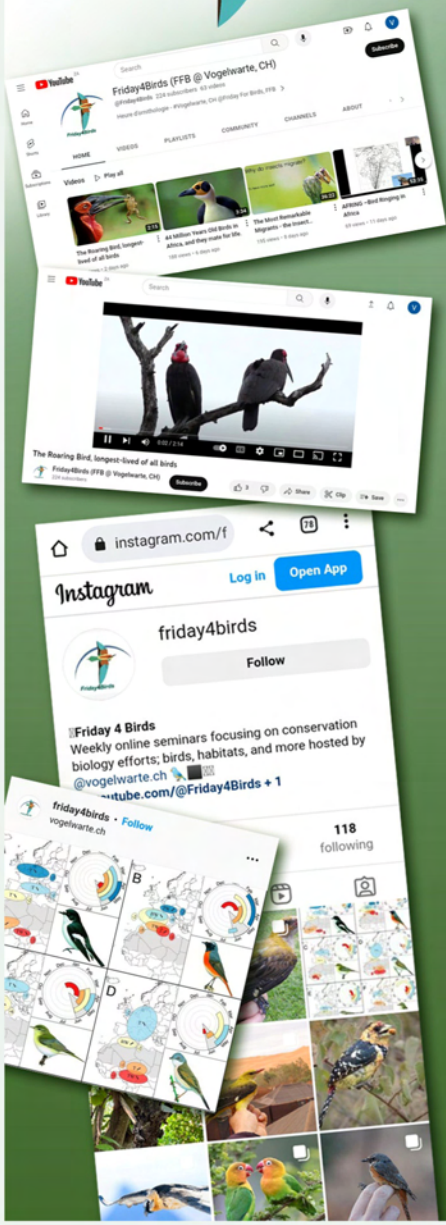
Friday4Birds, L'heure de l'ornithologie africaine,
(https://www.youtube.com/@fridayforbirdsvogelwartech7740)
a weekly bilingual webinar series hosted by the Swiss Ornithological Institute exploring the diversity and ecology of avian species, celebrates its 1st birthday.

As part of its anniversary celebration, the creators of **Friday4Birds** have launched a new Instagram account. The account can be accessed at

@friday4birds

FRIDAY4BIRDS

(https://instagram.com/friday4birds?igshid=MzRlODBiNWFlZA==)



Friday4Birds
is a platform that connects experts, activists, practitioners, and policymakers in the field of bird conservation and fosters knowledge sharing and collaboration across regions.

House sparrows (Passer domesticus), Wallpaper Flare

IOU Ontology Improved by Voting Method to Resolve Conceptual Conflicts

THE IOU ONTOLOGY[1] is part of the efforts of the IOU to produce and maintain an open-access global checklist of bird species that will unify different taxonomies. This project is led by the Working Group on Avian Checklists (WGAC), which was established in 2018 at the International Ornithology Congress in Vancouver.

However, the IOU ontology faces some conceptual conflicts, which are disagreements or inconsistencies among different stakeholders on how to define or represent the same concept in the ontology. For example, some stakeholders may prefer to use the term "bird" while others may prefer to use the term "avian". These conflicts can affect the quality and usability of the ontology and hinder its adoption and application.

To address this problem, a team of researchers has proposed a voting method that allows stakeholders to vote on alternative conceptualizations and express their degree of agreement, disagreement, and uncertainty. The votes are then aggregated using a fuzzy logic model, which can handle imprecise and vague information. The method has been applied to resolve some conceptual conflicts in the IOU ontology and has shown promising results. The method is also compared with other existing methods and has demonstrated its advantages in terms of effectiveness and efficiency.

The voting method is a useful technique for improving the quality and usability of the IOU ontology and other collaborative ontologies. It can also foster communication and collaboration among stakeholders and enhance their satisfaction and trust in the ontology. The method is described in detail in the paper titled "Resolving Conceptual Conflicts through Voting" published in the Journal of Applied Ontology by authors Vincent Cuypers and Andreas De Block.

The IOU congratulates the authors of the paper and encourages its members to read it and provide feedback on the voting method and the IOU ontology.

ORIGINAL ARTICLE

Cuypers, V., and De Block, A. (2023). Resolving conceptual conflicts through voting. *Foundations of Science*, 1-16.

FOOTNOTES

[1]Ontology here refers to a set of concepts and categories in a subject area or domain that shows their properties and the relations between them.

PROGRESS REPORT

IOU Global Checklist of Birds

"The IOU Global Checklist of Birds will be a valuable resource for ornithologists, birdwatchers, conservationists, and anyone interested in the diversity and evolution of birds."

THE INTERNATIONAL ORNITHOLOGISTS' UNION (IOU) is pleased to announce that its Working Group on Avian Checklists (WGAC) is making great progress in creating a global checklist of birds. This ambitious project aims to harmonize the existing major world checklists and produce a single authoritative list that reflects the most current and comprehensive understanding of avian taxonomy and nomenclature.

The WGAC, led by Australian ornithologist Professor Les Christidis, has been working diligently since 2022 to review and reconcile the differences between the Clements/eBird, IOC and BirdLife checklists, as well as incorporating new scientific evidence and expert opinions. The WGAC expects to publish the first version of the consolidated list in late 2024, which will be accessible to all on the IOU website (https://www.internationalornithology.org/) as well as at the website of the Cornell Lab of Ornithology (https://www.birds.cornell.edu/home/).

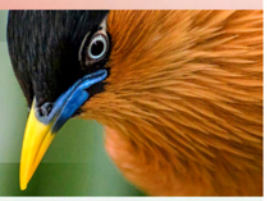
The IOU Global Checklist of Birds will be a valuable resource for ornithologists, birdwatchers, conservationists, and anyone interested in the diversity and evolution of birds. It will also provide a common framework for communication and collaboration among the global ornithological community.

The IOU would like to thank Professor Christidis and his team for their outstanding work and dedication to this important initiative. We would also like to acknowledge the cooperation and support of the other checklist providers who have agreed to adopt the IOU Global Checklist of Birds as their official reference.

We look forward to sharing more updates and details on the IOU Global Checklist of Birds in the near future. Stay tuned!

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

SPEAK UP: YOUR VIEWS, YOUR VOICE AND YOUR STORIES



THE FOREST OWLET: A Hidden Treasure of Indian Biodiversity

Forest Owlet (Athene blewitti) in Dadra and Nagar Haveli, India © Murugan Shanthakumar.

OWLS ARE FASCINATING creatures that have captivated humans for centuries. They are widely distributed across the globe and can adapt to various habitats, from deserts to rainforests. However, not all owls are thriving in the face of human-induced threats, such as habitat loss, hunting, and climate change. Some owl species are critically endangered and face a high risk of extinction.

LOST AND FOUND

One such species is the Forest Owlet (*Athene blewitti*), a small owl endemic to the central Indian forests. This species has a remarkable history of being lost and found. It was first described in 1872 by an Irish officer who collected three specimens from western India. Only two more specimens were collected from eastern India until 1884, after which the species vanished for over a century. It was presumed extinct by many ornithologists until it was rediscovered in 1997 by an American ornithologist, Dr. Pamela Rasmussen, who spotted it in an open forest in Maharashtra. Since then, more surveys have revealed isolated populations of the species in Maharashtra, Madhya Pradesh, and Gujarat.

THREATS

However, this does not mean that the Forest Owlet is safe from extinction. On the contrary, this species still faces many threats that could wipe it out from the wild. The main threat is habitat loss due to deforestation, agriculture, mining, and infrastructure development. The Forest Owlet depends on mature deciduous forests with large trees and open patches for nesting and hunting. These forests are rapidly disappearing or becoming fragmented, reducing the available habitat for the owls and their prey.

Another threat is hunting and poaching for trade or consumption. The Forest Owlet is highly sought after by collectors because of its rarity and beauty. It is also hunted by local people for food or medicine. Although the species is legally protected under the Indian Wildlife Protection Act of 1972, enforcement is weak, and poaching continues.

Human population growth, which contributes to climate change, is also a potential threat to the Forest Owlet, as it could alter the temperature and rainfall patterns in its habitat, affecting its food availability and breeding success. Moreover, climate change could increase the risk of diseases and parasites that could harm the owls or their prey.

> *"It is important to support local conservation initiatives that involve community participation and education."*

The Forest Owlet is not only a conservation priority but also a phylogenetic enigma. The taxonomic placement of this species has been revised multiple times based on different sources of evidence. A recent study using genomic data from ultra-conserved elements (UCEs) has shown that the Forest Owlet is an early split from all other *Athene* species but a sister taxon to them. This suggests that the Forest Owlet diverged from its ancestor about 5.2 million years ago. Despite osteological differences from other *Athene*, the Forest Owlet is placed as a member of this genus to emphasize its evolutionary relationship.

ATTENTION, ACTION AND ADVOCACY NEEDED

As ornithologists, we have a responsibility and an opportunity to raise awareness and advocate for the conservation of the Forest Owlet. It is important to conduct more research on its ecology, behavior, distribution, and population status by supporting local conservation initiatives that involve community participation and education, lobbying for stronger legal protection and enforcement, and promoting sustainable forest management practices that benefit both people and wildlife.

The Forest Owlet deserves our attention and action. It is not only a rare and beautiful bird but also a valuable part of our natural heritage and a source of scientific knowledge and inspiration. Let us not let it disappear again.

DR. MURUGAN SHANTHAKUMAR
Ornithologist
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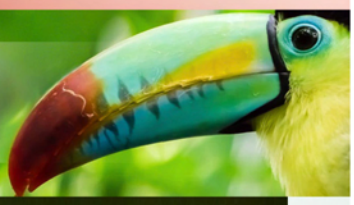
Forest Owlet (Athene blewitti), Ashahar Khan, Wikimedia Commons

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

TOP STORIES: THE BEST AND THE BRIGHTEST FROM THE EDITOR



The Colorful Secrets of Toucan Evolution Revealed by DNA

Keel-billed toucan (Ramphastos sulfuratus) © Shutterstock.

AMONG THE MOST MARVELOUS and beautiful birds in the world, toucans are easily recognized by their huge bills and vibrant feather colors. The uniqueness and diversity are so peculiar, and how these have come to be is really astonishing. How do they relate to other birds that look like them, such as toucan barbets and New World barbets, also deserves attention.

A new study published in *Ornithology* by Ostrow *et al*. (2023) answers these questions using DNA data from different parts of the genome that can trace the evolutionary history of organisms. The authors collected DNA samples from all the species of toucans, toucan-barbets, and New World barbets, as well as some species from Old World barbets that are not closely related but are used for comparison. They analyzed two types of DNA sequences: UCE sequences, which are short pieces of DNA that are shared by many animals, and whole mitochondrial genome sequences, which are the entire DNA sequence of the mitochondria, which are a part of the cell that has its own DNA.

The results confirmed some previous ideas but also revealed some unexpected discoveries. Toucans, toucan barbets, and New World barbets are all closely related and form a distinct group from Old World barbets, which supports the idea that these birds originated in South America and later spread to Central America and the Caribbean. Toucan barbets are the closest relatives of toucans, which was suggested before but not well

Toucan barbet (Semnornis ramphastinus), Pexels.

> *"Toucans, toucan barbets, and New World barbets are all closely related and form a distinct group from Old World barbets."*

> *These findings have important implications for the taxonomy, biogeography, and conservation of toucans and their relatives.*

supported by evidence. Toucan barbets are a small group of four species that live in the Andes and have a unique combination of features, such as a short bill, a long tongue, and a crest. Moreover, the study suggests that some species of toucanets, which are small toucans, are not closely related to each other, but instead are more related to mountain toucans, which are still another group. This means that the genus *Selenidera*, which includes six species of lowland toucanets, is not a natural group and should be split into two or more genera.

Furthermore, some species of toucans have different DNA sequences in their mitochondria and their nucleus, which could mean that they interbred with other species or that their DNA did not sort out properly when they split from their ancestors. For example, mitonuclear conflict in the phylogenetic placement of *Ramphastos vitellinus* subspecies suggests that *Amazonian* populations of *Ramphastos vitellinus ariel* may have introgressed mitogenomes derived from other *Amazonian vitellinus* taxa.

These findings have important implications for the taxonomy, biogeography, and conservation of toucans and their relatives. They also demonstrate the power of DNA data to resolve complex evolutionary relationships among birds.

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Old World barbet, fire-tufted barbet (Psilopogon pyrolophus), Wikipedia.

New World barbet, red headed barbet (Eubucco bourcierii), Wikipedia.

Emerald toucanet (Aulacorhynchus prasinus), Wikipedia.

ORIGINAL ARTICLE

Ostrow, E.N., Catanach, T.A., Bates, J.M., Aleixo, A. and Weckstein, J.D., 2023. Phylogenomic analysis confirms the relationships among toucans, toucan-barbets, and New World barbets but reveals paraphyly of *Selenidera* toucanets and evidence for mitonuclear discordance. *Ornithology*, p.ukad022.

SAME-SEX PAIRING AND EGG CARE IN FEMALE WHITE STORKS:
A Novel Observation from a Czech Webcam

"Homosexuality in white storks is a fascinating phenomenon that deserves more attention from ornithologists and conservationists."

WHITE STORKS (*Ciconia ciconia*) are large migratory birds that breed in Europe, Asia, and Africa. They are socially monogamous, forming pair bonds at the start of each breeding season and sharing parental duties to raise their young. However, genetic studies have revealed that white storks are not strictly monogamous, as extra-pair paternity (EPP) occurs in about 10-20% of nests.

One of the factors that may influence EPP rates in birds is local breeding density, as higher density may increase the opportunities and benefits of seeking extra-pair mates. The occurrence of same-sex pairs has been documented in over 130 bird species. Same-sex pairs may form for various reasons, such as sex ratio imbalance, mate shortage, social bonding, or cooperative breeding. They may also engage in sexual behavior, such as copulation, genital stimulation, or courtship displays.

A remarkable example of same-sex pairing in white storks was recently reported by a news article based on a live webcam observation by a local ornithologist. In Chýnov, a town in the Czech Republic, two female storks named Loňská and Jupiter have been caring for each other's eggs after mating repeatedly for several days. The pair laid eight eggs in total and have been taking turns sitting on the nest and feeding each other. It is not clear if the eggs are fertilized or not. Watch the live nest cam video at https://www.youtube.com/watch?v=6fUgV4jdPXg.

This observation is novel and intriguing for several reasons. First, it shows that female storks can lay eggs without male fertilization. Second, it shows that female storks can form strong pair bonds and cooperate in egg care. Third, it shows that female storks can exhibit sexual behavior with each other, which is poorly understood in this species.

This observation also raises several questions for further research. For example, what are the causes and consequences of same-sex pairing in white storks? How widespread is this phenomenon in this species and other birds? How does same-sex pairing affect the genetic diversity and structure of white stork populations? How does same-sex pairing affect the reproductive success and fitness of the individuals involved?

To answer these questions, more data and analyses are needed from molecular tools and remote sensing devices. By using these methods, we can gain more insights into the genetic sex, relatedness, paternity, and movement patterns of white storks and other birds. We can also compare the behavior and ecology of same-sex pairs with those of opposite-sex pairs under different environmental conditions.

The observation of same-sex pairing and egg care in female white storks from a Czech webcam provides a unique opportunity to study this phenomenon in detail and to advance our knowledge of avian mating systems.

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POPULAR ARTICLE

Dewan P. (2023) Same-Sex Stork Couple Filmed Caring for Each Other's Eggs After Mating. Newsweek. https://www.newsweek.com/same-sex-stork-couple-sharing-nest-duties-mating-delights-internet-1801195

White Stork pair (Ciconia ciconia) © Krappweis

Do Pigeons Dream OF FLYING?

A New Study Reveals the Secrets of Avian Sleep

SLEEP IS A VITAL PROCESS for all animals, but its mechanisms and functions are still not fully understood. In humans, sleep consists of two main stages: rapid eye movement (REM) and non-REM sleep. During REM sleep, our brain is highly active, and we experience vivid dreams. During non-REM sleep, our brain is less active and clears out waste products by flushing cerebral spinal fluid (CSF) through the brain.

But what about birds? Do they also experience different stages of sleep? Do they dream? And how do they clear their brains of toxins? These questions have puzzled scientists for a long time, as birds are evolutionarily distant from mammals but show remarkable similarities in their sleep patterns.

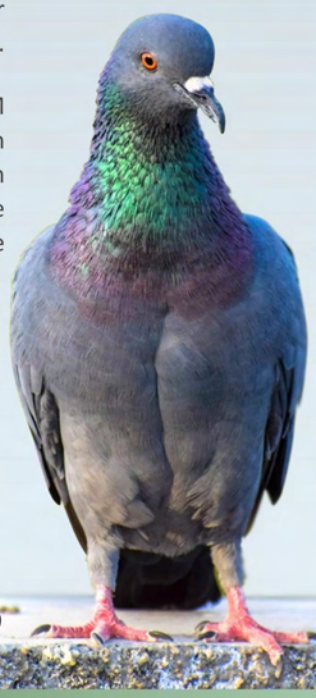
A recent study by researchers from Ruhr University Bochum and the Max Planck Institute for Biological Intelligence has shed some light on these questions by using infrared video cameras and functional magnetic resonance imaging (fMRI) to monitor the sleeping and wakeful states of 15 pigeons. The study was published in the journal *Nature Communications* in June 2023.

The researchers found that pigeons, like humans, experience REM and non-REM sleep and that their brain activity changes accordingly. During REM sleep, the pigeons' brain regions associated with vision and movement were activated, indicating that they may be dreaming of flying. The researchers also observed activity in the avian amygdala, which is involved in emotion regulation, suggesting that pigeons may have emotional dreams as well.

> *"During REM sleep, the pigeons' brain regions associated with vision and movement were activated, indicating that they may be dreaming of flying."*

During non-REM sleep, however, the pigeons' brain activity was not reduced as much as in humans. There was also no evidence of increased CSF flow through the brain during this stage, which means that pigeons may not have an efficient glymphatic system to remove waste products from their brains. This could have implications for their cognitive health and longevity.

The study provides the first evidence that pigeons dream during REM sleep and that their dreams may be related to their natural behaviors such as flying. It also reveals some differences between avian and mammalian sleep mechanisms, especially in terms of brain metabolism and waste removal. The study opens up new avenues for further research on the evolution and function of sleep in birds and other animals.



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ORIGINAL ARTICLE

Gianina Ungurean, Mehdi Behroozi, Leonard Böger, Xavier Helluy, Paul-Antoine Libourel, Onur Güntürkün, Niels C. Rattenborg. Wide-spread brain activation and reduced CSF flow during avian REM sleep. *Nature Communications*, 2023; 14 (1) DOI: 10.1038/s41467-023-38669-1

Common pigeon (Columba livia) © Meigs Point Nature Center (right), Unsplash (top)

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

FEATHER REPORT

The Return of the Hanuman Plover

Hanuman plover (Charadrius seebohmi) © science.cmb.ac.lk.

Kentish plover (Charadrius alexandrinus), Wikipedia.

THE HANUMAN PLOVER, a small whitish shorebird named after a Hindu god, has been reinstated as a distinct species after being lumped with the Kentish plover for almost a century. This remarkable discovery was made possible by DNA sequencing, which revealed subtle but significant differences between the two groups.

The Hanuman plover (*Charadrius seebohmi*) lives in Sri Lanka and southern India, where it breeds on sandy beaches and salt pans. It was first described as a separate species in 1880 but was later merged with the Kentish plover (*Charadrius alexandrinus*) in the 1930s, as both species were considered to be too similar to tell apart.

However, recent advances in molecular techniques have allowed scientists to revisit the taxonomic status of the Hanuman plover and confirm that it is indeed a valid species. A team of researchers from the Natural History Museum in London, Avian Sciences & Conservation in India, and other institutions compared the DNA of Hanuman plovers with Kentish plovers from different regions of the world. They found that the Hanuman plover is genetically distinct from all other Kentish plover populations and that it diverged from its closest relative, the Javan plover, about 1.5 million years ago.

"The Hanuman plover is genetically distinct from all other Kentish plover populations."

The study examined the morphological and vocal differences between the Hanuman plover and the Kentish plover. They found that the Hanuman plover has a duller cap and an incomplete eye-lore (the area between the eye and the bill) compared to the Kentish plover. It also has a higher-pitched and more rapid call than the Kentish plover.

The researchers hope that by resurrecting the Hanuman plover as a species, they will draw attention to its conservation needs and the threats facing its habitats. The wetlands where the Hanuman plover lives are highly biodiverse and provide important overwintering sites for migrating birds, but they are also under pressure from human activities such as development, pollution, and climate change.

Dr. Alex Bond, who co-authored the study and is Principal Curator and Curator in Charge of Birds at the Natural History Museum, London says: "While we don't know if the Hanuman plover is threatened at the moment, it lives in an area which has one of the highest human

"...a very lively little bird (that) runs about with great activity..."

population densities on the planet. Having a name attached to these birds means it is easier for policymakers and politicians to notice these plovers and take any steps needed to help them."

The Hanuman plover is not the only shorebird that has been split from the Kentish plover complex in recent years. In 2009, another study showed that the Kentish plovers living in the Americas are a different species, called the snowy plover. These findings reflect a general trend of splitting taxa that were previously lumped together based on new molecular evidence.

The Hanuman plover is named after Hanuman, a monkey god in Hindu mythology who is known for his strength, courage, and devotion. The name was given by Allan Octavian Hume, a British civil servant and ornithologist. Hume described the Hanuman plover as "a very lively little bird" that "runs about with great activity".

The Hanuman plover is a new addition to Sri Lanka's bird list, bringing the total number of bird species recorded on the island to 505. It is also a new species for India's bird list, which now stands at 1,340.

Statue of Hindu god Hanuman, Wikimedia Commons.

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POPULAR ARTICLE
Hanuman Plover makes a comeback as a species after 86 years. (2023, April 18). Phys.org. https://phys.org/news/2023-04-hanuman-plover-comeback-species-years.html

ORIGINAL ARTICLE
Ashworth, J., Bond, A. L., Praveen J., & Balachandran, S. (2023). The resurrection of the Hanuman Plover *Charadrius seebohmi* (Aves: Charadriidae) based on molecular and morphological evidence. *Ibis*, 165(2), 345-357. https://doi.org/10.1111/ibi.12345

The Effects of Synthetic Cannabinoids on Gulls:

A NEW THREAT TO SEABIRD CONSERVATION?

SEABIRDS ARE AMONG the most threatened groups of birds in the world, facing multiple pressures from climate change, habitat loss, overfishing, pollution, and human disturbance. However, a new and unexpected threat has emerged in recent years: the consumption of synthetic cannabinoids by gulls.

Synthetic cannabinoids, also known as spice or K2, are a group of chemicals that mimic the effects of cannabis but can also cause severe adverse reactions, such as paranoia, nausea, seizures, and cardiac arrest. They are often sprayed on plant material and sold as herbal smoking mixtures or incense.

In some coastal towns and cities across the UK, gulls have been reported to steal stashes of spice from unsuspecting users. The birds may be attracted by the smell or appearance of the drug, or by the availability of food waste in urban areas. The effects of spice on gulls are not well understood, but anecdotal evidence suggests that they may exhibit abnormal and aggressive behavior. They may also suffer from health problems or mortality. One such case occurred in Wrexham in 2023, where a gull was observed to fly erratically and dive-bomb pedestrians before collapsing on the ground. The bird was suspected to have ingested spice that was left behind by a user. Locals described it as a 'zombie seagull'.

There is a lack of scientific research on the effects of spice on gulls, but some studies have been conducted on other bird species. For example, a study by Lefevre *et al.* (2017) found that zebra finches exposed to synthetic cannabinoids showed impaired memory and learning abilities. Another study by Saggese *et al.* (2018) found that European starlings exposed to synthetic cannabinoids showed reduced body mass and altered immune responses. These findings indicate that spice could have negative impacts on gulls' cognitive and physiological functions, which could affect their survival and reproduction. Moreover, the spice could pose a risk to other seabirds or wildlife that may come into contact with contaminated gulls or their droppings.

> *"Anecdotal evidence suggests that they may exhibit abnormal and aggressive behavior."*

As ornithologists and conservationists, we should be aware of this emerging threat and monitor its occurrence and impacts on gull populations. Collaboration with local authorities and communities is needed to prevent and reduce the availability and use of spice in coastal areas. Public education about the dangers of spice for both humans and wildlife and the promotion of responsible behavior towards gulls and other seabirds are also important. By addressing this issue, gulls and other seabirds can be protected from this new and potentially harmful substance.

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POPULAR ARTICLES

Seagulls 'high on spice' after making off with stashes of drugs. *Metro*, https://metro.co.uk/2023/05/21/seagulls-high-on-spice-after-making-off-with-stashes-of-drugs-18819409/

'Psycho Gulls': British Sea Birds Rob Stoners, Get High On Synthetic Weed. *The Daily Caller*, https://dailycaller.com/2023/05/23/sea-gull-steal-spice-synthetic-marijuana/

ORIGINAL ARTICLES

Lefevre, L., Gómez, D., Chen, C., & Krause, J. (2017). Behavioral effects of the synthetic cannabinoid HU-210 in zebra finches. *Behavioral brain research*, 317, 479-484.

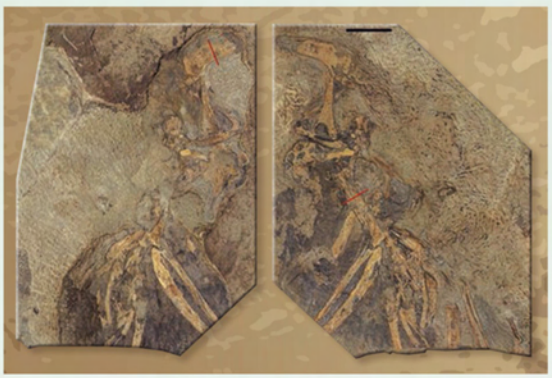
Saggese, K., Korner-Nievergelt, F., Slagsvold, T., & Amrhein, V. (2018). Wild birds learn to eavesdrop on heterospecific alarm calls. *Current Biology*, 28(15), 2366-2371.

(Main image) European herring gull (Larus argentatus) © Luis Diaz Devesa/Getty. (Top) Synthetic cannabinoid "Spice", Wikimedia Commons.

Meet the New Bird on the Block

"A fossil from Spain reveals a new species of ancient bird with a unique growth pattern."

Birds are among the most diverse and successful groups of animals on Earth, but their origins and evolution are still shrouded in mystery. How did they evolve from dinosaurs? How did they acquire their distinctive features such as feathers, wings, and beaks? How did they diversify into so many different forms and lifestyles?



The new enantiornithine specimen from the Las Hoyas fossil site (Early Cretaceous, Cuenca, Spain) MUPA-LH-33333, shows its skeletal and soft tissue remains.

To answer these questions, paleontologists rely on fossils: the preserved remains or traces of ancient organisms. Fossils provide a window into the past, revealing the appearance, behavior, and ecology of extinct animals. However, fossils are rare and often incomplete, so finding a new and well-preserved fossil is always exciting.

Recently, a team of researchers from Spain, the United States, and South Africa announced the discovery of a new fossil of an ancient bird from the Lower Cretaceous of Las Hoyas, Spain. The fossil belongs to a group of birds called enantiornithines, which lived alongside dinosaurs and had teeth and claws on their wings.

The new fossil, named MUPA-LH-33333, is a partially articulated skeleton that preserves feathers and skin impressions. It is similar in size and shape to another enantiornithine from the same site, *Concornis lacustris*, but has some differences in the bones of the chest and shoulder. The researchers suggest that MUPA-LH-33333 represents a new species of enantiornithine bird that was closely related to *Concornis lacustris.*

But what makes MUPA-LH-33333 special is its growth pattern. The researchers analyzed the growth rings in the bones of MUPA-LH-33333 and found that it was a subadult or adult individual that grew rapidly at first and then more slowly in cycles. This pattern is different from other enantiornithines from the Lower Cretaceous, which grew more uniformly.

The researchers propose that this growth pattern reflects an adaptation to the seasonal changes in the wetland environment of Las Hoyas. By growing fast during favorable seasons and slowing down during harsher ones, MUPA-LH-33333 could optimize its energy use and survival chances.

MUPA-LH-33333 also preserves unusual feathers on its legs that are proximally wire-like with filamentous distal tips. These feathers are a new type that has never been seen before in fossil or modern birds. The researchers speculate that these feathers may have been used for display or thermoregulation.

The discovery of MUPA-LH-33333 adds to the diversity and complexity of the enantiornithine birds from Las Hoyas, a fossil site that preserves a rich and diverse wetland ecosystem from 125 million years ago. The researchers suggest that enantiornithines were regular inhabitants of this habitat and played an important role in its ecology.

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ORIGINAL ARTICLE

Nebreda, S. M., Chiappe, L. M., Navalon, G., Chinsamy, A., Sanz, J. L., Buscalioni, A. D., & Marugán-Lobón, J. (2023). A new enantiornithine specimen from the Lower Cretaceous of Las Hoyas: avifaunal diversity and life-history of a wetland Mesozoic bird. *Spanish Journal of Palaeontology.*

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

BIRDS MATTER

AVIAN POX

Uncovering the Epidemiology and Impacts of a Pervasive Pathogen in New World Vultures

NEW WORLD VULTURES are a diverse and ecologically important group of scavenging birds that provide essential ecosystem services by consuming carrion and reducing the risk of disease transmission. However, these birds are facing multiple threats from habitat loss, human persecution, poisoning, and infectious diseases. One of the most widespread and insidious diseases affecting New World vultures is avian pox, a viral infection that can have severe consequences for individual fitness and population dynamics.

Avian pox is caused by various strains of avipoxviruses that belong to the family Poxviridae and the genus Avipoxvirus. Avian poxviruses can infect more than 370 species of birds across all continents, except Antarctica. The virus can cause two forms of the disease: cutaneous or diphtheric. Cutaneous avian pox manifests as wart-like lesions on the skin, especially on the head, legs, and feet. Diphtheric avian pox causes lesions in the mouth, throat, and respiratory tract, leading to difficulty breathing, eating, or drinking. Both forms of avian pox can impair the flight, foraging, or thermoregulation abilities of infected birds, as well as reduce their immune competence and increase their susceptibility to secondary infections or predation.

POTENTIAL IMPACT ON SPECIES CONSERVATION, ECONOMY AND PUBLIC HEALTH

Avian pox is transmitted by direct contact with infected birds or contaminated surfaces, such as feathers, food, or water. It can also be spread by biting insects, such as mosquitoes or flies, that act as mechanical vectors. The disease is more prevalent in warmer areas and during the breeding season when birds are more aggregated and exposed to vectors. Avian pox can also spill over from wild birds to domestic poultry or vice versa, creating potential economic losses and public health risks.

One of the most susceptible and influential species for avian pox epidemiology is the Turkey Vulture (*Cathartes aura*), a widespread and migratory bird that ranges from Canada to South America. Turkey Vultures are highly social and gregarious birds that often roost and feed in large groups. They also have a remarkable olfactory sense that allows them to locate carrion over long distances. These traits make Turkey Vultures ideal hosts and reservoirs for avian poxviruses, as they can carry and spread the infection to other birds through their long-distance movements or by sharing carcasses. Turkey Vultures can also act as bridge hosts between wild and domestic birds, facilitating the transmission of avian poxviruses across different species and regions.

"One of the most susceptible and influential species for avian pox epidemiology is the Turkey Vulture."

Turkey Vulture (Cathartes aura) © Felipe Guerrero

California Condor (Gymnogyps californianus) © U.S. Fish and Wildlife Service.

Avian pox can also pose a serious threat to the conservation of endangered New World vultures, such as the California Condor (*Gymnogyps californianus*) and the Andean Condor (*Vultur gryphus*), that feed on the same carcasses as Turkey Vultures. The outbreak of the disease has been reported in both condor species in captivity and the wild, causing mortality or morbidity in several individuals. Infections can also compromise the reproductive success of condors by affecting their courtship displays or nest attendance.

THE VALUE OF CITIZEN SCIENCE

Despite its widespread occurrence and potential impacts, avian pox remains an under-studied and under-reported disease in New World vultures. To date, only 10 confirmed cases of avian pox have been reported in juvenile Turkey Vultures in Chile, the USA, and Venezuela. Half of these cases were reported through citizen science activities, where people observe and report wildlife sightings using online platforms or apps. Four additional cases were recently confirmed in Mississippi and California.

Citizen science is a valuable tool for monitoring and detecting avian pox outbreaks in New World vultures. By reporting any observations of vultures with skin lesions or abnormal behavior, people can help scientists and wildlife managers track the distribution and prevalence of avian pox and implement appropriate measures to prevent or control it. Citizen science can also provide data on vulture movements, roosting sites, feeding habits, and interactions with other birds that can inform epidemiological models and risk assessments of avian pox transmission.

"By raising awareness and engaging in citizen science, we can help uncover the epidemiology and impacts of this pervasive pathogen."

Avian pox is a hidden but serious threat to New World vultures that requires more attention and research from ornithologists and veterinarians. By raising awareness and engaging in citizen science, we can help uncover the epidemiology and impacts of this pervasive pathogen in these important scavengers and the ecosystems they serve.

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ORIGINAL ARTICLE

Naveda-Rodriguez, A., Stilwell, N. K., & Rush, S. A. (2023). Avian Pox in New World Vultures: An Unnoticeable or Overlooked Infectious Disease? *EcoHealth*, 1-2.

BEAKS AND NESTS:

A MATCH MADE IN EVOLUTION

NEST BUILDING is a widespread and complex behavior in birds, involving the selection and manipulation of various materials to create a structure that provides shelter, insulation, and protection for eggs and nestlings. The evolution of nest building is influenced by multiple factors, such as environmental conditions, predation pressure, social interactions, and phylogenetic constraints. However, the role of morphology, especially beak shape, in shaping nest material use has not been thoroughly investigated.

A recent study by Sheard *et al*. (2023) addressed this gap by using a global database of nest materials for 5924 species of birds and phylogenetically informed random forest models to evaluate the link between beak morphology and nest material use. The authors measured four aspects of beak shape (length, depth, width, and curvature) and classified nest materials into six broad categories (grass/leaf, mud/clay, animal, plant, rock/soil, and others). They also accounted for the effects of diet and material availability on nest material use.

> *"Beak morphology, together with diet and material availability, can predict nest material use."*

The results showed that beak morphology, together with diet and material availability, can predict nest material use above chance and with high accuracy (68-97%). However, the authors also found that much of this relationship is driven by phylogenetic signals and sampling biases. For example, passerines tend to have more diverse beak shapes and nest materials than non-passerines. Furthermore, the authors found that different aspects of beak shape have different effects on nest material use. For instance, beak length is positively associated with grass/leaf use and negatively associated with mud/clay use, while beak curvature is positively associated with animal use and negatively associated with plant use.

The study is the first to reveal possible interactions between the evolution of beak shape and object manipulation in birds, especially in the context of nest building. The authors suggest that beak shape may have co-evolved with other aspects of nest building or other functions, such as foraging or preening. However, they also acknowledge that the relationship between beak shape and nest material use is modulated by the ecological context and evolutionary history of these species.

The study provides a novel insight into the form-function relationship in birds and opens up new avenues for future research on the evolution of object manipulation in animals.

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From top: nests of various bird species: warbler (© Deposit photos), swallow, plover, sunbird, woodpecker and weaver (Wikipedia (5).

ORIGINAL ARTICLE

Sheard, C., Street, S. E., Evans, C., Lala, K. N., Healy, S. D., & Sugasawa, S. (2023). Beak shape and nest material use in birds. *Philosophical Transactions of the Royal Society B*, 378(1884), 20220147. https://royalsocietypublishing.org/doi/full/10.1098/rstb.2022.0147

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

MODERN METHODS FOR A CHANGING WORLD

The POWER of BIRDSONG

BIRDS ARE AMAZING CREATURES that can tell us a lot about the natural world. They have diverse and complex vocalizations that reflect their behavior, ecology, and evolution. They also have specialized food and habitat requirements that make them sensitive to environmental changes. By listening to the birds, we can learn about the state and trends of biodiversity on working lands such as farms, ranches, and plantations.

Working lands cover a large portion of the planet and provide important habitats for many bird species, especially migratory ones that spend part of their life cycle in Latin America and the Caribbean. However, working lands are also subject to various human activities that can affect their biodiversity and ecosystem services. How can we measure and monitor the impact of these activities on bird populations and their habitats?

> *"The BirdPlus Index tool works by recording and analyzing the bird sounds."*

One possible answer is the BirdPlus Index tool, a novel and innovative way to assess the biodiversity and conservation value of working lands using audio recording devices and cutting-edge birdsong recognition models. The tool was developed by American Bird Conservancy (ABC) and Arbimon, an organization focused on biodiversity monitoring through acoustics.

The **BirdPlus Index tool** works by recording and analyzing the bird sounds on a given site, such as a coffee farm or a cattle ranch. The tool then uses a formula based on ecological theory and statistical methods to calculate a number that corresponds to the diversity and richness of bird species and other wildlife on that site. This number can be used to compare different sites, monitor changes over time, and evaluate the impact of management practices on biodiversity.

The BirdPlus Index tool is based on sound scientific principles and rigorous data analysis. It uses advanced machine learning techniques to identify bird species from their vocalizations, accounting for variations in sound quality, background noise, and regional dialects. It also incorporates uncertainty measures to quantify the confidence in the results and identify potential sources of error.

The BirdPlus Index tool is part of ABC's BirdsPlus program, which aims to support working lands that provide vital habitats for migratory birds and other wildlife in Latin America and the Caribbean. The BirdsPlus program also offers financial incentives and technical assistance for landowners who adopt best management practices that enhance biodiversity and ecosystem services.

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POPULAR ARTICLE
BirdsPlus Index: A Simple and Innovative Tool for Measuring Biodiversity on Working Lands - American Bird Conservancy (abcbirds.org)
https://abcbirds.org/news/birdsplus-index/

BirdsPlus
Impact for Nature, Communities, and Investors

AMERICAN BIRD CONSERVANCY

Carolina wren (Thryothorus ludovicianus), Unsplash.

NEW TOOL INCORPORATES PYRODIVERSITY into Woodpecker Habitat Assessment in Post-fire Forests

Forest fire, Canada, Unsplash.

> *"The tool incorporates not only the amount and type of burned forest, but also the spatial and temporal variation in fire characteristics."*

FIRE IS A NATURAL AND ESSENTIAL PROCESS in many ecosystems, but it can also have devastating impacts on wildlife and human communities. How can we manage post-fire landscapes to balance the needs of biodiversity conservation and human safety? A new study published in Ecological Applications provides some insights by using the black-backed woodpecker (*Picoides arcticus*) as a case study.

The black-backed woodpecker is a charismatic species that thrive in burned forests, where it feeds on wood-boring beetles and excavates nest cavities. However, its habitat is often threatened by post-fire logging, salvage operations, and reforestation efforts that reduce the availability and quality of snags (standing dead trees).

To help inform post-fire management decisions, researchers from Cornell University, The Institute for Bird Populations, the USDA Forest Service, and the University of California - Los Angeles developed a new tool that predicts the occupancy and abundance of black-backed woodpeckers in post-fire forests in California. The tool takes into account not just the quantity and kind of charred woodland, but also the degree of spatial and temporal variation in wildfire attributes, known as pyrodiversity, which is becoming recognized as a crucial component in determining how wildlife populations are structured in landscapes that are susceptible to flame.

Using data from 11 years of surveys across 29 fires, the researchers found that black-backed woodpeckers are likely to dwell in locations with greater pyrodiversity, which reflects a higher diversity of habitat conditions and food resources. Habitat associations change over time, as post-fire forests undergo ecological succession and decay processes.

The tool is made accessible to decision-makers through an RShiny application, which allows users to input data from recent fires and generate maps and graphs of predicted woodpecker occupancy and abundance. The tool can help identify priority areas for conservation and restoration, as well as potential conflicts with other management objectives.

The study demonstrates a pathway for incorporating pyrodiversity into wildlife habitat assessments for adaptive management, which can be applied to other fire-dependent species and ecosystems. By accounting for the complex effects of fire on wildlife habitats, we can better understand and manage the ecological consequences of fire in a changing world.

Black-backed woodpecker (Picoides arcticus)
© Charles Fitzpatrick

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ORIGINAL ARTICLE

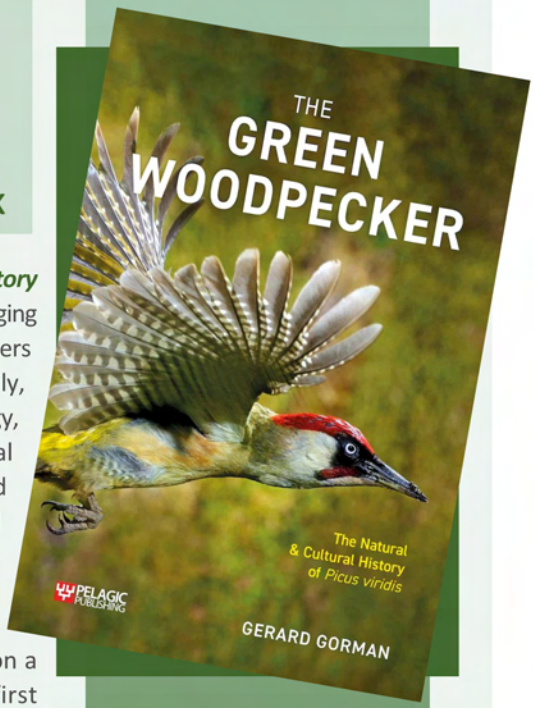
Andrew N. Stillman, Robert L. Wilkerson, Danielle R. Kaschube, Rodney B. Siegel, Sarah C. Sawyer, and Morgan W. Tingley. Incorporating pyrodiversity into wildlife habitat assessments for rapid post-fire management: a woodpecker case study. *Ecological Applications*. April 2023. DOI: https://doi.org/10.1002/eap.2853

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

BOOK HIGHLIGHTS:

The Secrets and Wonders of the Green Woodpecker:

A REVIEW OF GERARD GORMAN'S BOOK



THE GREEN WOODPECKER: The Natural and Cultural History of Picus viridis **by Gerard Gorman** is a comprehensive and engaging monograph on one of the most iconic and unusual woodpeckers in Europe. An authentic global authority on the Picidae family, the author covers all aspects of the green woodpecker's biology, ecology, behavior, distribution, conservation, and cultural significance in this richly illustrated work. The book is based on extensive research, field observations, and historical and literary sources, and provides a wealth of information and insights on this remarkable bird.

The book is divided into 17 chapters, each focusing on a different topic related to the green woodpecker. The first chapters deal with the origins, taxonomy, anatomy, morphology, relatives, and communication of the species. In contrast, the later chapters explore its habitats, movements, breeding, cavities, tracks and signs, foraging and food, relationships with other wildlife and humans, and folklore, mythology, and symbolism. The challenges and conservation issues facing green woodpeckers today have been discussed in detail by the author in a remarkable way.

A lively style awaits and appeals to a broad audience of ornithologists, birdwatchers, naturalists, and anyone interested in learning more about this fascinating bird. Gorman's passion and expertise are evident throughout the text, sharing many anecdotes and personal experiences from his travels and studies of these birds worldwide. Enhanced by many exceptional color photographs and illustrations, the work showcases the beauty and diversity of the green woodpecker and its habitats.

The Green Woodpecker: The Natural and Cultural History of Picus viridis is a must-read for anyone who wants to discover the secrets and wonders of this iconic and curious bird. It is a valuable contribution to the literature on European woodpeckers and a testament to the author's dedication and knowledge of this fascinating family of birds.

Available at: https://pelagicpublishing.com/products/the-green-woodpecker

> *"This book is a must-read for anyone who wants to discover the secrets and wonders of this iconic and curious bird"*

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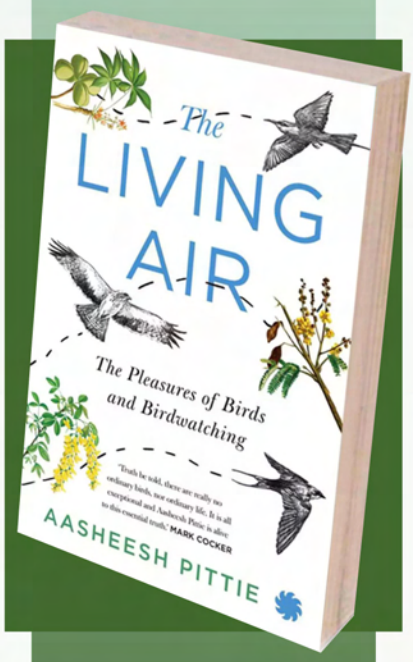
The Art and Science of Birdwatching:

A REVIEW OF *The Living Air* BY AASHEESH PITTIE



Available at: https://www.amazon.com/Living-Air-Pleasures-Birds-Birdwatching-ebook/dp/B0BZ4PVRV7

***THE LIVING AIR: The Pleasures of Birds and Birdwatching* by Aasheesh Pittie** is a remarkable book that explores the diversity and ecology of birds and the science and art of observing them. The book is a collection of essays that cover various topics of ornithology, such as the morphology, behavior, distribution, and evolution of different species, his field trips to various ecosystems, his appreciation for the contributions of ornithologists and naturalists, and his preference for a more holistic and attentive approach to birdwatching. The book is rich in descriptive detail and scientific terminology and invites the reader to share the author's curiosity and passion for the avian world. The book also features stunning illustrations by Sangeetha Kadur, which complement the text and add to the visual appeal.

The book begins with the section, "Birds", in which the author introduces some of the common and uncommon birds he had encountered in his life, such as the common iora, the Indian pitta, the painted stork, and the great hornbill. He describes their appearance, habits, calls, and behavior with vivid language and anecdotes, highlighting their unique adaptations and characteristics. He also shares some of the challenges and joys of identifying and photographing birds in different situations and seasons.

In the following section, "Places", the author takes the reader on a journey to some of the bird-rich habitats he had visited, such as the Deccan Plateau, the Himalayas, the Andaman Islands, and the Sundarbans. He describes the landscape, flora, fauna, and culture of each place, the birds he had seen there, and reflects on the threats and conservation issues facing these habitats and their wildlife.

The author pays tribute to influential figures in ornithology and natural history, such as Salim Ali, Hugh Whistler, Edward Hamilton Aitken, and Jim Corbett in the next section, "People", recounting their lives, works, discoveries, and contributions to the field of birdwatching and bird study, while also sharing personal interactions and experiences with some of them.

In the final section, "Birdwatching", the author discusses his philosophy and approach to birdwatching, advocating for a more mindful and attentive way of observing birds, rather than a competitive or list-oriented one. He also emphasizes the importance of learning from birds and enjoying their company, rather than merely collecting sightings or photographs. He also offers some practical tips and advice on how to improve one's skills and knowledge as a birdwatcher.

The Living Air is not just a book for bird enthusiasts but for anyone who appreciates nature and its many gifts. It is a book that will inspire you to look at birds and birdwatching in a new way and to discover the pleasures of the living air.

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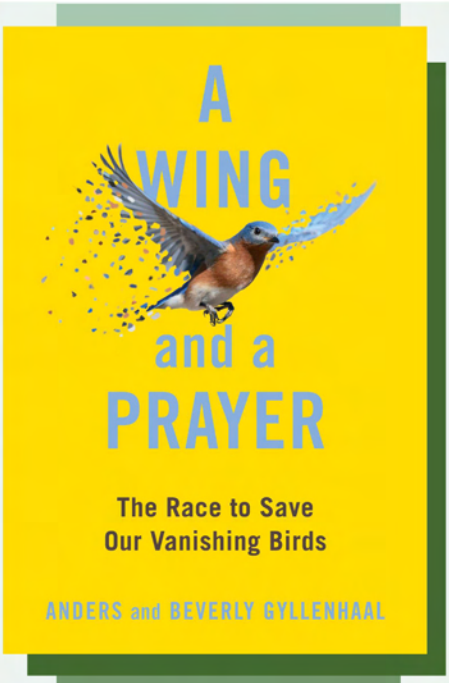
A Wing and a Prayer:

A Captivating and Eye-Opening Book on Bird Conservation



Available at: https://www.simonandschuster.com/books/A-Wing-and-a-Prayer/Anders-Gyllenhaal/9781982184551

***A WING AND A PRAYER: The Race to Save Our Vanishing Birds* by Anders and Beverly Gyllenhaal** is a captivating and eye-opening account of the plight of North American birds and what their fate means for the future of our planet. The authors, both former journalists and avid bird-watchers, take us on a 25,000-mile journey across the continent and beyond, to witness the beauty and diversity of birds, as well as the threats and challenges they face in a rapidly changing world.

The book is divided into three parts: The Problem, The Science, and The Solutions. In the first part, the authors reveal the shocking statistics of bird decline in North America, where nearly three billion birds have vanished over the past fifty years. They also introduce us to some of the most charismatic and endangered species, such as the bald eagle, the California spotted owl, the cerulean warbler, and the Hawaiian honeycreeper. In their own words, they describe their awe and admiration for these birds: "We were drawn to them by their beauty and grace, their intelligence and personality, their resilience and adaptability".

In the second part, the authors explore the cutting-edge research and technology that is helping scientists and conservationists understand and monitor bird populations, behavior, and migration. They also highlight some of the innovative projects and initiatives that are restoring and protecting bird habitats, such as community birdhouse building, wetlands development for rice farmers, and bioacoustic engineering. They quote one of the leading experts on bird conservation, John Fitzpatrick, who says: "Birds are real-time barometers of environmental stability. They tell us what's happening with habitats we depend on for our own well-being".

The authors offer hope and inspiration for bird lovers and environmentalists in the final section of the book, showcasing some of the success stories and best practices of bird conservation around the world. They also emphasize the importance of citizen science and public awareness in making a difference for our feathered friends.

They write: "We can all play a role in saving birds-by planting native plants in our yards, by keeping cats indoors or on leashes, by reducing pesticide use, by supporting conservation groups, and by participating in bird counts and surveys".

The book is written in a lively and engaging style, with vivid descriptions, personal anecdotes, and stunning photographs that bring the birds and their stories to life. The authors also provide useful information and resources for readers who want to learn more or get involved in bird conservation. This book is not only a fascinating and informative read, but also a powerful call to action for anyone who cares about birds and the planet.

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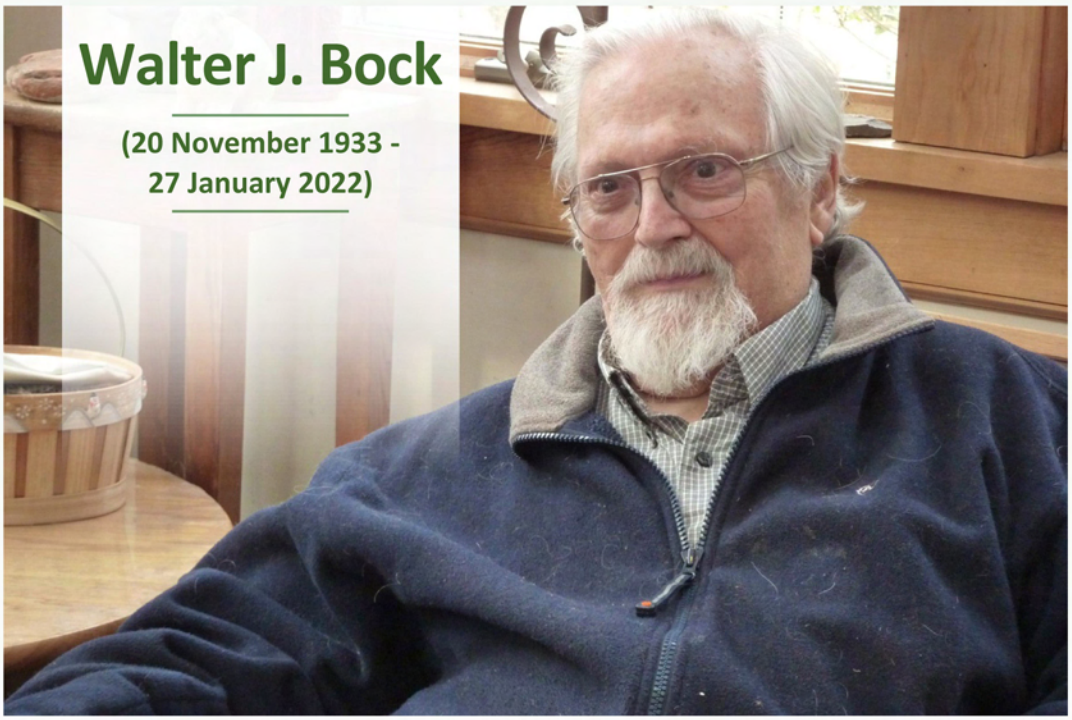
IN MEMORIAM



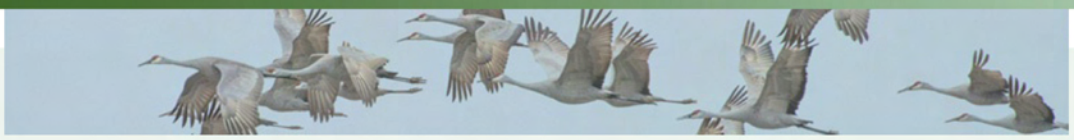
Walter J. Bock

(20 November 1933 - 27 January 2022)

WALTER BOCK was born as the second son and child in a German-speaking family with two younger sisters of Paul Bock and Rose Anna Kalsh Bock in the borough of Queens in the Greater New York area. His paternal grandfather had immigrated to the United States in 1905 from the small town of Lauterecken in the Pfalz, north of Kaiserslautern, and had established a stone carving business near the Lutheran cemetery. Walter's mother was born in New York to German parents who had also immigrated from the Pfalz near Kaiserslautern. Walter was a precocious and quick-witted child who had to stand up to his older and taller brother Paul Adam. Sometime in the late 1930s, the family stopped speaking German, but Walter retained a lifelong affinity for the German language and culture.

After elementary school, Walter was admitted to the highly selective Brooklyn Technical High School where he acquired a thorough training in mathematics, physics, and engineering, and from where he graduated in 1951. As a high school student, Walter participated in the Boys Scouts and earned a merit badge in bird study. He also volunteered in the Department of Ornithology at the American Museum of Natural History in Manhattan, NY, where he was mentored by Dean Amadon. Walter spent his undergraduate studies at Cornell University where he met the young faculty member Charles Sibley and forged lifelong friendships with fellow students, such as Lester Short. In the summer following his graduation, Walter volunteered again at the American Museum of Natural History when he met Ernst Mayr who was on his way to start his professorship at Harvard University and suggested to Walter that he apply to Harvard University for graduate studies in his lab.

As Walter recalled in an interview (17 Dec. 2000): “I had indeed made the right choice to apply to Harvard and to work with Mayr. We were both of the right personality and temperament to make graduate study outstanding. … I did learn from him that it was important to learn about functional and ecological morphology if I was going to use morphology for systematic and evolutionary studies. Most of all, what I got out of Mayr was clear thinking and reasoning and an interest in the theoretical aspects of biology. … also… Mayr's urging me to do a postdoctoral in Germany was important in instilling a firm belief in me of the importance of international exchange and cooperation in science.”



In graduate school, Walter worked on a variety of subjects in avian systematics using morphological features and also published his first theoretical paper (Bock 1959). Ernst Mayr (1955) stated: "In recent years a newly awakened interest in bird anatomy has led to studies which have resulted in several stimulating publications... The classification of the families and orders of birds, ..., was until recently one of the most neglected branches of ornithology." Hence, it was natural that Walter's Ph.D. dissertation analyzed the evolution of a distinct bony feature in Passeres (Bock 1960), in which he declared: "I am interested here in determining how the palatine process has evolved - how it has changed from one condition to another - not in its actual phylogeny." and "The functional conclusions [of morphological observations] are only hypotheses and must be treated as such. Only after these hypotheses have been tested by extensive experiments, can they be relied upon. ... The details of... particular functions are... worked out using the principles of mechanics."

In 1959, Walter received a National Science Foundation postdoctoral award to spend two years in Germany based in the laboratory of Professor Dr. Dietrich Starck, the head of the Anatomisches Institut of the Goethe University in Frankfurt am Main (West Germany). During that time, Walter traveled widely in Europe and visited labs in West Germany and The Netherlands, and forged lifelong connections and friendships with morphologists and ornithologists, such as Stefan Peters, Wolfgang Gutmann, Paul Bühler, and many others. Upon his return to the United States, Walter accepted a position as an assistant professor at the University of Illinois in Urbana-Champaign, where he was promoted to associate professor in 1965. During that time in Illinois, Walter worked on the problem of functional interpretation of morphological features as part of his deeper interest in the concept of adaptation (e.g., Gans & Bock 1965; Bock 1968).

In 1965, Walter received a call from Columbia University in New York City to join the Department of Biological Sciences faculty, where he was promoted to Professor of Evolutionary Biology in 1973. He remained in this position until his retirement in 2016 after half a century of service and has published over 300 papers and book chapters on topics as diverse as theoretical analyses of morphology and evolution, descriptions of newly discovered anatomical features in birds, explanations in biology, cranial kinesis, muscle structure, and function, concepts of adaptation, ecological morphology, species concepts, the evolution of birds, and the philosophy and history of biology (see Google Scholar https://scholar.google.com/scholar?start=20&q=Walter+J.+Bock&hl=en&as_sdt=0,19). At the same time (1965-2022), Walter was a research associate in the Department of Ornithology at the American Museum of Natural History in New York City. From 1988 onwards, Walter was also an adjunct professor in the graduate program of the Section of Ecology and Evolution at the City University of New York.

During his time at Columbia University, Walter supervised eleven doctoral students (Hiroyuki Morioka 1967; Joel Cracraft 1969; Charles Shear 1969; Sandra Constantine (E. Hodgson) 1970; Marion Cohen 1973; Davida Kellogg 1973; Yu-chu Huang 1975; Edward Atkins 1977; Franklyn Commisso 1982; Allison Andors 1988, and Ann R. Bleefeld 1992. As Walter's lab grew in reputation, it attracted international post-doctoral students to learn from Walter's diverse research program (Robert Hikida 1967-1969: Muscle physiology; Gart A. Zweers 1975-1976: Functional morphology and analysis; Dominique G. Homberger 1977-1979: Microdissection and mechanical analysis of morphology). Walter was also the recipient of major grants for his research, such as "Studies on the morphology of the feeding apparatus and relationships of songbirds" (NSF 1962-1979); "Mechanical properties of avian fast and slow muscles" (NIH 1966-1969); and for the symposium "Functional morphology and classification" at the meeting of the American Society of Zoologists in 1979 (NSF 1979-1980). And he was recognized with major honors, such as Fellow of the American Ornithologists' Union (1970); Corresponding Member of the Deutsche Ornithologen-Gesellschaft [German Ornithological Society] (1974); the Elliot Coues Award of the American Ornithologists' Union (1975); Corresponding Member of the Senckenberg Naturforschende Gesellschaft, Frankfurt am Main, West Germany (1977); Fellow of the American Association for the Advancement of Science (1979); Corresponding Member of the British Ornithologists' Union (1989); Honorary Member of the Deutsche Ornithologen-Gesellschaft (1993);

and Fellow of the Zoological Society, Kolkata, India (2007). Walter Bock's contributions to ornithology in the broad sense can be summarized as (1) Conceptualizations and theoretical explanations for the analysis of morphology within the framework of the Theory of Evolution, e.g., function, biological role, adaptation, homology, convergence, analogy, selection, phylogeny, reconstruction of evolutionary history, explanations in evolutionary biology and classification; (2) the requirement of crystal-clear thinking and wording; and (3) a clear understanding of what constitutes hypotheses (e.g., phylogenies) and how they need to and can be tested by independent data (e.g., morphology).

Throughout his life, Walter was engaged in service to the profession representing the full spectrum of his research interests. For example, he served as Commissioner of the International Commission for Zoological Nomenclature, as a member of the International Committee of Avian Anatomical Nomenclature, and chaired the Standing Committee on Ornithological Nomenclature of the International Ornithological Committee. He served on multiple editorial boards (Springer Verlag, Karger, McGraw-Hill, Oxford University Press, Zoomorphology, Zoologischer Anzeiger, Acta Biotheoretica, the Japanese Journal of Zoology). He was asked to evaluate academic programs and departments. He was asked to lend his expertise to founding committees of the European Ornithologists' Union and the International Society of Vertebrate Morphologists. For the American Ornithological Society (formerly American Ornithologists' Union) specifically, he served as a member of the Program Committee (1965, 1968); member of the Editorial Committee (1965-1970, 1973-1983); member of the Reorganization Committee (1970-1972), chair of the Nominating Committee for Honorary and Corresponding Fellows (1972-1974, 1988-2015); review editor (1973-1981); chair of the Research Committee (1974-1976); and chair of the Committee for the American Ornithologists' Union Centennial (1974-1983).

Walter dedicated his most significant service contributions to the internationalization of ornithology (see Bock 2004). He was recruited by Donald S. Farner as a member of the Executive Committee of the International Ornithological Committee (IOC) in 1974. At the International Ornithological Congress in Ottawa (Canada) in 1978, Walter was elected Permanent Secretary of the IOC responsible for organizing the quadrennial International Ornithological Congresses (IOCongresses). Walter loved this work for which he could draw on his wide international contacts and friendships across the globe. Under his aegis, he took, for example, the IOCongresses to countries that were considered problematic in the United States, such as the Soviet Union (1982), South Africa (1998), and China (2002). In each case, Walter was prescient in anticipating the opening of these countries to the wider world, and he wanted to ensure that ornithologists in these countries had the opportunity to showcase their research and create personal contacts with outside colleagues. In each case, Walter had to use his diplomatic skills to ensure that all ornithologists, irrespective of the political agenda of their countries, were given visas to attend the IOCongresses. History proved him to be right as we see today that ornithology has been internationalized and thriving through collaborative ties among ornithologists irrespective of the political situation of their countries following the motto "Birds know no boundaries". Walter served in numerous committees (e.g., executive, program, ad hoc, etc.) through which he promoted cooperation among and inclusion of ornithologists and scientists from all continents. In 1998, after two decades of service as Permanent Secretary, Walter was elected in 1998 as president of the IOC and the IOCongress in Beijing (2002). The last IOCongress he could attend was the one in Tokyo in 2014.

Walter Bock was the initiating force behind the list of English bird names, which morphed into the IOC World Bird List https://www.worldbirdnames.org/new/, which in turn will become part of the unified avian checklist under the aegis of the IOU Working Group on Avian Checklists (WGAC) https://www.internationalornithology.org/working-group-avian-checklists.

Walter Bock, together with the IOC and IOCongress presidents served in his capacity as secretary, was instrumental in the internationalization of ornithology also by consciously identifying productive and pathbreaking ornithologists in parts of the world outside of Western Europe and North America and by supporting their appointment to

committees of the IOC partly to recognize them for their work and partly to provide them with an opportunity to be involved in organizational work at the international level. In his capacity as a member of program committees for the IOCongresses, Walter also ensured that symposia and plenaries at IOCongresses had an international and gender-balanced roster of speakers. It is in this way that the IOCongresses that used to be dominated by European and North American ornithologists developed into the current truly international and inclusive IOCongresses. Similarly, the IOC developed from an organization that was led by European and North American ornithologists into the current IOU (International Ornithologists' Union) which elected its first woman and non-European/non-North American president, Professor Lucia Liu Severinghaus, in 2014 (see also https://www.internationalornithology.org/iou-history and https://www.internationalornithology.org/past-events).

Walter Bock was also a most generous benefactor to the IOU by establishing an endowment for travel fellowships for ornithologists https://www.internationalornithology.org/walter-j-bock-travel-fellowship. Walter had recognized early on that established ornithologists (beyond the doctoral level) in middle- and low-income countries cannot easily access travel funding sources to attend IOCongresses, most of which are reserved for students. The situation for these ornithologists is incredibly challenging as few manage to find employment in their field of expertise. Yet, it is especially these ornithologists who would benefit most from attending an IOCongress. Hence, these ornithologists have been especially encouraged to apply for a Walter J. Bock Travel Fellowship. To honor Walter Bock's monumental work in the internationalization of ornithology as an inclusive science defying geographical, political, and ideological barriers, the IOU is starting an ongoing fundraiser to establish an endowment from which grants can be awarded to promising and deserving research projects primarily in middle- and low-income countries and regions.

In the spring of 2001, Walter suffered an aortic dissection. He survived but was unable to attend the symposium "Synthetic Evolutionary Morphology: The contributions of Walter J. Bock" which had been organized in his honor at the 6th International Congress of Vertebrate Morphology in Jena (Germany) in 2001. He recovered sufficiently to preside over the IOCongress in Beijing in 2002 and participate with his daughter Susie in the memorable post-congress excursion across various parts of China, only to have to return home precipitously upon learning that his wife Kitty, who he had met and married while in graduate school at Harvard, had died.

Walter had an uncommon zest for life and an all-encompassing curiosity. Each conference he attended represented an opportunity to learn more about the local art, music, culture, and nature. He was part of the mile-long queue in frigid weather for tickets to see the first King Tut Exhibition outside of Egypt at the Metropolitan Museum in New York City in 1977 (see Hindley 2015). He was a lifelong expert bird watcher, and he had subscriptions to the Metropolitan Opera, the New York Philharmonic, and the Chamber Music Society of the Lincoln Center. He was a voracious reader not only of scientific literature but also of novels, especially those written by authors outside of Europe and North America. Walter could be blunt in his assessment of the scientific work of colleagues but was unfailingly generous to and supportive of students and young investigators. One could not have a more unstintingly loyal friend than Walter was. His and his wife Kitty's home since 1965 at 114 Hudson Avenue in Tenafly (New Jersey) was a meeting place and even a temporary home for innumerable scientists from all over the world. Walter was also an early promoter and supporter of women, gay persons, and shy persons in science almost half a century before the "Me Too" movement and before the liberalization towards minority populations became mainstream. An entire generation of pioneering women ornithologists and morphologists benefitted in one way or the other from Walter's progressive worldview and support. Last but not least, an active family life was central to Walter's life, which included his aging mother and aunt, his siblings and their children, his children (Katie Bock Rosa, Susie Bock, and David Bock), and his four grandchildren. Walter Bock showed that a successful scientific career is compatible with a rich personal life. He has been sorely missed by his family, friends, and colleagues since his death on 27 January 2022.

ACKNOWLEDGMENTS

Important materials for this obituary were provided by Katie Bock Rosa, Richard Schodde, Hans Winkler, and Michael Schmitt. In addition, many colleagues and friends shared their appreciation of Walter Bock with the obituary's author. Other obituaries honoring various aspects of Walter J. Bock's wide-ranging interests and contributions to science will be published in various international journals and newsletters.

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Gulls sp., Unsplash.

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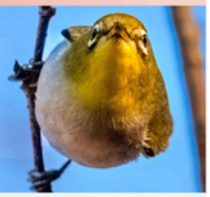

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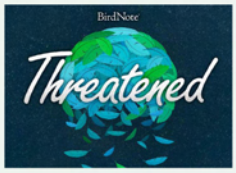

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A call to action to take steps to protect the natural environment, this podcast features sound-rich stories about birds and the challenges they face including habitat loss, climate change, disease, and anthropogenic interference. Each of the four seasons to date have focussed on a different theme and location. These have included North American birds of prey, and birds of the Amazon rainforest, Hawaii and Puerto Rico, which highlighted the return of the endemic Puerto Rican parrot. Other topics have included combatting avian malaria, and the efforts involved in changing a bird's scientific name. The podcast is produced by BirdNote, a non-profit organization that uses audio programming to motivate listeners to care about birds and nature.

FILMS

Watch at: https://vimeo.com/ondemand/thelastcurlew

The Last Curlew

This film adaptation of Fred Bodsworth's 1954 novel *Last of the Curlews*, tells the story of the last surviving Eskimo curlew, a bird that was hunted to near-extinction in the late 19th and early 20th centuries. The film, written and produced by Tom Allen, adds a human dimension to the story by following a grandfather and his granddaughter who go on a journey to witness the curlew's final migration from the Arctic to South America and back. Along the way, they encounter challenges, discoveries, and revelations that change their lives. The film is a beautiful and poignant tribute to the curlew and its plight, as well as a reflection on the relationship between humans and nature. It is a must-see for ornithologists and anyone who cares about the environment and endangered species. The film raises awareness of the curlew's history and fate, as well as the broader issues of habitat loss, climate change, and human impact on nature. It also celebrates the curlew's resilience, beauty, and spirit, as well as the bond between the grandfather and granddaughter who share a passion for birds and life. The film is a moving and memorable experience that will stay with you long after the credits roll.

CONFERENCES

DATE	EVENT	FURTHER INFORMATION
2023		
20 - 24 SEPTEMBER	**156TH ANNUAL MEETING OF THE GERMAN ORNITHOLOGISTS' SOCIETY** - Augsburg, Germany	http://www.do-g.de/events/annual-convention-2023-augsburg/?L=1
21 - 22 SEPTEMBER	**III INTERNATIONAL ORNITHOLOGICAL CONFERENCE "BIRDS AND AGRICULTURE: CURRENT STATE, PROBLEMS, AND STUDY PROSPECTS"** - Kislovodskiy National Park, Russia	https://www.raptors.ru/events/2023/birds-and-agriculture-conference/
22 - 24 SEPTEMBER	**2023 NEW YORK BIRDERS CONFERENCE / NYSOA ANNUAL MEETING** - Westchester County.	https://www.nybirders.org/
25 - 28 SEPTEMBER	**EAGLES OF THE PALEARCTIC: STUDY AND CONSERVATION: THIRD INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE** - Almaty, Kazakhstan	https://www.raptors.ru/events/2023/eagles-of-the-palearctic/
29 SEPTEMBER - 3 OCTOBER	**ANNUAL CONFERENCE OF THE INTERNATIONAL WADER STUDY GROUP** - Sylt, Germany	https://www.waderstudygroup.org/conferences/2023-sylt-germany/
9 - 13 OCTOBER	**47TH ANNUAL MEETING OF THE WATERBIRD SOCIETY** - Florida, USA	https://waterbirds.org/annual-meeting/
17 - 21 OCTOBER	**INTERNATIONAL BIRD OBSERVATORY CONFERENCE 2023** - Veracruz, Mexico	https://ibocmexico.org/
17 - 22 OCTOBER	**RRF 2023 ANNUAL CONFERENCE** - Albuquerque, USA	https://raptorresearchfoundation.org/current-conference/
22 - 27 OCTOBER	**WORLD OWL CONFERENCE** La Crosse, Onalaska, Wisconsin USA	https://waset.org/wildlife-biology-and-conservation-conference-in-june-2023-in-montreal
23 - 26 OCTOBER	**16TH NORTH AMERICAN CRANE WORKSHOP** - Baraboo, Wisconsin, USA	https://www.nacwg.org/workshop16.html
5 - 9 NOVEMBER	**THE WILDLIFE SOCIETY'S 30TH ANNUAL CONFERENCE** - Louisville, Kentucky	https://wildlife.org/network/conferences-network/
14 - 17 NOVEMBER	**EUROPEAN VULTURE CONFERENCE** - Cáceres, Spain	https://4vultures.org/event/european-vulture-conference-2023/
21 - 22 NOVEMBER	**BOU AUTUMN 2023 CONFERENCE - GLOBAL FLYWAYS** - Virtual	https://bou.org.uk/event/bousci23-global-flyways/
22 - 24 NOVEMBER	**ASPB 2023 ANNUAL CONFERENCE** - Red Deer, Alberta	https://www.aspb.ab.ca/conference
28 - 30 NOVEMBER	**12TH AUSTRALASIAN ORNITHOLOGICAL CONFERENCE (AOC)** - Brisbane, Australia	https://birdlife.org.au/events/australasian-ornithological-conference-2023/
2024		
7 - 8 JANUARY	**INTERNATIONAL CONFERENCE ON BIODIVERSITY AND FOREST HABITAT MANAGEMENT (ICBFHM)** - Tokyo, Japan	https://conferenceindex.org/event/international-conference-on-biodiversity-and-forest-habitat-management-icbfhm-2024-january-tokyo-jp
5 - 9 FEBRUARY	**9TH NORTH AMERICAN DUCK SYMPOSIUM** - Portland, OR	https://ducks9.org/
9 - 11 APRIL	**BOU 2024 ANNUAL CONFERENCE** - Jubilee Campus, Nottingham University	https://bou.org.uk/event/urban-birds-bou2024/
26 - 28 APRIL	**KENTUCKY ORNITHOLOGICAL SOCIETY 2024 FALL MEETING** - Mammoth Cave National Park	https://www.birdky.org/kosmeetings-1-upcoming.php
20 - 26 MAY	**7TH INTERNATIONAL ALBATROSS AND PETREL CONFERENCE** - Ensenada, Baja California, Mexico	https://islas.org.mx/iapc7/
23 - 29 JUNE	**XXVI IUFRO WORLD CONGRESS 2024** - Stockholm, Sweden	https://www.iufro.org/events/congresses/2024/
19 - 23 OCTOBER	**THE WILDLIFE SOCIETY'S 31ST ANNUAL CONFERENCE** - Baltimore, Maryland	https://wildlife.org/network/conferences-network/
TBC	**2024 ANNUAL MEETING OF THE RAPTOR RESEARCH FOUNDATION** - Charlotte, NC, USA	https://raptorresearchfoundation.org/current-conference/
11 - 12 NOVEMBER	**INTERNATIONAL CONFERENCE ON WILDLIFE FORENSICS AND CONSERVATION STUDIES** - Phnom Penh, Cambodia	https://conferenceindex.org/event/international-conference-on-wildlife-forensics-and-conservation-studies-icwfcs-2024-november-phnom-penh-kh
12 - 13 NOVEMBER	**BOU AUTUMN 2024 CONFERENCE - AVIAN CONSERVATION TRANSLOCATIONS** - Virtual (International)	https://bou.org.uk/event/avian-conservation-translocations-bousci24/
2025		
TBC	**2025 ANNUAL MEETING OF THE RAPTOR RESEARCH FOUNDATION** - San Jose, Costa Rica	https://raptorresearchfoundation.org/events/
TBC	**2025 BIRD NUMBERS CONFERENCE** - EBCC, Latvia	https://www.ebcc.info/what-we-do/conferences-and-workshops/

COURSES, WORKSHOPS AND WEBINARS

https://ornithologyexchange.org/forums/forum/151-workshops-short-courses-and-other-training-opportunities/

Raptor Research Foundation Workshops https://raptorresearchfoundation.org/current-conference/workshops/	Birds Canada Workshops and Webinars https://www.birdscanada.org/discover-birds/training-and-workshops
British Trust for Ornithology Workshops https://www.bto.org/community/events	WildResearch Workshops https://wildresearch.ca/training/
Bird Banding Opportunities https://www.westernbirdbanding.org/bird-banding-opportunities	Nature Trails and Workshops - Bombay Natural History Society https://www.bnhs.org/nature-trails
Bird Alliance - Courses and Workshops https://birdalliance.in/ba-category/courses-workshops/	NABC Banding Workshop and Certification in Belize https://www.ecorana.ca/bird-banding-apprenticeship/
Aves Argentinas - Courses https://www.avesargentinas.org.ar/cursos	BlackAFinSTEM - Webinars https://www.blackafinstem.com/virtual-2023
Hummingbird Banding https://donorbox.org/hbjuly29	Bird Identification and Survey - Courses http://www.earthquestcanada.ca/Birdcourses.htm
Bird Monitoring and Banding Workshops https://rpbo.org/what-we-do/training/bird-monitoring-and-banding-workshop/	Vancouver Avian Research Centre - Workshops https://www.birdvancouver.com/bird-identification-workshop/
Field Studies Council - Courses https://www.field-studies-council.org/courses-and-experiences/subjects/birds-courses/	Bird Keeping (Aviculture) https://www.acs.edu.au/courses/bird-keeping-aviculture-707.aspx
IBP-facilitated Beginner and Advanced banding classes https://www.birdpop.org/pages/birdBandingClasses.php	Bird Language Online Courses https://www.naturalststudies.com/bird-language-courses
Birds Queensland bird identification courses https://birdsqueensland.org.au/activities/courses/	ITEC Birding Program https://itec-edu.org/itec-birding-program/
Training Directory: Identification and Field Survey Skills - Ornithology Short Courses https://www.countryside-jobs.com/training/identification-and-field-survey-skills-ornithology	Bird Identification online course https://www.doc.govt.nz/get-involved/training/online-courses/bird-identification-online-course/

JOBS

https://ornithologyexchange.org/jobs/board/

Pacific Seabird Group Job Postings https://pacificseabirdgroup.org/category/news/job-postings/	Cornell Lab of Ornithology Job Opportunities https://www.birds.cornell.edu/home/jobs/#staff
Ornithology Exchange Job Board https://ornithologyexchange.org/jobs/board/	Environmental Science Careers and Other Green Jobs https://jobs.environmentalscience.org/
Bombay Natural History Society Jobs https://www.bnhs.org/career	Ecological Society of America Jobs https://www.esacareercenter.org/
Natural Resources Job Board https://wfscjobs.tamu.edu/job-board/	Conservation Job Board https://www.conservationjobboard.com/
Morning Flight Songbird Counter https://wfscjobs.tamu.edu/jobs/morning-flight-songbird-counter/	Hawk Migration Counter (Cape May Hawkwatch) https://wfscjobs.tamu.edu/jobs/hawk-migration-counter-cape-may-hawkwatch/
Waterbird Migration Counter (Avalon Seawatch) https://wfscjobs.tamu.edu/jobs/waterbird-migration-counter-avalon-seawatch/	Scientist III (Avian Ecology Research Associate), remote https://wfscjobs.tamu.edu/jobs/scientist-iii-avian-ecology-research-associate-remote/
Landbird Research Tech (Bio Aide III) https://wfscjobs.tamu.edu/jobs/landbird-research-tech-bio-aide-iii/	Landbird Research Tech (Bio Aide IV) https://wfscjobs.tamu.edu/jobs/landbird-research-tech-bio-aide-iv/
Eastern Whip-poor-will Avian Field Technician (New York) https://wfscjobs.tamu.edu/jobs/immediate-hire-eastern-whip-poor-will-avian-field-technician-new-york/	Fall Migration Banding Field Assistant https://wfscjobs.tamu.edu/jobs/experienced-fall-migration-banding-field-assistant/
Hawk Migration Counter (Montclair Hawkwatch) https://wfscjobs.tamu.edu/jobs/hawk-migration-counter-montclair-hawkwatch/	Migratory Bird Habitat Initiative Project Leader https://wfscjobs.tamu.edu/jobs/migratory-bird-habitat-initiative-project-leader/
The Wildlife Society Career Center https://careers.wildlife.org/home/	Work Cabin - Conservation Job Board https://www.workcabin.ca/
Birds Canada Job Opportunities https://www.birdscanada.org/about-us/job-opportunities	Bird Conservancy of the Rockies - Job Opportunities https://www.birdconservancy.org/about-us/employment/
BirdLife International - Careers https://www.birdlife.org/careers-hub/	Wild Bird Trust - Careers https://www.wildbirdtrust.com/careers/all
Bird Inventory Biologist https://stantec.taleo.net/careersection	Birder Certification and Jobs https://birdercertification.org/birding-projects.php
Field Volunteer Assistant working with endangered parrots and macaws in Costa Rica https://careers.conbio.org/job/599228/field-volunteer-assistant-working-with-endangered-parrots-and-macaws-in-costa-rica/?LinkSource=PremiumListing	Spotted Owl Technicians - Occupancy Monitoring in the Southwest for Recovery https://wfscjobs.tamu.edu/jobs/2-spotted-owl-technicians-occupancy-monitoring-in-the-southwest-for-recovery-17-hr-start-date-asap/
Avian Biologists - Woodland Raptor Broadcast and Nest Surveys - CO https://wfscjobs.tamu.edu/jobs/avian-biologists-woodland-raptor-broadcast-and-nest-surveys-co/	

GRANTS AND FELLOWSHIPS

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THE E. ALEXANDER BERGSTROM MEMORIAL RESEARCH AWARD from the Association of Field Ornithologists (AFO) supports field studies of birds by helping to support research or analyses. The award amount is up to $2,500 and the application deadline is 15 February each year.
https://pacificseabirdgroup.org/category/news/job-postings/

BCFO RESEARCH GRANTS from the British Columbia Field Ornithologists supports bird surveys and other ornithological research in British Columbia. Deadlines for 2023 are January 1, April 1, July 1 and October 1.
https://bcfo.ca/bcfo-research-grants/

BCFO RESEARCH GRANTS from the British Columbia Field Ornithologists supports bird surveys and other ornithological research in British Columbia. Deadlines for 2023 are January 1, April 1, July 1 and October 1.
https://bcfo.ca/bcfo-research-grants/

CAREER DEVELOPMENT BURSARIES from the BOU support early career researchers to develop new skills and collaborations. The award amount is up to £2,500 and the application deadline is 30 November each year.
https://bou.org.uk/funding/career-development-bursaries/

AOS STUDENT & POSTDOC RESEARCH GRANTS from the American Ornithological Society (AOS) support research in various areas of avian biology by students or postdocs who are AOS members. The award ranges from $1,000 to $2,500 and the application deadline is 15 January each year.
https://americanornithology.org/awards-grants/student-postdoc-research-grants/

AFRICAN UNION KWAME NKRUMAH SCIENTIFIC AWARDS recognize outstanding African scientists for their achievements and valuable discoveries and findings in science, technology and innovation. Three awards are available for outstanding African scientists; (i) AU-TWAS National Young Scientists Award at the National Level ($5,000); (ii) African Union Regional Women Scientists Award at the AU Regional Level ($20,000); and (iii)Continental Scientific Award at the continental level ($100,000). The application deadline is 10 November each year. https://au.int/en/aurg/2020

AAV WILD BIRD HEALTH RESEARCH FUND from the Association of Avian Veterinarians supports research projects that have a direct impact on the health and welfare of wild birds. The award amount is up to $5,000 and the application deadline is 1 February each year.
https://www.aav.org/page/research

ABC EXPEDITION AWARD from the African Bird Club supports expeditions that take place within continental Africa or adjacent islands, with a strong base in conservation and birds. The award is up to £2,000 and the application deadlines are 28 February, 30 June and 31 October each year.
https://www.africanbirdclub.org/conservation/expeditions

THE MOHAMED BIN ZAYED SPECIES CONSERVATION FUND supports projects that focus on individual species conservation initiatives, recognize leaders in the field and elevate the importance of species in the broader conservation debate. The award is up to $25,000 and the application deadlines are 28 February, 30 June and 31 October each year.
https://www.speciesconservation.org/grants/

WILSON ORNITHOLOGICAL SOCIETY RESEARCH GRANTS support ornithological research projects anywhere in the world. The award ranges from $1,000 to $2,500 and the application deadline is 1 February each year.
https://www.wilsonsociety.org/awards/research-grants/

OSME CONSERVATION FUND from the Ornithological Society of the Middle East, the Caucasus and Central Asia supports bird conservation projects in the OSME region, which includes parts of East Asia such as Mongolia, China and Japan. The award amount is up to £2,000 and the application deadlines are 31 January and 31 July each year.
https://osme.org/grants/conservation-fund/

PAMELA AND ALEXANDER F. SKUTCH RESEARCH AWARD from the AFO supports minimally invasive research into the life histories, especially social relations and reproduction, of little known birds of the continental Neotropics. The award amount is up to $10,000 and the application deadline is 15 July each year.
https://afonet.org/grants-awards/skutch-award/

SMALL RESEARCH GRANTS from the British Ornithologists' Union (BOU) support small ornithological research projects anywhere in the world. The award amount is up to £2,000 and the application deadline is 31 October each year.
https://bou.org.uk/funding/small-research-grants/

ATLAS FUND SCHOLARSHIPS are travel grants offered by the Québec Breeding Bird Atlas to experienced volunteer bird-watchers who survey remote squares in northern Québec. Grant amounts usually vary from $1,000 to $3,000.
https://www.quebecoiseaux.org/fr/fonds-atlas

CONFERENCE ATTENDANCE GRANTS from the BOU support students and early career researchers to attend international ornithological conferences. The award is up to £500 and the application deadlines vary depending on the conference.
https://bou.org.uk/funding/conference-attendance-grants/

RAPTOR RESEARCH FOUNDATION GRANTS from the Raptor Research Foundation support research on raptors, especially those that are of conservation concern or have limited information available. The award amount is up to $2,000 and the application deadline is 15 June each year.
https://www.raptorresearchfoundation.org/grants-and-awards/

TROPICAL BIOLOGY ASSOCIATION SMALL GRANT SCHEME supports TBA alumni groups to assist them with their conservation projects and to strengthen their proficiency in natural resource management and research. They are particularly interested in innovative ideas and approaches that will lead to real outcomes. The award amount is up to £2,300 and the application deadline is 30 April each year.
https://www.tropical-biology.org/opportunities/tba-small-grants/

ABC CONSERVATION AWARDS from the African Bird Club support small and medium-sized bird conservation projects in Africa. Applicants should normally be resident in Africa. The award is up to £1,500 and the application deadlines are 28 February, 30 June and 31 October each year.
https://www.africanbirdclub.org/conservation/awards

THE YUKON BIRD CLUB CONSERVATION SCHOLARSHIP is an annual award of $500 for a Yukon University student who demonstrates interest and motivation in environmental conservation related to birds and their habitats.
https://yukonbirds.ca/yukon-bird-club-conservation-scholarship/

CROWDER-MESSERSMITH CONSERVATION FUND supports local conservation projects in developing countries. The grants are intended as seed money for communities and individuals. The award amount is up to $2,000 and the application deadline is 15 December each year.
https://anshome.org/crowder-messersmith-conservation-fund/

RUFFORD SMALL GRANTS FOR NATURE CONSERVATION support small nature/biodiversity conservation projects and pilot programmes in developing countries. The award is up to £8,000 and the application deadline is continuous.
https://www.rufford.org/apply-for-grant

BIRDS AUSTRALIA RESEARCH GRANTS from BirdLife Australia support research projects that contribute to the conservation of Australian birds and their habitats. The award amount ranges from $1,000 to $5,000 and the application deadline is 31 March each year.
https://birdlife.org.au/who-we-are/our-organisation/grants

WESTERN BIRD BANDING ASSOCIATION offers up to two $500-1,000 grants each year, usually one for research and the other for monitoring, for individuals and/or organizations engaged in projects in the New World using marked birds. **https://www.westernbirdbanding.org/research-grants**

AUSTRALIAN BIOLOGICAL RESOURCES STUDY NATIONAL TAXONOMY RESEARCH GRANT PROGRAM from the Department of Agriculture, Water and the Environment supports taxonomic research on Australia's biota. The award amount ranges from $15,000 to $120,000 and the application deadline is 30 September each year. **https://www.environment.gov.au/science/abrs/grants**

COLORADO FIELD ORNITHOLOGISTS YOUTH SCHOLARSHIPS provides financial help to young Colorado birders to attend summer camps, workshops, and training programs that introduce them to science and nature through the study of birds. Scholarships typically range from $200-$800. **https://cobirds.org/grants-scholarships/#application-information**

THE SOCIETY FOR NORTHWESTERN VERTEBRATE BIOLOGY (SNVB) provides one scholarship of up to $1000 each year to an undergraduate or graduate student conducting vertebrate research within the geographic scope of the society: northwestern North America west of the Great Plains and north of the Mojave Desert. SNVB is now offering two $1000 scholarships. **http://thesnvb.org/scholarship/**

NORMAN WETTENHALL FOUNDATION SMALL ENVIRONMENTAL GRANT SCHEME supports groups or individuals undertaking projects that will make a positive difference to the natural living environment in Australia. The award is up to $10,000 and application deadlines are quarterly. **https://nwf.org.au/grants/small-environmental-grants/**

TEXAS ORNITHOLOGICAL SOCIETY AWARDS research grants each year to researchers and graduate students studying the birds of Texas. **https://www.texasbirds.org/about-tos/grants/**

THE OREGON FUND FOR ORNITHOLOGY is a grant program that supports projects related to the study, education, and conservation of birds and birding in Oregon. The fund offers up to $1,000 for each project that aligns with OBA's mission. **https://oregonbirding.org/oregon-fund-for-ornithology/**

HOLSWORTH WILDLIFE RESEARCH ENDOWMENT from the Ecological Society of Australia supports postgraduate students to conduct research in ecology, wildlife management and natural history studies. The award is up to $7,500 and the application deadlines are 31 March and 31 August each year. **https://www.ecolsoc.org.au/awards-and-prizes/holsworth-wildlife-research-endowment**

STUDENT RESEARCH GRANT seeks to aid student-led research in the promotion of up-and-coming scholar members of Pacific Seabird Group. The PSG Student Research Grant typically funds at least three grants, one grant per degree-level (bachelor, master, doctoral). Past grant awards were between $500 and $1000. **https://pacificseabirdgroup.org/student-research-grant/**

CRAIG S. HARRISON CONSERVATION FUND aims to advance the conservation of seabirds by providing funds or supplies to individuals from developing countries as well as those from elsewhere working in those developing countries primarily in or bordering the Pacific Ocean. **https://pacificseabirdgroup.org/grants/general-instructions/**

WISCONSIN SOCIETY FOR ORNITHOLOGY sponsors several grants to support ornithological research by students and professionals, promote the study of birds by youth, enhance our knowledge of Wisconsin wetlands, and implement shorebird management activities. **https://wsobirds.org/what-we-do/grants**

THE WATERBIRD SOCIETY AWARDS grants for research in the science and conservation of waterbirds. **https://waterbirds.org/research-grants/**

BLAKE-NUTTALL FUND GRANTS: 2023. The Nuttall Ornithological Club will soon be soliciting proposals for bird-related projects to be conducted in 2023-2024 under the direction of organizations meeting certain qualifications. Selected projects are supported by grants from the Club's Blake-Nuttall Fund. The Fund supports ornithological research, conservation, and education, with particular emphasis on the birds of New England and the Northeast. The receipt deadline for applications is 1 September 2023. Awards will be announced by 30 September 2023 and funds will be distributed shortly thereafter. **https://www.nuttallclub.org/blake-nuttall-fund/blake-nuttall-fund-grants/**

AWARDS

AMERICAS

The **ANDERSEN MEMORIAL AWARD FOR RAPTOR RESEARCH** is given by the Raptor Research Foundation to the best student oral and poster presentation at their annual meeting. The award can only be given to a student once per degree and the student must be senior author and presenter of the paper or poster. The poster award receives $175 and 1 year free membership to RRF. **https://raptorresearchfoundation.org/grants-awards/andersen-memorial-award/**

The **WILLIAM BREWSTER MEMORIAL AWARD** is given each year to the author or coauthors of the most meritorious body of work on birds of the Western Hemisphere published during the past ten years. **https://americanornithology.org/awards-grants/awards-scholarships/william-brewster-memorial-award/**

The **JAMIE SMITH MEMORIAL MENTORING AWARD** honors established ornithologists from academia, industry, non-government or government agencies in recognition of excellence in mentoring a new generation of professional or amateur biologists. **https://www.sco-soc.ca/jamie-smith-memorial-mentoring-award**

The **LOYE AND ALDEN MILLER RESEARCH AWARD** is given for lifetime achievement in ornithological research. **https://americanornithology.org/awards-grants/awards-scholarships/loye-and-alden-miller-research-award/**

The **ELLIOTT COUES AWARD** recognizes outstanding and innovative contributions to ornithological research, regardless of the geographic location of the work. **https://americanornithology.org/awards-grants/awards-scholarships/elliott-coues-award/**

The **JAMES R. KOPLIN TRAVEL AWARD** is given by the Raptor Research Foundation (RRF) to up to six students who are the senior authors and presenters of a paper or poster to be presented at the RRF meeting for which travel funds are requested. The award includes up to $500 and 1 year free RRF membership. Application deadline is the same as the abstract submission deadline for the RRF meeting. **https://raptorresearchfoundation.org/grants-awards/koplin-travel-award/**

The **CFO AWARDS** are given annually by the Colorado Field Ornithologists (CFO) to honor individuals and organizations for their service to Colorado's avian diversity. The awards are presented at the CFO annual convention which will be held jointly with the Western Field Ornithologists (WFO). **https://cobirds.org/awards/**

The **RALPH W. SCHREIBER CONSERVATION AWARD** recognizes extraordinary scientific contributions to the conservation, restoration, or preservation of birds and/or their habitats. **https://americanornithology.org/awards-grants/awards-scholarships/ralph-w-schreiber-conservation-award/**

The **DORIS HEUSTIS SPEIRS AWARD** is presented annually to an individual who has made outstanding lifetime contributions in Canadian ornithology. **https://www.sco-soc.ca/doris-heustis-speirs-award**

The **EARLY CAREER RESEARCHER AWARD** honors fledgling ornithologists from academia, industry, non-government or government agencies who show strong potential for future leadership in Canadian ornithology. **https://www.sco-soc.ca/early-career-researcher-award**

The **FRANZ HAFFER AWARD** is given to an individual who has made a significant and long-term contribution to the study of Neotropical birds. The award consists of a plaque and lifetime membership to the Neotropical Ornithological Society (NOS).
https://www.neotropicalornithology.org/franz-haffer-award/

The **JOHN TERBORGH AWARD** is given to an individual who has made a significant contribution to the conservation of Neotropical birds and their habitats. The award consists of a plaque and a lifetime membership to the Neotropical Ornithological Society (NOS).
https://www.neotropicalornithology.org/john-terborgh-award/

The **NED K. JOHNSON YOUNG INVESTIGATOR AWARD** is given to an early-career researcher who has made an outstanding contribution to the study of Neotropical birds. The award consists of a plaque, a cash prize, and a 1 year membership to the Neotropical Ornithological Society (NOS).
https://www.neotropicalornithology.org/ned-k-johnson-young-investigator-award/

The **NEOTROPICAL ORNITHOLOGICAL SOCIETY (NOS) STUDENT AWARDS** are given to students who present outstanding oral or poster presentations at the biennial Neotropical Ornithological Society (NOS) congress. The awards consist of certificates and cash prizes.
https://www.neotropicalornithology.org/nos-student-awards/

The **TAVERNER AWARDS** are awarded annually to those with limited or no access to major funding, regardless of professional status, who are undertaking ornithological work in Canada.
https://www.sco-soc.ca/taverner-awards

The **WATERBIRD SOCIETY AWARDS** individuals for outstanding contributions to waterbird science, exemplary service to the Society, and to students for excellence in presentations and assistance for travel to the annual meetings. **https://waterbirds.org/awards/**

The **F.M. BAILEY LIFETIME ACHIEVEMENT AWARD** is given by the New Mexico Ornithological Society (NMOS) to individuals who have made significant lifetime contributions to New Mexico's ornithological knowledge, the promotion of the value of birds, both aesthetic and economic, effective conservation of the state's avifauna, and/or the NMOS.
http://www.nmbirds.org/fmbailey-award/

EUROPE

The **EOU AWARDS** are awarded by the European Ornithologists' Union (EOU) to recognize outstanding contributions to ornithology in Europe. Awards consist of the EOU Medal, the Early Career Researcher Award, the Outstanding Service Award, and the Student Awards.
https://eounion.org/awards/

The **BOU AWARDS** are awarded by the British Ornithologists' Union (BOU) to support ornithological research and communication. Awards consist of the Career Development Bursary, Small Research Grants, Conference Bursaries, and the Science Communication Award.
https://www.bou.org.uk/grants-and-bursaries/

The **NOF AWARDS** are awarded by the Nordic Society Oikos (NOF) to acknowledge excellence in ornithological research and communication in Scandinavia. Awards consist of the NOF Honorary Membership, the Best Paper Award, and the Best Student Presentation Award.
https://www.nordic-society-oikos.org/awards.

The **DO-G AWARDS** are awarded by the German Ornithologists' Society (DO-G) to honor outstanding achievements in ornithology. Some of the awards are the Erwin Stresemann Prize, the Wolfgang Makatsch Medal, and the DO-G Poster Prize.
https://www.do-g.de/en/awards/

The **MARSH AWARDS FOR ORNITHOLOGY** are awarded by the British Trust for Ornithology (BTO) to recognize individuals who have made significant contributions to ornithological research, conservation, or communication in the UK or abroad. Awards consist of the Marsh Award for Ornithology, International Ornithology, Local Ornithology, and Innovative Ornithology.
https://bto.org/community/grants-and-funding/marsh-awards.

AUSTRALIA

The **ROBERT FALLA MEMORIAL AWARD** is awarded by the Ornithological Society of New Zealand (OSNZ) to recognize individuals or groups who have made outstanding contributions towards ornithology and conservation in New Zealand or the South Pacific region.
https://www.osnz.org.nz/robert-falla-memorial-award

The **JOHN HOBBS MEDAL** is awarded by the Royal Australasian Ornithologists Union (BirdLife Australia) to a person who has made an outstanding contribution to ornithological research in the Australasian region.
https://www.birdlife.org.au/who-we-are/our-organisation/awards-scholarships/john-hobbs-medal

The **W. ROY WHEELER MEDALLION** is awarded by Bird Observation & Conservation Australia (BOCA) to a person who has made an outstanding contribution to ornithology in Australia.
https://www.birdlife.org.au/who-we-are/our-organisation/awards-scholarships/w-roy-wheeler-medallion

The **S.G. "Bill" Lane Award** is awarded by Charles Sturt University (CSU) to a person who has made an outstanding contribution to ornithology in Australia or internationally.
https://about.csu.edu.au/community/graham-centre/news-events/news/news-archive/2019-news/s-g-bill-lane-award-for-excellence-in-ornithology

The **D. L. SERVENTY MEDAL** is awarded by the Royal Australasian Ornithologists Union (BirdLife Australia) to a person who has rendered outstanding service to ornithology in the Australasian region. **https://eounion.org/awards/**

AFRICA

The **ABC CONSERVATION AWARDS** are awarded by the African Bird Club (ABC) to support small and medium-sized conservation projects in Africa.
https://www.africanbirdclub.org/projects/conservation-fund

The **ABC EXPEDITION AWARD** is awarded by the African Bird Club (ABC) to support expeditions that contribute significantly to knowledge of African birds.
https://www.africanbirdclub.org/projects/expedition-fund

ASIA

The **SALIM ALI NATIONAL AWARD FOR NATURE CONSERVATION** is awarded by the Bombay Natural History Society (BNHS) to an individual who has made significant contributions to nature conservation in India. The award is named after Salim Ali, a renowned Indian ornithologist and naturalist. **https://bnhs.org/awards/salim-ali-national-award-for-nature-conservation/**

The **SALIM ALI NATIONAL AWARD FOR ORNITHOLOGY** is awarded by the Indian National Science Academy (INSA) to an individual who has made outstanding contributions to ornithology in India. The award consists of a medal and a citation.
https://bnhs.org/awards/salim-ali-national-award-for-nature-conservation/

The **BIRD CONSERVATION NEPAL AWARD** is awarded by Bird Conservation Nepal (BCN) to an individual or organization who has made significant contributions to bird conservation in Nepal. The award consists of a certificate and a cash prize.
https://www.birdlifenepal.org/page/awards

The **YAMASHINA YOSHIMARO AWARD** is awarded by the Yamashina Institute for Ornithology (YIO) to an individual who has made remarkable achievements in ornithology or related fields in Japan or abroad. The award is named after Yamashina Yoshimaro, a Japanese ornithologist and founder of YIO. **https://www.yamashina.or.jp/english/award.html**

The **SRI LANKA WILDLIFE CONSERVATION SOCIETY AWARD** is awarded by the Sri Lanka Wildlife Conservation Society (SLWCS) to an individual or organization who has made outstanding contributions to wildlife conservation in Sri Lanka. The award consists of a plaque and a citation. **https://www.slwcs.org/awards**

INTERNSHIPS

https://ornithologyexchange.org/funding/portal/

FIELD ASSISTANT POSITION - NEST MONITORING IN ESWATINI: This position is offered by the Wageningen University and Research and involves monitoring nests of four bird species in Mbuluzi Game Reserve, Eswatini. The position is for six months, starting in September 2023. Applicants must have a bachelor's degree in biology or a related field, experience with nest searching and handling birds, and a willingness to work in remote conditions. **https://ornithologyexchange.org/jobs/board/short-term-positions/field-assistant-position-nest-monitoring-in-eswatini-r19802/**

RAPTOR MIGRATION MONITORING VOLUNTEER CREW-MEMBER (daily stipend): This position is offered by the HawkWatch International and involves counting and banding migrating raptors at one of seven sites across the western U.S. The position is for two to three months, starting in August or September 2023. Applicants must have previous experience with raptor identification, banding, or trapping, and be able to work long hours in variable weather conditions. **https://wfscjobs.tamu.edu/jobs/raptor-migration-monitoring-volunteer-crewmember-daily-stipend/**

BARTELS SCIENCE ILLUSTRATION INTERNSHIP: This internship is offered by the Cornell Lab of Ornithology and involves creating illustrations of birds and other wildlife for scientific publications, exhibits, and education. The internship is open to Cornell undergraduates who would conduct the proposed project during the summer in collaboration with a Cornell Lab of Ornithology faculty or staff member. The internship duration and stipend are negotiable. **https://www.birds.cornell.edu/home/jobs/**

ORNITHOLOGY INTERNSHIP: This internship is offered by the Georgia Museum of Natural History and involves working in the Ornithology Collection. The internship is open to students who are enrolled in BIOL, ECOL, or FNAR 4261 (Museum of Natural History Internship) at the University of Georgia. The internship duration and credits are negotiable. **https://gmnh.franklin.uga.edu/internship-information**

WISCONSIN SOCIETY FOR ORNITHOLOGY VOLUNTEERING OPPORTUNITIES: Seeking volunteers to help in various positions to transform into a more effective advocate for bird conservation. **https://wsobirds.org/volunteer**

Keel-billed toucans (Ramphastos sulfuratus), Unsplash.

CREATIVITY AND COLLABORATION IN ORNITHOLOGY

REACH OUT

I welcome your comments and suggestions on this newsletter,
as well as any information you would like to see in the next issue of ***The Flutter***.
You can contact me at the address below.

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The next deadline for IOU members' submissions for *The Flutter* is

10 SEPTEMBER 2023

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VOLUME 5 · ISSUE 3 · AUGUST 2023