

Book of Abstracts

BIRD OBSERVATORIES FLOCK TOGETHER



ABSTRACTS

Sorted according to their appearance in the schedule

Thursday 28th:

Iris Han, The Society for the Protection of Nature in Israel, Ha Negev 2 Tel Aviv, Email: irish@spni.org.il

Outreach and Education

Introduction to the Society for the Protection of Nature in Israel

The Society for the Protection of Nature in Israel (SPNI) is the leading, oldest and largest environmental nonprofit organization in Israel. Since 1953, SPNI has dedicated itself to protecting and preserving Israel's natural resources, environment and unique landscape through the tools of science and public policy, and through education and activism. SPNI works tirelessly with policy makers, youth groups and the general Israeli population to create a sustainable future for Israel.

SPNI's goals

- To protect the natural habitats and biodiversity of Israel
- To strengthen, through education and fostering the love of nature, the ties of Israelis to their environment and the flora and fauna of Israel
- To increase decision makers' awareness about environmental issues and improve their willingness to act to protect the environment and promote sustainable development through legislation
- To create awareness among the public about the need to protect nature and the environment Conservation and Nature Protection

SPNI works to protect biodiversity hotspots and mitigate damage from encroachment, and to develop sustainable solutions to environmental issues in Israel, including: energy policy, marine and fresh water management, protecting Israel's endangered species, transparent and sustainable planning and fisheries management. The Israel Ornithological Center protects the habitat for the 500-plus resident and migrating species of birds that rely on Israel's fresh water sources along their journey. Education

SPNI has changed the face of environmental education in Israel developing programs and curricula which are used by the Ministry of Education in schools nationwide. SPNI carries out formal and informal educational activities, engaging with Israelis across the social and cultural spectrum including the Ultra-Orthodox, Arab-Israelis, Bedouins and new immigrants.

Eco-tourism: Field Schools and the Israel National Trail network:

SPNI operates Israel's network of 11 field schools, situated in Israel's most striking natural areas. These are used as bases for excursions and hikes, a central pillar of Israeli culture. Tens of thousands of tourists, hikers, nature lovers and students enjoy these facilities each year. Each month SPNI organizes dozens of guided hikes and activities across the country in which anyone can participate.

SPNI is also responsible for originating and blazing the Israel National Trail, and maintaining more than 10,000 km of hiking trails all over Israel.

Community Activism

SPNI operates community branches in Israel's largest cities: Tel Aviv, Jerusalem, Haifa, Beer Sheva and Modiin. Our communities are locally managed, focusing on the unique challenges facing each city. They are hubs for green social activism and creating a sustainable and higher quality of life for residents. Through the communities SPNI strengthens civil society, trains decision makers, protects open spaces and preserves urban nature sites; for the public and with the public.

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Outreach

Featured

The story of the Israeli Bird Observatories

The field of birding in Israel developed fairly recently. Until the 1960's there was almost no birding activity in Israel, and nearly all information on the birds of Israel came from visitors and researchers who came to the country and then wrote about their observations.

The first research in Israel was a bird ringing project in the 1960's on the saltmarsh of Eilat, conducted by a team of researchers from the Smithsonian Institute in the U.S.A.

The first birding point in Israel was established by the late Shalom Zuaretz at the fish ponds on Kibbutz Ma'agan Michael, south of the city of Haifa, on the coast of the Mediterranean Sea.

In 1980 Yossi Leshem established the Raptor Information Center, which eventually became the Israel Ornithological Center.

The birding center in Eilat was the first to be called a Bird Observatory. Shmulik Taggar, from Eilat municipality established the observatory with Yossi Leshem from the Society for the Protection of Nature. The center in Eilat was run for 20 years by an

association of many groups, however during the last few years this association dissolved and is now managed in cooperation with: Eilat Municipality, KKL, the Society for the Protection of Nature, the Israel Nature & Parks Authority and the Eilot Regional Council.

In 1994 the Jerusalem Bird Observatory was established by two young birders: Gidon Perlman and Amir Balaban from the Israel Ornithological Center of the Society for the Protection of Nature.

In 2011 the Society for the Protection of Nature initiated the National Network of Bird Watching Centers. Today there are 7 Bird Watching Centers all over Israel. At the same time, KKL Fund is establishing a network of bird watching centers at additional sites in Israel.

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Outreach

The Internet of WildlifeTM- connecting technology and wildlife to answer the big conservation questions of today and tomorrow

Connectivity in our everyday lives is something we all have gotten used to, both consciously and subconsciously. Whether it's the watch on your wrist uploading data to the web and then providing you analyses on your phone, or your phone triggering a connected device in your home when you cross an invisible geofence, we use connected networks every day. Until now wildlife tracking devices have been designed to work within a single platform (GSM, ARGOS, etc.), where every device communicates directly with a specific network. The Internet of Wildlife[™] (IoW) leverages each organism in the network to intelligently collect and send information from one organism to the next allowing researchers to collect biological data never before possible. For example, with IoW small passerines transfer data to turtles, otters to gulls, whales to albatrosses; bigger animals can transmit to the internet and/or satellites so that the entire

multi-species data stream ultimately reaches the researcher. This kind of intelligent data mesh network enables remote tracking of the smallest organisms. The IoW mesh network leverages existing network infrastructure, thereby reducing the need to deploy costlier infrastructure specific to certain type of wildlife tag, e.g., ICARUS. The CTT IoW will revolutionize how animal movement data are collected and how researchers and wildlife work together to answer big questions and ultimately help conserve species world-wide.

Noam Weiss, The International Birding and Research Center Eilat, The Society for the Protection of Nature in Israel, P. O. B. 774, Eilat 88000, Israel. Email: noamw@spni.org.il

Outreach

Featured

The International Birding & Research Center, Eilat – How we recruit our community for nature conservation of the flyway

Noam Weiss, The International Birding and Research Center Eilat, The Society for the Protection of Nature in Israel. Eilat, Israel.

On the only land bridge connecting Eurasia and Africa, on the edge of the barren Sahara desert, stands one of the most important stopover sites globally for migratory birds. An old saltmarsh, disrespected by humans, is now a thriving bird observatory. And not just for birds- it also brings people. Our one goal is keeping the flyway safe in spite of the rapid development of the area. Since the natural food resources in our area were destroyed by development we base our efforts on our local community, creating a bird observatory which is a great stopover site for the migratory birds but at the same time a hub for community based nature conservation. We need our community to safeguard the existence of the bird sanctuary in the middle of a real estate gem, or to support our nature conservation campaigns against hazardous infrastructure. We need our community as volunteers who help with monitoring, research, guiding and maintenance of the habitats, as well as improving their home gardens and places of work as manmade stopover sites for the birds. So how do we do that? At our bird sanctuary and we are welcoming, helpful and always positive. We invite our community to get involved by at least five yearly communal events held at the bird sanctuary, 2 days long, thousands of participants, free entrance, and an open to the public ringing station. We created an identity component to a town that includes bird migration through projects like "The Eilati Bird" and educational programs we run. We made the bird sanctuary a hub for culture and fun in nature and we are an important volunteering opportunity to young people and adults. We are also the regional source of knowledge about birds, provide advice, and help for farmers, the municipality and we even help the airport to prevent plane's collisions with birds.

You may see the strength of our community when we run a nature conservation campaign, organize a communal event or conduct a large-scale survey. However, our real power lies in everyday life when a decision maker or an investor understands that Eilat is not the place for wind turbines, glass made buildings or cable held antennas, because it is the "town of bird migration".

Alena Kacal, Jerusalem Bird Observatory, The Society for the Protection of Nature in Israel, Jerusalem, Israel. Mailing address: Hanegev 2, Tel Aviv. Email: <u>jbo@inter.net.il</u>

Outreach and Education

How can bird observatories better serve and outreach to birdwatchers – results of a survey of birdwatcher in Israel

Alena Kacal, Jerusalem Bird Observatory, The Society for the Protection of Nature in Israel, Jerusalem, Israel

Birdwatching is a growing pastime in Israel and one of the most important pastimes around the world. Bird observatories can often act as an important education and program centers for birdwatchers of all levels. Birdwatchers are also an important resource for citizen science and fundraising for many observatories. However, to best understand how to serve, support and outreach to birdwatchers, it helps to understand who they are and what they are interested in.

In Spring 2018, a survey was conducted of birdwatchers in Israel and the answers were analyzed to see what factors affect participation, motivation, identity and level of involvement. One major factor that was identified was gender. Other factors include age, age started birding and level of expertise. Alen will present some of the results of the survey and discuss some of the implications for programing, outreach and development.

Nir Sapir, Animal Flight Laboratory, Department of Evolutionary and Environmental Biology, University of Haifa, Haifa 3498838, Israel. Email: <u>nirs@sci.haifa.ac.il</u>

Research and Monitoring

Featured

Avian life-history, ecology, evolution and global change biology studied by bird feather moult

Yosef Kiat^{1, 2} and Nir Sapir¹*

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² Israeli Bird Ringing Center (IBRC), the Society for the Protection of Nature in Israel, Israel.

Feather moult is an important annual cycle process in passerines. Routine recoding of the primary moult score in bird ringing stations is expected to substantially advance our knowledge regarding the causes, patterns, mechanisms and consequences of bird feather moult. We specifically present how the quality of nest-grown feathers is subject to trade-offs in resource allocation, such that feathers that need to function over a long period are produced in high quality. We also demonstrate how ecological properties may modulate the speed of moult such that highly aerial species moult their feathers slowly and by that limit the reduction in their wing surface area for minimizing the aerodynamic consequences of moult. Using field and museum measurements from ten natural history collections we additionally describe how global warming over the last 200 years altered the extend of the post-juvenile moult passerines. We found that in most species, the extent of the post-juvenile moult has increased, making the birds to appear more adult-like. This may positively affect the birds' sexual selection and breeding opportunities at young age but may nevertheless expose them to increase competition from adult birds. Moreover, the response of females was greater than that of males and this difference was stronger in species with a substantial difference in colour between the sexes. We conclude that a better knowledge of bird feather moult is essential for our understanding of avian ecology and evolution

and the routine collection of feather moult data during ringing may substantially advance our understanding of bird biology.

Friday 29th :

CJ Ralph, Klamath Bird Observatory. Email: cjralph@humboldt1.com

Featured

Three generations of bird observatories in the Americas: what have they done, where are they going, and how to keep them going?

I will present an overview of the evolution and processes involved in creating, growing, and sustaining bird observatories. I will ask, "what makes bird observatories more (or not so much) successful?" We are all aware of the many important accomplishments of observatories (e.g. publish important scientific findings and influence political change for improved conservation). We are also aware of the multitude of motivating values and paths that characterize bird observatories. But which values and paths are most critical for success? I have had the privilege to observe three generations of bird observatories on several continents. My observations of how the questions they have asked, and the technologies and methodologies that they have developed and promoted, provide insights into what the observatories of today should consider in order to fit in and survive in constant change.

Most obvious to me has been the different kinds of program paths that bird observatories take on. I will compare about a dozen such programs and critically examine how they have shaped bird observatory models. These include the: (1) *Science-based Models* (involving capture to determine strategies of demography and molt); (2) *Abundance-Based Models* (involving habitat relationships, breeding biology, and migration strategies and routes); (3) *Education Model*; (4) *Taxon-specific Model*; as well as the last (and some would say least), the (4) *Observatory as a Consulting Firm Model*. Within these models, how can you best go about marketing and promoting your bird observatory?

To answer this, it is important for us to agree upon specific metrics of success that can be used to compare the different models. I will show how we can use metrics relating to staffing levels, budget and finances, active partnerships, use of web-based and social media, and products such as publications, all can be used to compare bird observatory models while holding constant the age and maturity of each bird observatory. Important is the promotion of Keystone Projects -- ones that your audience uses to identify your bird observatory and ones that set you apart from your competitors (aka "partners").

The key to all this is, of course, the finances: you must determine who your audiences are for data, education, and other products. Is it birders, government agencies, scientists, individuals, or environmental consulting firms? Finally, in regards to implementation, I will talk about the essential key role of staff, comparing the relative roles of scientists, biologists, and volunteers... and, oh yes, the administrators.

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Research and Conservation

Oral

The National Institute for Ornithological Research (NITOOR) - a novel concept to promote ornithological research and conservation in Israel

Eshel Ophir, The National Natural Collections, The Hebrew University of Jerusalem, Jerusalem, Israel The unique bio-geographical location of Israel makes it a meeting point between fauna and flora of three continents and a corridor for the passage of a major portion of the migratory birds of the Western Palearctic. Thus, hundreds of bird species in this biodiversity hotspot are extremely vulnerable to ecosystem changes. Monitoring such local changes to the avifauna and their possible global impacts is crucial to mitigate for biodiversity losses.

For this purpose, we recently launched a new initiative - The National Institute for Ornithological Research (NITOOR). This joint venture of SPNI and The Hebrew University, aims to establish a national and international ecological research infrastructure, based on a network of well-equipped ornithological field stations dispersed throughout Israel. NITOOR will form a scientific backbone to an existing network of well-established bird observatories that through applied ornithological research will better monitor and manage changes in Israel's avifauna. This infrastructure for wildlife research and outreach is readily available for a professional upgrade to meet the highest scientific standards.

The global biodiversity importance of this region requires large-scale facilities and combining forces of leading research institutions, government agencies and conservation NGOs, that will support global scale ecological research projects.

We believe that growing into a wide and strong consortium NITOOR will contribute significantly to allocation of resources to promote ornithological academic studies and conservation as well as regional cooperation and cross-border actions.

Thus, we call for environmental organizations and universities from Israel and from abroad to take part in this initiative.

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Conservation Applications

Oral

Conservation of declining species through bird observatories, experiences from the highlands of Costa Rica

Pablo Elizondo*, Costa Rica Bird Observatories, Santo Domingo de Heredia, Costa Rica; US Department of Agriculture, Forest Service, Pacific Southwest Research Station, California, USA; Klamath Bird Observatory, Ashland, Oregon, USA.

In Costa Rica, a considerable number of resident and Neotropical migratory birds have shown significant declines in recent years, correlating with the reduction of available forest cover in tropical countries, limiting viable populations.

Bird observatories play a critical role in conservation of these species, as they have the opportunities to fill in the gaps and serve as linkages between the science provided through demographic monitoring and the implementation of conservation actions.

Through experiences of more than 25 years of applied research, education and conservation, the Costa Rica Bird Observatories have been able to implement direct measures for the protection of habitat suitable for the Golden-winged Warbler, a species with an approximate annual decline of 3%.

CRBO implemented the first program for ecosystem payment services based on birds in the region, being able to develop models for prioritizing areas of high importance for the Golden-winged warbler, in the highlands of Costa Rica. The program was coupled with habitat restoration and environmental education, conducted and informed by the bird observatories including the direct conservation of about 2000 hectares of forest under conservation easements, ensuring suitable habitat for about 0.20% of the global population, and more than 700 kids undergoing an intensive bird conservation educational program.

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Oral

The Jordan valley Birdwatching Center: Towards peaceful solutions of conflict between birds and farmers.

The Jordan Valley, located in Northern Israel in the Great Rift Valley, is also a busy migration flyway and an important stop over site. A decade ago, the valley was a swamp, fed by numerous springs. However, the growth of human presence dried up the swamps and made them into fields and fishponds that produce large revenues. As expected, the migratory birds such as storks and Pelicans keep using the alternative man-made "wetlands" and fields. Thus the tens of thousands of Pelicans, who need to feed before the challenge of crossing the dry Sahara Desert, now create serious damages to the farms. This conflict resulted in chasing away the Pelicans from their food sources, illegally killing them and the construction of a set of nets over the ponds, which killed scores of innocent birds. Another well-known conflict involved farmers using rodenticides that created secondary poisoning of a large portion of the local and migratory predators, including thousands of Raptors.

We put our efforts in finding solutions that will safeguard the avifauna and the habitats by finding creative alternative solutions for the farmers. We came with solutions of feeding Pelicans in remote locations, offering the farmers to replace their nets over the ponds with less hazardous infrastructure and research. We were also involved in introducing the Barn Owl and Kestrels as biological pest controllers in the fields and changing the irrigation methods, which slowly replaced the need of rodenticides. To make our efforts grow roots we conduct communal and educational activities in our farmers' communities in the form of agricultural guidance, farmer's workshops and educational programs for the schools. Some of the work done made a real change and some is still a challenge.

The work described here is led by the Society for the Protection of Nature in Israel in our region. We are here to continue and promote, with constant collaboration and mediation between the farmers and the nature conservationists.

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Conservation capacity building and monitoring

Oral

Mangrove regeneration project implication on migratory bird

One of 9 protected Areas in the Gambia, Niumi National Park (NNP) encompasses a land area of 7,758 hectares located in the North Western most part of the Gambia across the river with its extension into the southern tip of the Sine-Saloum Delta which is a complex network of wetlands in the Republic of Senegal. The fauna of the area is diverse though not exceedingly abundant and includes different species of birds both resident and migratory, West African Manatee (Ticheus Senegaensis) and Atlantic hump-back Dolphin (Sousa Teusii). NNP occupies the costal strips of the north bank of the river Gambia and coves approximately 7,758 ha of which 4,940 ha of terrestrial and 2, 818. Ha of marine ecosystem. The total coverage of mangroves is 1,690 ha out of which 50.7 ha are degraded to natural and anthropogenic activities.

The 2003 census puts the total population of the villages at 33, 146 inhabitants with a growth rate of 2.7%. The resident and peripheral villages are dependent on the park for numerous activities including the production of rice, millet and groundnuts, fishing and oyster collection, provision of timber and wood for cooking and construction purposes, raising stock (cattle, sheep and goats) and seasonal collection of salt. Declining rainfalls, climate change and unsustainable use and practices by the communities of the park resources have taken a significant toll on the ecosystem, functions and services provided by the park over the years.

There are eleven (11) peripheral villages live around NNP. Three (3) of the villages are located within the Park area itself. Bakindik Koto is the only village located within the mainland area of the Park while the other two villages of Jinack Niji and Jinnak Kajata are located on the north-eastern end of the Jinack Island. This strategic project funded by GEF-small Grants program specifically sets out to restore the ecological functions and environmental services of NNP. The project has the following specific objectives Restoration of about 40 hectares of mangroves in the wetlands art of the park, enhancing the capacity of the local communities in environmental conservation including mangroves regeneration, tree planting and sustainable resources exploitation practices. Promoting sustainable livelihoods of the women folk through vegetable garden schemes and aquaculture

Promoting eco-tourism activities by improving par infrastructure facilities such as construction of a visitor's center, provision of 2 boats, construction of 2 photo hides and a bid watching tower.

Planting trees as windbreaks and on the degraded upland areas of the park.

This lesson was learnt after planting 40 hectares of degraded areas - we saw fish started to come back and breed on the mangroves whilst the migratory bird started coming back because of the population of fish increased.

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Awareness building and Outreach

Oral

Community bird conservation: the case of the association Nature-Communautés-Développement (NCD) in Senegal.

For a long time the prerogative of large international organizations, bird conservation is gradually becoming the business of small national organizations. In Senegal, since its creation in 2010, NCD has positioned itself as a Community Executing Agency whose aim is to mobilize volunteers and volunteers and their scientific and technical expertise in favor of community-based bird conservation for integrated local development. Through the development of a strong partnership with international reference bird structures such as BirdLife, RSPB, VBN, NCD has succeeded in such a short time in creating local site support groups and training dozens of volunteers and ecoguards on bird identification and counting. This has enabled the six regional centers to have competent resource persons to strongly support the conservation actions of decentralized State services. This good and very profitable collaboration with the State means that, since 2011, NCD has been involved and made responsible in all national annual waterbird census and regular monitoring operations. NCD volunteers are often solicited as trainers during these capacity building meetings. In addition to training, NCD also works in awareness raising, advocacy, environmental education and scientific research for better bird conservation in, near and outside protected areas.

The execution of all those actions means that today NCD has an important database on birds and their habitats.

Yoram Zvik - Hoopoe Ornithology & Ecology Center, Israel,

Conservation

Oral

Boats or Birds: Yeruham Birding Center - A Case of Grass-root Conservation

In the mid 1950's a dam, built at the Yeruham ridge caused the creation of a water reservoir called "Yeruham Lake". A man–made forest and groveplanted by KKL-JNF around this new "lake" completed the habitat now known as Yeruham Park.

The park became an ecological hot-spot that attracted many animals - especially wintering, nesting and migrating birds.

During the 90's, an accident caused raw sewage to flow into the lake. Following this event the authorities declared the entire area as a restricted zone. Ten years ago, after a new sewage treatment center was built by KKL-JNF, the local municipality started to re-plan the park. As part of this process, some highly intensive recreational plans were suggested. RTV vehicles and boats were about to change the ecological character of the place.

A continued bird ringing and community education activitybeing held by the Hoopoe Ornithology & Ecology Center, provides significant data on the importance of the park as a refuge for around 270 different bird species. This data served as a crucial leverage for local decision makers together with KKL-JNF, who decided to keep a significant part of the lake and park as a reserved ecological area, and to create a joint Birding Center of KKL-JNF Wing and Hoopoe Ornithology & Ecology Center.

Stuart A. Mackenzie, Director, Migration Ecology, Bird Studies Canada – Long Point Bird Observatory, PO 160, 115 Front Rd., Port Rowan, ON, N0E1M0 Email: smackenzie@birdscanada.org

Research and Monitoring

Oral

The Motus Wildlife Tracking System: working collaboratively to cover more ground

Automated radio-telemetry was conceived in the 1960s to monitor the local movement of animals with greater temporal precision than was possible using manual tracking. Today, radio-telemetry remains the primary means to track small animals with high spatial and temporal precision. A desire to apply the technology to the study of movement behavior at broader spatial scales led to the development of the Motus Wildlife Tracking System (Motus), an international collaborative research network that uses coordinated automated radio telemetry arrays to study movements of small flying organisms. Since 2013, hundreds of collaborating researchers and organizations have built an array of more than 600 monitoring stations across 27 countries, and undertaken more than 230 projects tagging more than 16,000 animals of 180+ species (birds, bats, and insects). Researchers collaborating in the network benefit from detections of their tags at stations maintained by others, and from t0068e data processing, management, visualization, and analytical tools developed by Bird Studies Canada and other collaborators for users. In complement to other tracking technologies, Motus is allowing researchers to work together to answer important ecological questions about the movement behavior of small animals. Going forward, we envision an open-source platform that allows interoperability with alternative technologies and data portals (e.g., ICARUS, MoveBank), and where users can contribute to the development of Motus through technology and analytical tool development.

Pedro Martins, Mantiqueira Bird Observatory, Brazil. Email: pedrovrima@gmail.com

Research and Monitoring

Oral

Bringing data collection to the XXI century: Advantages and disadvantages of the use of technology on wildlife surveys

Pedro Martins*, Mantiqueira Bird Observatory, Brazil Luiza Figueira, Mantiqueira Bird Observatory, Brazil Raquel Justo Santos, Mantiqueira Bird Observatory, Brazil

From the famous Pearson's human computers, in the beginning of the 20th Century, to software like SAS and R, the ease and speed of doing data analyses has increased exponentially. Getting the data ready and entered, however, for doing analyses is still a long and error-prone process. The default procedure nowadays is to collect data on paper, use some software to digitize the data and then look for inconsistencies in the dataset. The evolution of portable devices technology, such as tablets, and recent advances on cellphone apps, such as eBird and Dunkadoo, opens the possibility for wildlife researchers to collect their data digitally, skipping several steps along the way.

The transition from a physical to a digital medium might raise some concerns. It is essential to have ways of assuring the safety of the data collected and the reliability of the device used. If these obstacles can be surmounted, there are several advantages in using digital media for collecting data. Skipping the process of data entering reduces both the amount of errors and time and money spent in this process. The use of digital media to collect data also creates new possibilities: on-the-fly information about the species captured, unlimited number of data fields, integrated management of effort and captures, among others. In this talk I will discuss some pros and cons of digital data collection, and present the methods we have been developing at Mantiqueira Bird Observatory for digitizing data collection.

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Research and Monitoring

Oral

Remote sensing of avian habitat for restoration in fire-prone chaparral landscapes

David Schimel*, NASA-Jet Propulsion Lab, Pasadena, California, USA, Susan Bonfield, Environment for the Americas, Boulder, Colorado, Erin Questad, California State Polytechnic University, Pomona, California, Natasha Stavros, NASA-JPL, Pasadena, California, USA, Fabian Schneider, NASA-JPL, Pasadena, California, , Antonio Ferraz, NASA-JPL, Pasadena, California

The Mediterranean-climate chaparral of Southern California is habitat for diverse migratory and resident birds. Fire frequency is high in our study area, the Angeles National Forest, with 60% of the area burning within the previous 24 years. Burned areas therefore affect habitat dramatically, and post-fire restoration may have a significant impact on bird communities. The high fire frequency and extremely rugged terrain challenge traditional habitat monitoring but the area has been used as testbed for new remote sensing technologies by NASA's Jet Propulsion Lab and so has frequent and ongoing coverage with new sensors. We initiated an integrated study of avian community composition, field vegetation surveys and analysis of vegetation community composition and structure from airborne spectrometers and lidar to assess the utility of remote sensing for mapping avian habitat. The avian community studies showed significant associations between certain bird species and particular plants, field vegetation surveys showed these species to have welldefined elevational limits and remote sensing was able to map the extent of some key species, or correlated plant communities. We conclude that the combination of Lidar, for three-dimensional habitat structure and spectroscopy, identifying key plant species, is useful for assessing bird habitat at large scales and provides guidance for managers who are restoring structure and plant key species needed for bird habitat, post-fire. Lidar and spectroscopic data, used here from aircraft sensors, is or will soon be available from spaceborne sensors such as Israel's planned SHALOM instrument among others, and thus available for similar studies worldwide.

Susan Bonfield, Environment for the Americas, 5171 Eldorado Springs Drive, Boulder, CO 80303, USA. Email: sbonfield@environmentamericas.org

Conservation Applications

Oral

Using remote sensing of avian habitat to direct bird conservation

Susan Bonfield*, Environment for the Americas, Boulder, Colorado David Schimel, NASA-Jet Propulsion Lab, Pasadena, California, USA, Erin Questad, California State Polytechnic University, Pomona, California, Natasha Stavros, NASA-JPL, Pasadena, California, USA, Fabian Schneider, NASA-JPL, Pasadena, California, , Antonio Ferraz, NASA-JPL, Pasadena, California

Restoring habitat after fire for birds is complicated by lack of information about the plant communities on which diverse bird species depend. On the Angeles National Forest in Los Angeles, California, 60% of the area has experienced fire within the past 24 years. Forest managers are working to direct their restoration efforts for the benefit of the landscape, e.g. soil stabilization, as well as for native wildlife, but have few tools to help them select plants and identify target areas. Using both field vegetation and point count surveys in conjunction with airborne spectrometry and Lidar measurements, we examined the relationships between post-fire vegetation and bird communities to inform restoration. The avian community studies showed significant associations between certain bird species and particular plants. Field vegetation surveys showed these species to have well-defined elevational limits and remote sensing was able to map the extent of some key species, or correlated plant communities. A particular focus of the study examines revegetation post-fire for the benefit of hummingbirds, which depend on floral nectar resources throughout their life cycles. We found that 50% of hummingbird foraging by four species was on two plant species. Results like this help land managers determine if they can depend on spectrometry and Lidar measurements to direct their restoration efforts. We conclude that new technologies to map plant communities and, specifically, bird habitats, may benefit restoration efforts that contribute to bird conservation and management and provide rapid updates in dynamic landscapes and comprehensive data in challenging terrain.

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Research and monitoring

Oral

Migratory waterfowl and dissemination of Influenza A virus – how can bird observatories contribute to epidemiology?

Jonas Waldenström^{1,3}, Magnus Hellström³, Björn Olsen^{2,3*}

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- 3. Ottenby Bird Observatory, Kalmar, Sweden

Few viruses have had such large effect on humanity as influenza A virus (IAV). Apart from regular seasonal outbreaks of respiratory disease in humans, IAV's have caused pandemics with high mortality. The natural reservoirs of IAV are dabbling ducks and gulls. Pandemics are the result of interspecies transmission events, followed by adaptations to new hosts. Because all IAV subtypes exist in the aquatic bird reservoir, it is not an

eradicable disease; monitoring, prevention and control are the only realistic goals. If people, pigs, and aquatic birds are the principal variables associated with interspecies transfer of IAV and the emergence of new human pandemic strains, surveillance in these species is indicated.

The duck trap at Ottenby has been operating since 2002. Over 15 000 ducks have been caught, and many of them retrapped during stopover, resulting in > 50 000 samples. From the fecal samples more than 2500 IAV of most subtypes have been isolated and characterized. Prevalence dynamics of IAV subtypes are influenced by year, but retain a common pattern for all years whereby prevalence is low in spring and summer, but increase in early autumn with a first peak in August, and a second more pronounced peak during October–November.

Notable was the finding from 2002 of AIV H7N7 in fall migrating Mallards at Ottenby. A few months later, in winter/spring 2003, the virus was introduced to the wintering grounds in Holland causing a huge poultry epizootic and resulting in several cross-over infections to humans, including a fatal case.

Magnus Hellström. Ottenby Bird Observatory, Ottenby 401, 386 64 Degerhamn, Sweden. Email: <u>magnus.hellstrom@ottenby.se</u>

Research

Oral

Long-term surveillance of influenza A viruses in migrating wild duck populations – background and setup

Ottenby Bird Observatory in SE Sweden is situated in the funnelling Baltic parts of the East Atlantic waterfowl flyway with more than 2 million birds, primarily of Russian origin, passing each autumn. In 1962, a large duck trap was constructed and a ringing program for dabbling ducks initiated. The program resulted in c 14 000 ringed ducks up to 1983 when the trap was deactivated. In 2002, the ringing program was reinitiated, this time in order to study different avian infections, in particular influenza A viruses.

The project is run as a cooperation between the bird observatory and academia. During the years 2005-2011 funding was primarily obtained from governmental sources, following an EU directive on mandatory national monitoring of influenza viruses in wild birds. Throughout the project, a firm basing to academia has meant that results have been widely used for science with c 45 published papers and >10 PhD and post-doctoral students involved in the work.

Since 2002 over 15 000 ducks have been ringed, and many of them retrapped during stopover, resulting in > 50 000 samples. The proportion of recaptures is very high which gives unique opportunities to follow individual infection histories and immune responses to infection. During recent years a large scale geotracking project of ducks have been initiated in order to map flyways, giving us better understanding of the potential temporal and spatial spread of influenza A viruses via wild ducks.

Gerard Troost ^{1,2}, Arjan Boele ^{1,2}, Adri Clements ¹, Clive McKay ¹ and Björn Malmhagen ³ Research and Monitoring, Outreach and Education

Featured

Towards a Centralized Platform for Storing and displaying data The benefits of an online website and database for Bird Observatories based on the example of Trektellen.org

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² Sovon - Dutch Centre for Field Ornithology, Nijmegen, The Netherlands.

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This workshop comes in 2 parts. In the first part we will introduce the existing Trektellen system. In the second we will do a workshop to see what features we need in a centralized (recording) platform.

Introduction

Standardized monitoring such as visible migration counts, sea-watch counts and constant effort ringing are a central part of the activities at most Bird Observatories. Making and keeping these results available in a standardized way for research and conservation can be time consuming, especially if you are more interested in birds than in databases.

Since the inception of the Trektellen website and online database in 2002 over 750,000 "lists" from migration counts and ringing sessions have been submitted to the database. Counts from 1000+ sites across Europe and elsewhere are currently entered on a regular basis. In addition, hundreds of bird ringing stations share their daily results with the public via Trektellen.

In this workshop we will first focus on the history and current status of the Trektellen platform, the different types of users, recent developments in participation and some examples of the display tools available.

Next, we will take a look at the types of Trektellen features that can be used by Bird Observatories to present the results of their standardized counts via their own websites.

We also describe the impact on both Trektellen users and the general public of having results available during or immediately after the migration count.

Workshop

Based on what you have heard in the first part we will break up into small groups and discuss topics such as data accessibility, ownership, protocols, funding and steering committees etc. At the end of the workshop we will share the outcome of the results from each group and briefly discuss how to move on.

We hope that this workshop will result in a common idea on how a centralized platform tailored to the needs of Bird Observatories to store, to share and to display their valuable data may look.

Magnus Grylle, Falsterbo Bird Observatory, Fyrvägen 35, SE-239 40 Falsterbo, Sweden. Email: magnus.grylle@gmail.com

Outreach and Education

Oral

Information and data sharing through birdobservatories.com

At the first IBOC in Falsterbo 2014 a decision was taken to develop a digital platform to link together general information in one place about all bird observatories around the world. Now, for approximately one year, birdobservatories.com has been operational. Approximately 70 bird observatories have signed up and have

become members to date. Some members already provide "news" to birdobservatories.com (BO) via their regular websites. Through this, the BO site is now regularly populated.

The next possible step is to share and publish observatory data through the BO site. Some initial testing has been done in collaboration with trektellen.org.

In this presentation general information and data sharing results and challenges will be covered. Some possible solutions for observatories related to data management, data publishing and sharing will also be covered.

Yoav Perlman, Israel Ornithological Center, Society for the Protection of Nature in Israel, 2 Hanegev St., Tel Aviv 66186, Israel. Email: yoav.perlman@gmail.com

Research and monitoring

Oral

The role of bird observatories in monitoring the state of Israel's birds

Israel has a high regional and international importance as a hotspot for avifaunal diversity. Monitoring migrant bird population at this bottleneck may have global implications, and local conservation implications for stopover site management. Monitoring the state of the diverse breeding avifauna has important local conservation implications.

To monitor the state of Israel's birds, Israel Ornithological Center operates a national bird monitoring scheme, that brings together various research and monitoring resources to create an overview of the state of Israel's birds. A national network of bird observatories is a major data contributor to the scheme, especially of migratory species. The network collects standardized monitoring data that are used to determine temporal trends of selected species. Additionally, local trends of breeding species are made possible by standardized monitoring at bird observatories. This network will expand and adopt an academic structure in collaboration with the Hebrew University of Jerusalem, to apply more evidence-based conservation. Data from bird observatories contributed to the recently updated Red List of Israel's birds, produced in collaboration with Israel Nature and Parks Authority. Additional data sources contributing to the national monitoring scheme include targeted surveys and studies, especially of threatened species range, presence/absence and abundance. Actions to improve citizen science data quality are underway. Citizen science data will be used to create the first comprehensive national breeding bird atlas in 2020-2022. By this time, monitoring the state of Israel's birds will be totally data-based.

John D Alexander, Klamath Bird Observatory, PO Box 758, Ashland, Oregon, USA, Email: jda@KlamathBird.org

Conservation Application (alternatively Conservation Planning, Social Science)

Oral

How bird observatories can mediate environmental conflict through transparent conservation planning, scientific processes, and management-relevant research and monitoring

The Klamath Bird Observatory is a science-based and non-advocacy institution that focuses on conservation planning, applied research, and long-term monitoring to inform decisions regarding pressing natural resource management challenges. This focus positions us to mediate conflicts regarding natural resource management uses on public lands in the western United States. As such, we have been called upon to facilitate dialog among environmental activists, resource extractors, and land management agencies. We use science as a platform for facilitating dialog among parties that often have opposing viewpoints. I will provide two examples of how we have mediated such environmental conflict. The first involved a contested plan to use forest thinning as a tool for reducing fire hazards on a National Wildlife Refuge. The second related to changing livestock grazing policies on public lands that had been designated as a National Monument; this designation increased environmental protections on lands that had previously been multiple-use. The examples illustrate a unique role that bird observatories can play by using best practices in science delivery to help realize improved collaboration, sustainable management, and ecosystem conservation on public lands.

John Horton, Alderney Bird Observatory & Field Center British Channel Isles. The Nunnery, Longis Road, Alderney, The Channel Isles GY93YB. Email: raspberries@sky.com

Outreach, Marketing, Fund raising, Data collection

Oral

Conservation fund raising through corporate organizations. Connecting marketing and publicity with data collection. Raising awareness of bird ringing as a conservation tool.

The profile of bird ringing as an integral source of avian data has raised in the British Isles in recent years largely through increased media coverage. UK wildlife/conservation organizations such as the RSPB and the regional 'Wildlife Trusts' have also embraced bird ringing as a tool for data collection and education through public engagement/demonstrations.

For data recovery there is still a rather dated methodology in place that renders the collection of data from partnership organizations and moreover from members of the public to be laborious and for the latter group at best 'hit and miss'.

To improve on and move forward from the current system, we have approached 'Zeiss Ltd', one of the world's leading manufacturers of birdwatching optics, proposing that in return for funding we incorporate their company name within the embossed stamp on every bird ring we use (around 10,000 per yr. With advances in optics and cameras in recent years, 'ring reads in the field' by birdwatchers and photographers are becoming an increasing percentage of the overall return of data of ringed migrant birds.

Critically, these new 'British Channel Isles' rings also include a website address so that any finder of a ringed bird can potentially instantly report/enquire via internet enabled devices. Each ring will retain the traditional unique set of digits.

The transfer of information we believe will lead via this more user friendly and steam-lined method increase in the number of 'recoveries/controls reported, increase public awareness, raise funds for conservation and satisfy corporate marketing targets to Zeiss directly from its target audience. David La Puma, New Jersey Audubon's Cape May Bird Observatory, 600 Route 47 North. Cape May Court House, NJ 08210. USA. Email: <u>David.lapuma@njaudubon.org</u>

Outreach and Education

Oral

And then there were four: How a Friendship Agreement and the IBOC have increased connectivity between four bird observatories from around the world

Rob Adams¹, David La Puma² *, Stu Mackenzie³, Björn Malmhagen⁴, Nick Whitehouse¹. ¹Spurn Bird Observatory, Yorkshire, UK. ²Cape May Bird Observatory, New Jersey, USA; Long Point Bird Observatory, Ontario, CA ⁴Falsterbo Bird Observatory, Falsterbo, Sweden;

Since the first International Bird Observatory Conference in Falsterbo, Sweden, in 2014, three bird observatories have initiated monthly meetings via Skype to gauge interest in building stronger ties across the globe. Falsterbo Bird Observatory (Sweden), Spurn Bird Observatory (UK) and Cape May Bird Observatory (USA) developed an official Friendship Agreement in 2015 which outlined the goals and objectives of this partnership with a major focus on general information exchange, collaborative research projects, and fostering exchange opportunities for young professionals from each organization. During the second IBOC in Cape May in 2017 a plan was hatched to include Long Point Bird Observatory (Canada) into the Friendship Agreement and so three became four! This presentation will provide an inside look at the accomplishments, challenges, and aspirations of the four-way partnership and discuss how it may be a model for other multi-observatory arrangements. While the IBOC happens once every few years, smaller consortiums such as this one can be very effective means to delve deeper into cross-observatory collaborations and to learn more about bird observatory operations from a diverse array of similar organizations in the years between.

Nicole Büttner, Un poco del Chocó Nature Reserve & Biological Station, Las Tolas via Ayapi-Pachijal s/n, Gualea, DM Quito, Ecuador. Email: <u>unpocodelchoco@gmail.com</u>

Outreach and Education

Oral

Challenges and opportunities of establishing a network of bird observatories and a national bird banding scheme in Ecuador

Ecuador has the highest density of bird species of any country in the world. Yet avian research, especially demographical studies, are scarce and there are many challenges that limit the development of a coordinated country-wide program. The lack of a national banding scheme is a major obstacle. Little is known on molt patterns and molt strategies in neotropical birds, causing difficulties in age and sex determination. Additionally, long-term population monitoring only exists as part of a few independent projects scattered around the country. The Ministry of Environment, being the authority handing out research permits, doesn't have a centralized data base, making coordination and the exchange of information difficult. Furthermore, many individuals with permits capturing birds in Ecuador are not properly trained and training opportunities are rare.

To begin addressing these challenges, in 2018 local NGO's met to start building a network of bird banders and we set the following goals: promote ethics of bird banding in Ecuador, build a collaborative network to share knowledge and data, standardize measurements and techniques, provide training and certification opportunities, prepare identification materials for banders, and elaborate regulations for capturing and marking birds together with the Ministry of Environment.

Un poco del Chocó started a longterm bird monitoring program in 2014 which serves as a model for establishing a network of banding stations across private nature reserves in Ecuador. Such a network could fill the gap of demographic research and create training opportunities while enhancing environmental monitoring and providing data-rich conservation measurements in protected areas.

David Walker, Dungeness Bird Observatory, 11 RNSSS Cottages, Dungeness, Kent, UK. TN299NA. Email: <u>dungenessobs@vfast.co.uk</u>

Research and Monitoring

Oral

Bird Observatories are not just for the birds.

David Walker, Dungeness Bird Observatory

Can Bird Observatories do more to increase their value as wildlife recording units? Over the years the work at Dungeness Bird Observatory has been expanded to include a wide range of fauna and flora and this has flagged up many changes in populations of taxa other than birds. In a time of significant climate change these data sets have shown that some species could be used as indicators for monitoring climate change and that our geographical position and close proximity to the continent make us an ideal site for monitoring changes in populations of a range of normally under-recorded taxa.

Alexandre Vintchevski, APB-BirdLife Belarus, P. O. B. 306, Minsk 220050, Belarus. E-mail: vintchevski@ptushki.org

Conservation, Outreach, Research

Oral

Nature paradise in Chernobyl exclusion zone of Belarus: possibilities for research and tourism.

Palieski State Radio-Ecological Strict Reserve was established in 1988 inside of the Belarusian sector of the 30 km zone of the Chernobyl Nuclear Power Plant. Due to contamination with long-lived transuranium radionuclides, the territory cannot be returned into economic use in the foreseeable future. The Reserve is managed by the Belarusian Ministry of Emergency Situations. Total area is 217,173 ha, 68.6% is strictly protected zone, but it is open for researchers. Rest is an experimental economic zone. Since 2018 limited tourism is permitted in the zone.

It is one of the largest wilderness areas in Europe. Visitors must have special permits. The Reserve has a scientific unit. Structurally it is divided into 5 laboratories – environmental monitoring of radiation, plant ecology, animal ecology, radiochemistry, and laboratory of radiation measurements.

Bird checklist of the reserve has 227 species from 333 registered in the country. Since 1986 arable lands were abandoned and rewetted which followed with return of some species like White-tailed Eagle (15-20 pairs) and Spotted Eagle (7 pairs). Some mammals have also significant populations here: European Bison (157), Lynx (50), Przewalski Horse (31), Wolf (97) and Moose (2056).

The international researchers are welcome in the reserve. APB together with CCI, BTO, BirdLife International, RSPB, University of Cambridge is working on creation of Chernobyl' Environment Research Centre in the Reserve open for all institutions.

The Palieski Reseve is a site of high scientific interest in many fields (i.e. biological diversity and population dynamics, radionuclides migration, etc).

Ulf Ottosson, A.P. Leventis Ornithological Research Institute, APLORI, Nigeria Email: <u>ulfottossonlux@gmail.com</u>

Research and Monitoring, Outreach and Education, Conservation Applications, Organization Capacitybuilding

Oral

The African Bird Atlas Project – mapping the distribution of Africa's birds, promoting public engagement and building capacity for citizen science in Africa

Ulf Ottosson*, APLORI, Nigeria. Les Underhill, ADU and SABAP2. Colin Jackson, A Rocha, Kenya.

The African Bird Atlas Project (ABAP) was launched 2018. Though even before officially launched it was ongoing in southern Africa but, Kenya and Nigeria with technical support from the Percy Fitzpatrick Inst. of Ornithology. The project aims to engage volunteer members of the African public to collect and update information on the distribution of birds to be published in, e.g., national bird atlases for different African countries and in the process increase public awareness about biodiversity and environmental conservation in Africa.

The African Bird Atlas Project adopts the ongoing Southern Africa Bird Atlas Project (SABAP2). This protocol involves a dedicated minimum of two hours of watching and recording of birds within a pentad. A pentad is the basic sampling unit of the grid system which is based on the coordinate system measures $5' \times 5'$ of latitude and longitude, approx. 9x9 km at the equator. Bird lists are submitted via the project web portal or, preferably, in real-time using the dedicated mobile phone app - BirdLasser - which is readily downloadable from the Google Play Store and Apple Store.

Now we want to spread this project all over Africa. The main benefit will lay on the national level and in the long-term for the African people. We would like to stress that this so much more than just about birds! It is a lot about capacity building and to increase public awareness. Results and plans will presented.

Louis Sallé - Ligue pour la Protection des Oiseaux (Birdlife France) – 8 rue Pujos, 17300 Rochefort, France. Email: louis.salle@lpo.fr Research, Ringing, Citizen Science Data.

Oral

The French Migration Atlas: a multi-scale, multi-datasets approach.

Louis Sallé* & Jérémy Dupuy* *Ligue pour la Protection des Oiseaux (France)

Every year, the quantity of data available for studying natural phenomena increases exponentially; it is even more true when it comes to birds. For instance, migration study nowadays encompasses classic ringing schemes or migrators counting surveys, but also highly specialized satellite tracking programs as well as massive amounts of citizen science data. A central challenge for scientists is to find ways to extract valuable information from the various available datasets, which are extremely heterogeneous in their origins, quality and size, and to blend them into a synthetic and rigorous, yet accessible format. The French Migration Atlas is a project designed to integrate each of those sources into a multi-scale approach to unravel the migration strategies of bird population flying from, towards or over the country. For more than 300 species, we describe migration flyways at both continental and national scales, while trying to identify subnational patterns and differential strategies between populations or subspecies. In addition, we provide a detailed view of migration timing by analysing phenology at national and local scales. For a number of species, we also go down to the individual level by presenting – with the collaboration of their authors – a compilation of existing satellitetracking data. Last, we illustrate the effect of climate change on several target species such as soaring birds by using long-term survey datasets. This unprecedented sum of knowledge is then used to pinpoint the areas of future priority research and conservation. Here I will present an overview of the data and methods, illustrated by a series of interesting cases.

Irith Aloni, Spatial Ecology Lab, Ben-Gurion University of the Negev, POB 653, Beer Sheva 84105, Israel. Email: <u>irital@post.bgu.ac.il</u>

Research

Oral

February precipitation in the wintering grounds of the Lesser Whitethroat as a migration cue

Irith Aloni^{*1}, Shai Markman², Yaron Ziv¹

¹Spatial Ecology Laboratory, Department of Life Sciences, Ben Gurion University of the Negev, Israel <u>irital@post.bgu.ac.il</u>

²Department of Biology & Environment, Faculty of Natural Sciences, University of Haifa, Israel

Numerous studies report shifts in bird migration phenology, presumably due to global warming. However, most studies focus on migration patterns in the Northern hemisphere.

In this study, we investigated associations between weather conditions in African wintering grounds of the Lesser Whitethroat, *Sylvia curruca*, and spring arrival time in Eilat, Israel. Using Principal component analysis and multivariate regression models, we analysed a 30-year dataset in order to examine correlations

between median springtime arrival and 50 climate variables of the wintering quarters. The model obtained exhibited a highly statistical fit, involving mean precipitation in February and March with negative effects, and number of wet days during November-February. February precipitation levels were also the major factor associated with the interquartile range of arrival time. Interestingly and contrary to published results, annual or seasonal precipitation showed no correlation with spring arrival time, nor did temperature. Moreover, winter in this region falls into dry season with negligible rainfall quantities. Hence, it is unlikely that precipitation effect on habitat productivity is a driving force of migration, as suggested by other studies. Instead, we propose that precipitation in February acts as a cue for the birds, indicating the approach of spring and migration time.

Jonathan Meyrav, Israeli Ornithological Center, The Society for the Protection of Nature in Israel, Hanegev 2, Tel Aviv. Email: jm2bird@spni.org.il

Tourism

Featured

Birding tourism as a tool for conservation

Nature and birding tourism are on the rise all over the world and today millions of people travel to remote corners of the globe to enjoy birds. The society for the protection of Nature in Israel is a large environmental NGO that has spent a lot of time and resources in the past 10 years to develop a strong, viable birding tourism branch. From large international events such as our bird festivals to crowd engaging conservation projects such as the Champions of the Flyway, the SPNI now caters for growing crowds of birders visiting Israel from all over the world to marvel at the amazing birds and nature Israel has to offer.

The SPNI birding tourism activities have become an important generator of funds that "fuel" our other departments (research and education) and allow us to achieve a lot more than in the past.

Our tourism conservation model is now being shared with other environmental organizations around the world and with the help of Birdlife International we hope to establish a strong partnership of birding tourism to help birds and nature.

Saturday 30th:

Bea Maas, Department of Botany and Biodiversity Research, Division of Conservation Biology, Vegetation Ecology and Landscape Ecology, University of Vienna, Rennweg 14, 1030 Vienna, Austria, Email: beamaas@gmx.at

Outreach and Education

Featured

Avian Ecosystem Services - what we know and how to involve bird observatories.

Birds play a major role in the provision of multiple ecosystem services, which are considered to be of high ecological and economic importance, and thus present a valuable alternative to intensive land use practices threatening biodiversity. In particular, avian contribution to pest control services in tropical agroforestry systems is increasingly well understood and receives great attention today.

I will present an overview of available research on this topic, and will discuss open questions as well as potential ways of involving bird observatories to improve our general understanding of avian ecosystem services, multidisciplinary cooperation and implementation of sustainable management practices. Presented studies will include examples from experimental field research in Indonesian cacao agroforestry systems, insights from a global review, and findings on the importance of bird population abundance for the delivery of pest control and other ecosystem services.

The results of the presented studies demonstrate the tremendous economic impact of avian pest suppression services (e.g., corresponding to 730 USD per hectare a year in Indonesian cacao), but also stress the importance of local management and landscape factors, and how efficient ecological intensification is hampered by knowledge gaps (e.g., on multiple ecosystem services and multitrophic interactions) and research implementation gaps (e.g., knowledge transfer and communication).

Based on these findings, I will conclude with an overview of opportunities to promote the collaboration between scientists, bird observatories, and the general public in order to bridge existing knowledge and implementation gaps, and achieve improved knowledge exchange in this field. Such multidisciplinary cooperation will be key to a better understanding of avian ecosystem services, their sustainable management and related measures in biodiversity conservation.

Gidon Perlman, The Jerusalem Bird Observatory, The Society for the Protection of Nature in Israel, P. O. B. 3557, Jerusalem, Israel. Email: gidonpmd@gmail.com

Research and Monitoring

Oral

Migratory and resident bird population trends: Results of 25 years of standardized bird ringing at the Jerusalem Bird Observatory

Gidon Perlman* and Amir Balaban, The Jerusalem Bird Observatory, The Society for the Protection of Nature in Israel. Jerusalem, Israel.

The Jerusalem bird Observatory (JBO) is situated in the center of Jerusalem, near the Knesset, the Israeli parliament, in the center of a large urban park. It holds a variety of local and exotic vegetation that attract birds, and a small wetland.

Bird ringing has been running at the JBO since 1994 using mist nets in regular sites. Ringing effort has been recorded since 1994 and standardized since 1996. Ringing runs year-round, with increased ringing days during spring and autumn migration. Tape luring is not used.

Population indices were created for 52 migratory and resident species, mostly passerines. Indices were calculated based on the numbers of individuals trapped between 1994 and 2018, corrected for the ringing effort in each period.

Data on population trends for resident breeding birds as well as short- and long-distance trans-Saharan migrants show variable trends and will be discussed. Trends of several breeding species (e.g. decline in

Goldfinch) may be related to local factors whereas trends of several migrants (eg. increase in Olive-tree warbler) may reflect processes occurring at a broader geographical scale.

Manuel Oliver Grosselet, Tierre de Aves. Email: birdinnet@yahoo.com.mx

Education and Outreach

Oral

20 years of monitoring birds in an urban landscape through ringing

Oaxaca, one of the most biodiverse states of Mexico has 776 reported species. Little is known about the birds so in December 2001, Tierra de Aves began a long term monitoring project in the Ethno-Botanical Garden of downtown Oaxaca City. This garden was created on a courtyard which had been used as a military sports patio until the 1990's. In 2001, we began ringing one day a month during winter. In September 2002, we continued all year round. After 15,000 birds banded, several publications, one foreign recovery, the station is functioning thanks to a volunteer we trained and was certified by NABC. This station is probably the only one in Mexico with a constant uninterrupted effort since 2001, using six mistnets, 36 hours per session year round. Preliminary results show a pronounced decline of House Sparrows, House Finches and other finches. Thrushes and Doves are increasing. Dozens of students have visited the station for training. Several undergraduate and graduate thesis have been written using data gathered at this site. It is very interesting to note that in an area which just over two decades ago was covered in concrete, is today Green. We planted hundreds of species from Oaxaca and we have registered 127 species of birds of which many individuals come back year after year to this site. From nothing we have been able to create a conservation site for migratory and resident species of birds.

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Research and Monitoring

Oral

Migration banding and the value of consistent methodology – a mist netting study over 50 years.

Trevor Lloyd-Evans*, Evan Dalton: Manomet Bird Observatory, Plymouth, Massachusetts

Manomet Bird Observatory has consistently monitored spring and autumn bird migration for over 50 years. We have established 12m mist nets in 50 permanent locations and run them from dawn to dusk, 5 days per week (weather permitting) on about 7 hectares of our 15 ha property. The study area is situated coastally on the Eastern (USA) Atlantic flyway and we are fortunate that the brushy second growth woodlands and wetlands show little vegetation change. We record the number of hours each net is open each day, giving us the ability to express bird abundance as birds per net hour for comparisons within and among years.

The banding lab has handled over 390,000 new bandings and repeat captures of ca. 70 landbird species each season. Given the consistently recorded netting effort, we have been able to publish data on changes in abundance within the migrant assemblages, and confirm many of the trends with independent measures of population change in eastern birds, such as the North American Breeding Bird Survey. Many declines, especially in species of Neotropical migrants, drove overall declines in numbers from 1970-1995, but increases of southern species and short-distance North American migrants have stabilized both spring and fall numbers of birds per net hour over the most recent 25 years.

Over the entire 50 years we have published on earlier spring arrivals and some later fall migration dates which correlate well with regional climate change, but the spring trend was not seen in South American wintering species.

Jochen Dierschke, Institute of Avian Research "Vogelwarte Helgoland", An der Sapskuhle 511, 27498 Helgoland, Germany. Email: jochen.dierschke@ifv-vogelwarte.de

Research, History

Oral

From Helgoland Bird Observatory to the Institute of Avian Research.

Jochen Dierschke, Institute of Avian Research "Vogelwarte Helgoland". Helgoland, Germany.

The island of Helgoland (Germany) holds few breeding species in numbers, but high concentrations of migrating birds during stopover. It's location in the southern North Sea, ca 50 km away from the nearest coast, offers unique conditions for bird migration studies. Such studies started already in the middle of the 19th century by Heinrich Gätke. In 1910 the Helgoland Bird Observatory was founded. It got stopped at the end of WW II but continued as "Institute of Avian Research" (IAR) in 1946, since 1947 located in Wilhelmshaven. On Helgoland, work got re-launched as a permanent field station of IAR in 1953. The lecture will start with a short description on the birdlife of Helgoland. Additionally, the history of bird research and the bird observatory on the island as well as an overview on recent studies on the island are presented.

Batmunkh Davaasuren, Wildlife Science and Conservation center, Khurkh Bird ringing station in Mongolia, Union Building B-701, UNESCO street, Ulaanbaatar 14210, Mongolia. Email: batmunkh@wscc.org.mn

Research and Monitoring

Oral

The history of bird banding in Mongolia and Khurkh Bird Ringing station activities.

Batmunkh Davaasuren*, Tuvshinjargal Erdenechimeg, Andreas Buchheim and Nyambayar Batbayar, Wildlife Science and Conservation Center. Ulaanbaatar, Mongolia.

Bird banding in Mongolia is still relatively less developed. Bird ringing was started by Russia-Mongolia joint biological expeditions during 1976-1980, and followed by Germany – Mongolian joint biological expeditions during 1988 – 2017. Also a bird ringing team from Hungary worked in 1994 -1996, 1998 and 2005 respectively. These operations can be regarded as "the initial stage" of scientific bird banding in the country. As collectively, they had ringed over 15000 individuals of around 200 species. All rings used during these period on the territory of Mongolia were brought by the researchers from their own countries. The first Mongolian addressed ring was made for Cinereous Vultures in 2002. Since that year, the bird ringing activities in Mongolia significantly increased. Many active bird ringing projects carried out across Mongolia mostly for water birds and birds of prey. Later shorebird and song bird ringing projects initiated by various research groups. Avian influenza surveillance related projects played a vital role in expansion of the wild bird capture and marking in Mongolia in the past 10 years. Many water birds have been marked with different techniques. The Khurkh Bird Ringing Station, which is the first stationary ringing station, has been established by Wildlife science and conservation center of Mongolia. It started ringing activities only during spring seasons in 2015 and 2016. Since 2017, it has become fully operational for spring and autumn season. The main goal of ringing station is to carry out a long term migratory bird monitoring at the location, train young generation of ornithologists, and raise public awareness about bird conservation through migratory bird study and ringing. The station has ringed over 15,100 individuals of 145 species during the 260 ringing days since it started. So far several dozen students have received hands-on training through our bird ringing operation. However, the bird banding work in Mongolia still faces shortages of manpower and finances. The station aims to maintain and manage sustainable ringing bird activities in the country.

Pavel Pinchuk, Turov Ringing Station, Email: ppinchuk@mail.ru

Research and monitoring

Oral

20 years of activity of Turov Ringing Station, Southern Belarus

Ringing of waders was begun in Southern Belarus in 1996, when ornithologists from Pripyatsky State Landscape Hydrological Reserve (Turov) and Institute of Zoology (Minsk) began studying breeding waders at the floodplain meadows. Since autumn 1999 we participated in the project WWI (Wader Wetland Inland) with the help and support of German colleagues from NABU and started catching migrating waders. The study of the dynamics of migration, breeding biology and catching waders was conducted in the flooded meadow with a total area of 380 ha and located in the vicinity of Turov town (52.04N; 27.44E). This is an important stopover site for waders during seasonal migrations. According to recent estimates, every year nearly half a million waders use these meadows as a stopover site during spring migration. In spring, at the maximum water level, the research site is a system of islands, where the local shorebirds nest and migrating birds stop. Long-term and high floods in the Pripyat cause high patchiness of the microbiotopes, which provides good feeding conditions. In addition, the isolation of islands formed as a result of flooding provides protection from predators.

The main methods used to study wader migration are visual counts and trapping for ringing. Counts at the standard routes were carried out in 1998-2018 from the middle of March till the first half of October. The regular catching of migrating waders started in the autumn 1999 (small numbers of adult waders were caught in 1997-1999 at the nests during behavioral studies). From 2000 till 2007 the majority (about 90%) of birds

were captured with walk-in traps and the mist nets we used occasionally. After 2007 we started to use mistnets with luring tape and the number of waders caught by this method increased.

During 1996-2018 more than 41,400 waders from 34 species were ringed. Five species of waders dominated among these ringed birds: Northern Lapwing, Ruff, Common Snipe, Redshank and Wood Sandpiper. Great numbers of ringed Ruffs were connected with catching during spring passage. In spring the Ruff is the most abundant and numerous species in Pripyat floodplain. While most of the Common Snipes were caught during the autumn passage. Large numbers of such species as Lapwing and Redshank were connected with large breeding semi-colony of waders in the vicinity of Turov. For twenty years, more than 250 long-distance recoveries from 36 countries were obtained. The most numerous records refer to Common Snipe, Dunlin and Ruff.

According to analysis of migration phenology data in the south of Belarus fluctuations between years in timing of arrival are considerable not only for early short-distance migrants but also for late long-distance migrants. These fluctuations are considerably dependable on spring temperature regime and distribution of influence of the North-Atlantic Oscillation. There is an observed trend of changing terms of arrival to earlier dates for five species (Oystercatcher, Green Sandpiper, Wood Sandpiper, Common Sandpiper, Terek Sandpiper). It seems that trend of earlier arrival is formed not only for short- but also for some long-distance migrants.

In the last years of our activity we have increased colour-marking (for the 13 species of waders we have individual color schemes) and use DNA for the study of various aspects of waders migration biology.

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Research and Monitoring

Oral

The Outbreak of Bird Observatories in Brazil: Challenges and Perspectives

Luiza Figueira, Pedro Martins, Raquel Justo *Observatorio de Aves da Mantiqueira, Brazil.*

The bird observatory model of doing science, education and conservation has spread around the world for over a century, but only recently it has landed in Brazil. About 5 years ago the first bird observatory was created in Brazil, and since then 3 more have been established.

Although we - as bird observatories - are very few to cover a continental sized country with the third richest avifauna in the world, the movement has just started and is growing fast. We want to take advantage of this momentum for designing our bird observatories' development to better address the current priority topics of bird research to promote conservation of tropical biodiversity. Although many of our challenges are specific to the Brazilian social, political, and economic situation, there is a lot that we can learn and exchange with the international bird observatories community. Also, because tropical biodiversity is of great importance at a global level of ecological services, the development of research and conservation in such areas must be of interest of the global community. In this talk, we will identify some hot topics for tropical ornithological research and how bird observatories can take part in it. We will also address the importance of bird observatories to bridge science, community, and conservation actions, and discuss creative solutions for handling these three spheres together. This talk's goal is to start the discussion and invite all to join us in

thinking about strategies to maximize the impact of our developing bird observatories in bird science and conservation.

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Oral

Perspectives of Bird Observatory Development in Armenia

Armenia, as a destination for birdwatchers, has got a big potential, due to its landscape – from semi-desert to highly dense virgin forests, climate – from tough humiliating summers to almost Siberian winters, and elevation – $^{1000-4090}$ meters, varieties. All those factors bring up a bouquet of a very diverse and interesting biodiversity distribution, and to be specific, especially - ornitho-diversity.

Although the potential is very big, yet there are no developed infrastructures to offer, conservationists, scientists and nature - especially bird lovers to be closer to their destinations. There is not only a luck of complete information about ornithon-fauna distribution ranges in different regions and ecosystems of Armenia, but also there is not a single example of a bird observatory or a feeding and ringing stations in the whole country.

Development of such kind of infrastructures in the country will help to solve several important challenges which stand nowadays in conservational and ornithological sciences of Armenia. It will also increase the community development levels, by its involvement in conservation work, which in its turn, will make ornithological and conservational work sustanable and long lasting.

The Branch of NABU in the Republic of Armenia is highly interested in the development of bird observatory stations and sustanable, long lasting researches arround Armenia and is ready for cooperation with organizations and individuals with or without experience – willing to help in this hard work.

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Research and Monitoring

Oral

Paso Portachuelo, a field laboratory for bird migration studies at northern south America.

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Venezuela is located at northern South America, and its geographic location gives it an important place to study birds that are moving across the Western Hemisphere. Paso Portachuelo is known as a gate between the mountains of Henri Pittier National Park and are used by resident birds and neartic-neotropical, autral-neotropical and Caribbean migrants. The importance of Paso Portachuelo for bird movements was recognized

since the 1940s, however, in recent years Phelps Ornithological Collection and the Aududon Society of Venezuela have established a bird banding station with currently 28 years of recent data. A total of 336 species have been registered, 82.5 (%) are residents and 17.5 (%) are migratory species in 16 families (Accipitridae, Alcedinidae, Apodidae, Cardinalidae, Cathartidae, Charadriidae, Cuculidae, Falconidae, Hirundinidae, Pandionidae, Parulidae, Passerellidae, Scolopacidae, Turdidae, Tyrannidae and Vireonidae). The daily or seasonal switch displacement of resident birds (e.i, Dendrocolaptidae, Trochilidae and Psittacidae) has been clearly documented with an recaptures annual average of 13.87% and longevity data of 18 years. Here have been captured 5,600 migratory birds, and despite this high number of birds, there are few recaptures on these birds, both in Paso Portachuelo and also outside of Venezuela. Natural dynamic of Paso Portachuelo confirms this location almost exclusively used by birds transiting mountain ecological barrier and as an important route for long distances migrants in the neotropic region. Exploring new technologies and international cooperation would improve our knowledge about the historical bird migration phenology in Paso Portachuelo, including different families of neotropical resident and migratory birds.

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Research and Monitoring

Oral

The birth of a next-generation banding station in Cape May, New Jersey

New Jersey Audubon's Cape May Bird Observatory (CMBO) has been successfully monitoring bird and butterfly migration for over four decades in Cape May, New Jersey. Following great inspirational presentations at the 2014 IBOC in Falsterbo, Sweden, CMBO staff began laying the foundation for a long-term banding station with a twist. Four years of planning and the development of a public/private partnership with The Nature Conservancy, CMBO, and Cellular Tracking Technologies, culminated in the inaugural season in Autumn of 2018. Together we have designed a station with wildlife tracking baked into the DNA, which can answer short-term questions such as animal movement, habitat usage, and site fidelity. To that end we deployed our first 10 LifeTag transmitters (434mHz UHF) on a combination of resident and migratory birds. In addition, we banded over 8,000 individuals of 101 species, and captured two foreign recoveries and one mega-rarity. This presentation will discuss the process of launching a new station, some of the intriguing data collected during the first season, and plans for the next season, and the next 100 years!

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Outreach and Education

Featured

25 years of empowering new generations of birdwatchers and conservationists.

Research has shown that most expert birders start birding before the age of 18. At the JBO, we believe that catching kids is as important as catching the birds at the ringing station. The kids we catch in our summer camps, after school programs and ringing courses have gone on to be the backbone of our research and education staff, and of our volunteer pool. Amir will discuss some of the strategies and stories behind the JBO's youth empowerment programs, as well as some of the challenges faced along the way. Alen Kacal, Jerusalem Bird Observatory, The Society for the Protection of Nature in Israel, Jerusalem, Israel. mailing address: Hanegev 2, Tel Aviv. Email: jbo@inter.net.il

Workshop

Creating a habitat for future conservation leaders and birders.

Amir Balaban, Alena Kacal - Jerusalem Bird Observatory. Yael Lenardt - SPNI

The workshop will deal with the future of bird observatories and the need to develop young leaders. The workshop will deal with the physical and social framework developed by the JBO's team that has led to recruitment of young and upcoming conservationists. Participants will share other success stories and strategies and we will identify together the key factors for achieving maximum success. These workshop will lead to a publication of best strategies and ideas from around the world.

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Research and monitoring

Lightning

Monitoring waterfowl spring and autumn migration at Lake Hornborgasjön 1991-2018

Charlotte Berg*, Christopher Magnusson*, Åke Abrahamsson, Lake Hornborgasjön Bird Observatory, Broddetorp, Sweden.

Lake Hornborgasjön is situated in south-western Sweden, and is one of the most interesting wetlands in the country. The Lake Hornborgasjön Bird Observatory was formed in 1983 by local volunteers, before the wetland restoration process was initiated during the 1990's. One of the survey programmes running since then focuses on the monitoring of migrating waterfowl, as the lake is not only a popular breeding site for many species, but also a popular stop-over site.

Simultaneous counting of all waterfowl (in this case extended to swans, geese, dabbling and diving ducks, grebes, rails, waders, herons, gulls and terns) is carried out in nine predefined sectors covering the entire lake during autumn and spring migration periods. In the spring, counting is carried out once a week from the end of March to the beginning of May, and in the autumn once a month from mid-August to mid-November or December. In total, 9-10 volunteers participate each time, positioned in towers, on platforms or hills providing a good view of the relevant sector.

In summary, Eurasian teal, Mallard, and Eurasian wigeon show a marked increase in numbers during autumn migration from 1997 until today, whereas the Northern shoveler has been decreasing. In both seasons, Common goldeneye, Eurasian coot, Tufted duck and Common merganser initially increased, peaked around

2010, but has since decreased again. It should be borne in mind that these trends might be linked both to changes in total population numbers and to changes in the features of the Lake Hornborgasjön wetland area.

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Conservation

Lightning

Testing the decision rule phenomenon towards conservation of the Andaman Edible-nest Swiftlet (*Aerodramus inexpectatus*) in Andaman Islands, India

Ram Pratap Singh*, Sàlim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, India. As part of the conservation program, we tested "decision rule" among the breeding colonies of the Andaman Edible-nest Swiftlet (AENS) to identify and prioritize the important breeding colonies in the Andaman and Nicobar Islands. We attempted to understand if the breeding site fidelity of adults and immigration of chicks in the population depends upon the previous information on the breeding success of the colony. Through monthly nest and roost counts in five caves/colonies at Baratang Island between January 2017 and June 2018, we estimated average recruitment of 28% \pm 14.42 in each colony between two breeding seasons. Daily nest survey showed 80% \pm 18.54, 96% \pm 8.13 and 80% \pm 18.55 of the breeding, hatching and fledging success, respectively. The mark-recapture method revealed no dispersal of adult birds, suggesting that breeding site fidelity of adults do not correlate with the previous breeding success of the colony. So, the immigrant individuals in each colony are considered to be either the philopatric fledglings from the same cave or emigrant fledglings from the other caves. The recruitment rate in the five breeding colonies found independent of the previous breeding success of the colony. These findings from the ongoing study explained that the AENS does not follow the "decision rule," neither for adult nest-site fidelity nor population recruitment. It indicates that prioritizing a breeding colony for conservation by its breeding success may not be the right strategy towards in-situ conservation of the species.

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Research and monitoring

Lightning

Monitoring antibiotic resistance through wild birds

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- 5. Landsort Bird Observatory, Stockholm Sweden

Antibiotic resistance is a major threat to human health. It is estimated that deaths worldwide caused by antibiotic resistant bacteria (ARB) will exceed 10 million in 2050.

The mechanisms of ARB dispersal are not limited to human settings. Spread and maintenance of ARB in natural environments are gaining more and more attention. We have tested whether gulls can function as reservoirs and bio-indicators of human associated antibiotic resistance genes in the environment. More than 6800 Fecal samples from gulls were collected between 2005 – 2018 from 15 countries, including Ottenby bird observatory in southern Sweden. Samples were analyzed at Kalmar County Hospital, Linnaeus University and Uppsala University in Sweden.

We found that wild birds, and in particular gulls, carry a plethora of clinically relevant antibiotic resistance genes often with prevalence rates that exceed those in humans from the same geographical area.

There are more genetic similarities between ARB isolated from humans and wild birds than between wild birds and farm animals. This suggests that ARB in wild birds are mirroring environmental pollution from humans rather than from farm animals.

Our studies suggest limited spread of ARB through long distance migration but that regular short distance movements of gulls between garbage dumps and recreational areas, as determined through satellite telemetry, pose a risk of ARB transmission to humans with birds as vectors.

These findings highlight the need for standardized long-term sampling of selected bird populations by a network of bird observatories in collaboration with microbiologists. Through such a network we can produce baseline data to inform and minimize the risk of exposing wildlife to human waste/sewage and prevent further contamination and dissemination of ARB.

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Conservation

Lightning

Establishing a long-term raptor migration monitoring programme at Sarimazi, Turkey, to assess Egyptian Vulture population trends

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Monitoring raptors along migration corridors can be used to assess changes in population size. The Balkan population of the endangered Egyptian Vulture *Neophron percnopterus* is declining, but no explicit trend information exists of the larger adjacent population in western Turkey. In 2013 and 2014 we explored localities around the Gulf of Iskenderun, southern Turkey, to identify areas where long-term migration monitoring would be possible, and in 2018 we initiated autumnal raptor migration monitoring within a large conservation project (www.lifeneophron.eu) to document the population trend of Egyptian Vultures breeding in western Turkey and the Balkan Peninsula. From three observation posts in the area of Sarimazi, north of the Gulf of Iskenderun, the majority of Egyptian Vultures migrating around the eastern coast of the Mediterranean Sea can be observed during September. In 2018, we counted 813 Egyptian Vultures (>2% of their global population) with a peak between 8 and 19 September. The majority of juvenile Egyptian Vultures migrated in association with adult or immature birds. In addition, we observed globally significant congregations at the site, with >60% of the global population of Lesser Spotted Eagles (37,579), and Levant Sparrowhawks (23,369), 10,913 Short-toed Snake Eagles, and >30,000 individuals of another 22 raptor species. These observations indicate that Sarimazi is a globally important migration bottleneck. We encourage young and experienced ornithologists to participate in our raptor monitoring in the future.

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Outreach and Education

Lightning

A role for bird observatories in climate change education

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Many bird observatories recognize the importance of educating the public about their work. This mostly takes the form of on-site activities and demonstrations, but there is a general lack of curricula that connect bird research to the bigger picture. In an attempt to expand our educational reach, scientists at Manomet, partnered with curriculum development experts to create a project called Climate Lab that links the results of our bird research to the larger issue of climate change (a major driver of bird population changes). Our goal was to have middle school teachers lead their students in collecting data on environmental indicators at local green spaces. Thus, students learn that climate change is local as well as global and can be measures literally in their own back yards. The Climate Lab project is now being implemented in several United States school districts and, most recently, piloted by our friends at the Jerusalem Bird Observatory.

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Research and Monitoring

Lightning

Phenology of the avian spring migratory passage in Europe and North America: asymmetric advancement in time and increase in duration

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In this study we examined the impact of temperature on long-term change of passage dates and duration of the spring migration period in birds, and which species' traits explain species-specific variation. We used data for 195 species from 21 European and Canadian bird observatories with systematic daily sampling protocols. Migration dates were negatively related to early spring temperature and timings had in general advanced. Short-distance migrants had advanced the beginning of their migration more than long-distance migrants when corrected with phylogenic relatedness, but such a difference was not found in other phases of migration. The advancement of migration has been in general greater for the beginning and median phases of the migration relative to the end, leading to expanding spring migration seasons. Duration of the migration season increased with increasing temperature. Phenological changes have also been less marked in Canada even when corrected for rate of change in temperature. To visualize long-term changes in phenology, we produce the first multi-species spring migration phenology indicator to describe general changes in median migration dates in the northern hemisphere. The indicator showed an average advancement of one week during five decades across the continents (period 1959-2015). We encourage future research to investigate whether the trend towards longer periods of occurrence or emergence in spring is widespread in other study systems. Such phenological changes may influence detectability in monitoring schemes, and may have broad implications on population and community dynamics.

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Poster / Lightning

Creating a Bird Haven 'out of scratch' in the Heart of a busy metropolitan

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The newly opened birding centers in Tel Aviv are part of a national chain of Israel's bird observatories, and the city's first 'urban wildlife reserves'. Located in the most densely populated area in Israel - they provide a 'Birding retreat' for a large and diverse population.

Their unique planning scheme involved innovative solutions described below which had to deal with the countries shortage in water – literally creating an 'urban oasis'. These innovations are the consequences of quick urban development of the country which had to provide local solutions.

The intricate development process of these sites involved multidisciplinary principals – including architechture, engineering, ecological design and highlights the importance of understanding how to assemble these abilities to create a functional birding center.

The birding center in Ariel Sharon Metropolitan Park is part of a huge project involving a former rubbish dump which is becoming an urban park. The birding center itself was created on adjacent agricultural land that was intended for use as real estate housing. An Intensive plant scheme simulates natural local habitats which surround the pool and adjust to the water level. An ongoing monitoring scheme proves that the artificial oasis and its surroundings attract over 200 bird species.

Tel Aviv 'Rosh Zipor' Bird Observatory,

The pool was designed as a self-sustaining eco-hydrological water system. It filtrates water using biological matter – plants and porous soil which keep a steady oxygen level necessary for a natural ecosystem to form. Many architectural innovations were introduced in both centers including state of the art photo hides which are submerged under water level thus enabling 'eye contact' with the birds. Natural looking shades were built with roof elements especially designed to meet local regulations of construction percentages. All irrigation systems and pumps were built under ground level to keep a 'natural look' for the site. A low fence was created around the site in order to prevent damage to plants and keep the site connected to the surrounding park. The challenges of creating a bird observatory 'out of scratch' are common to many countries, but the local solutions developed in Israel as well as understanding the difficulties and constraints - might help and inspire other colleagues around the world in future development plans.

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Research and Monitoring

Poster/Lightning

Terns' survival and reproduction in Israel: Research, monitoring and educating project on the threatened terns.

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⁴ School of Zoology, Faculty of Life Sciences, Tel Aviv University, Israel

The Little and Common Terns (*Sternula albifrons* and *S. hirundo*) are the only species of terns regularly breeding in Israel. The populations of these two species are small and concentrated in few nesting sites. Therefore, both species are vulnerable and their breeding populations in Israel are threatened. Data on population ecology and breeding biology in these breeding sites are thus essential for designing effective conservation protocols.

In this study, our main objectives were to address these issues and examine the survival of the terns, their reproductive success and the factors that influence it. We trapped and ringed terns, since 2010, during the breeding season and observed the terns' breeding sites from hidden observation points as well as using a camera located within the breeding colony. We compared breeding parameters between the different terns' breeding sites in Israel and estimated survival rate from multiple-year data on occurrences of ringed individuals.

The results reveal a trend of higher reproductive success in the smaller colonies and emphasize the importance of establishing new breeding sites for the terns in Israel. Recoveries of birds ringed in Israel received from breeding sites in east and central Europe as well as from wintering areas in Africa. These results display the importance of the breeding colony in east Mediterranean also as a migration stopover sites.

In addition to research and monitoring, for the conservation of endangered species and their habitat it is highly important to raise the public awareness. As part of this project, I conducted an educational program for elementary schools near the tern's main breeding site at Hof HaCarmel area.

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Research

Lightning

Birds in Plate: case study from Karnataka, India

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Karnataka is known for its rich biodiversity: state harbors, Western Ghats and also connected into the Eastern Ghats. There are as many as 50 different tribes living in Karnataka, of which 14 tribes are native of Karnataka. This study was carried out in two places of Karnataka namely Kodagu and Chamarajanagar where Jenukuruba and Soliga tribal communities are inhabitants respectively.

A questionnaire and interview method was followed and a total of 30 families were surveyed. Among these were 18 families from Jenukuruba and 22 families from Soliga. This is to understand the birds used in their cooking.

Study results show that a total of 17 species of birds were used in their cooking. Among these, nine species were used by the Soliga, one species by jenukuruba and seven species by both. Though both the community prefers jungle Fowl, Spotted Dove and Bush Quail; Jenukuruba used 45.45%, 28.42% and 45.46% more than the Soliga respectively. Besides this, Peacock, Barbet, Bulbul, Wood Pecker, Laughing Dove, Parakeet, Greater Coucal, Egret, Pond Heron, Koel, Hornbill, Sparrow, Pigeon and Water Hen are also used. All 17 species are residential, locally common and of least concern according to IUCN RED list. This community behavior shows sustainable use and concern about natural resources. Sometimes their techniques may be exploited by developed community; which may also lead to the illegal hunting and trade of birds.

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Research

Poster

Survey of Arabian Warbler in Israel - Spring 2018

Eli Haviv¹, Noam Weiss^{1,2}, Dan Alon¹, Tal Polak³

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The Arabian warbler (*Sylvia leucomelana*) is a small songbird strongly associated with acacia trees. Up until the early 1980s in Israel, the species was relatively common throughout the Arava Valley, from the southern Dead Sea south to Ein Evrona, with an estimated population of 120 pairs. Today, the Arabian Warbler is listed as Critically Endangered in Israel due to the small size of the nesting population that is estimated at less than 20 pairs.

During the spring of 2018, we conducted a nesting survey of Arabian Warblers along the Arava Valley. The goals were to identify areas occupied by Arabian Warblers and to estimate the size of their population. The sampling sites were chosen according to appropriate habitat as estimated from aerial photographs. The sampling was based on Point-Counts, which were distributed along segments characterized by a medium or high density of acacia trees. At each point all observed species were recorded for 5 minutes. A total of 205 points were conducted. During the survey, we observed 55 individuals from 42 different locations between Hatzeva Junction in the north and Yotvata in the south. Arabian warblers were found in 14% of the Point-Counts. These findings, together with a Species Distribution Model (Maxent) that is based on environmental variables, may explain the distribution of the species such as the density of acacias trees, we estimated the size of the population to be between 80 to 120 pairs along the Israeli side of the Arava Valley. Further standardized surveys are needed in order to understand the species' status and population trend given natural population fluctuations and a patchy distribution.

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Research

Poster

Monitoring Steppe Eagle population in Eilat

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The world Steppe Eagle (Aquila nipalensis) population is considered Endangered and is rapidly declining. The population is undergoing a rapid decline across much of its range, due to land-use changes, power line collisions and electrocutions, poaching, and disturbance.

Eilat, in southern Israel, is a bottleneck for this species on its migration route from Africa in spring. We conducted a series of surveys, counting the passing Steppe Eagles in springs 2015 to 2018 and collecting data about the age of the passing birds. We then compared our data with the Steppe Eagle data collected during four springs between 1977 and 1988. The mean count of Steppe Eagles in the years 2014 to 2018 was 15,192 and standard deviation of 1,553. We did not find any clear population trend within the four survey years other than stability. We furthermore found that 75% of the eagles passing are adults and that their main passage is during the third week of February. We did not find a significant decline in Steppe Eagle numbers passing Eilat on their spring migration between the two data sets. Our results indicate that Africa and probably the flyways to and from it are relatively safe for eagles. The fact that 75% of the aged individuals in the 2010's count were adults implies that the Eilat bottleneck and Africa are home for a main breeding cohort of the Steppe Eagles' population trend. We plan to repeat another four seasons of monitoring, starting in 2024, using the same protocol used for this current study.

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Outreach and education

Poster

After school birding clubs for children and youth: our experiences from Israel and how to Do It Yourself

Tzur Magen, Yael Lehnardt and Dan Alon. IOC, SPNI, Israel.

The Society for Protection of Nature in Israel (SPNI) had long been involved in birdwatching activities intended to get higher public interest in birds and their protection. Since the 1970's, local birding clubs for children had been established in Israel, providing school children with opportunities to learn about birds' biology, identification and conservation. During the 1990's these activities have declined considerably, and in

2014, the Israel Ornithological Center started an effort to expand such activities throughout the country with a new approach: fitting the current generation. It is not always simple to encourage children and youth to spend time outside but once you make it happen it becomes very rewarding for both sides: the children get a unique experience and the bird observatory gets a committed and active youth group- their next generation. We present our methods of recruiting and engaging children with weekly/biweekly meetings at a bird observatory, as well as weekend and holiday trips to the surrounding birding hotspots. We combine all these activities in an effort to create the next generation of leaders and to empower young birders to know that they will help us further expand the interest in birds and birding throughout the country. We suggest this model can be copied and implemented in many other countries, where extracurricular birding activities for children are lacking, to strength the connection between a bird observatory and the general public.

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Research and Monitoring

Poster

The importance of recording the active moult of bird primary feathers during bird-ringing activities

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During bird-ringing activities, bird ringers regularly record several morphological (*e.g.*, wing length) and body condition (*e.g.*, body weight) measurements, as well as other information regarding the state of the individuals (*e.g.*, brood-patch and subcutaneous fat index). Although the moult process is important for inferring the state of the bird, and considering that bird ringers regularly use information from feather moult for identification of individual age, no documentation of bird moult is usually recorded. Recoding the primary moult score (PMS) using a 0-5 scale according to the methods suggested by Ginn and Melville (1983, BTO) may help us to determine the timing, location, speed and sequence of moult. These variables are the outcomes of evolutionary selective forces that shape the moult process and are therefore important for our understanding of bird biology. These moult properties may be related to different ecological and life-history traits, such as migration distance, habitat use, flight performance and foraging behaviour. Consequently, recording these variables is important for researching different aspects in avian evolution. Ornithologists and bird ringers are therefore encouraged to collect more PMS data during their field work, especially as part of constant ringing activities in bird observatories.

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Research and Monitoring

Poster

Back Yard Birds Count in Israel

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The public Back Yard Birds Count is held once a year in Israel, starting in 2006 and managed by the Center for 'Back Yard Birds' in Israel. Since 2014 the managing of the count is in collaboration with the Israel Birding Center of SPNI. The count occurs each year -at the end of January and early February. The aim of the project is to monitor the bird populations for protecting the birds and the biodiversity as well as for public outreach to the birds and nature.

Guidelines for the count and pages containing forms and birds information are found in the internet site in three languages: Hebrew, Arabic and English. The count focuses on the most common birds although people are asked to report other species if identified. The report is in the Hebrew version of eBird application. All educational institutes that participate receive an award certificate.

Summary of the count appears in a dynamic map and in a short text compared to previous years. There is also an extensive summary contains information about the participants.

A study done at Porter School of Tel Aviv University found that the information of the count provides good data on the status of birds and shows positive correlation between a variety of birds and bird-environment components. This strengthens the idea that birds can be biodiversity indictors. Participation of schoolchildren in the count improved their environmental literacy in relation to students who did not participate.

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Environmental monitoring

Poster

Rapid growth of Barnacle Goose (Branta leucopsis) population in SE- Icleand

Like many other goose populations, the Barnacle Goose (*Branta leucopsis*) population has been growing in the last decades. They have also extended their breeding range and have started to breed along the migration route in increasing numbers. Iceland is a stopover site for the Greenland population and Barnacle Goose did not breed here besides a few pairs in Breiðafjörður islands in the west.

In 1988 the first pair was found breeding in Southeast Iceland and in 2009 the number had grown to 120. In the following decade the breeding populations grew rapidly, in the summer of 2014 a survey was done in areas in the Southeast where Barnacle Goose were expected to breed and in total 509 nests were located, from that total 361 nests were in a small islet Skúmey (10 ha) in the Glacier lagoon. In the following years numbers grew rapidly in Skúmey; in 2017 there were 968 nests and in 2018 there were 1122 nests. Numbers from the whole of Southeast Iceland are currently not available but in 2019 a complete survey will be carried out. To better understand the behaviour of the Barnacle Goose breeding in Iceland 352 birds in SE Iceland have been ringed.

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Research and monitoring

Poster

Migratory birds and dissemination of tick-borne pathogens; Crimean-Congo and Alkhurma Hemorrhagic fevers and Rikettsia

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To understand the geographical dynamics of tick-borne diseases, we assessed the impact of migratory birds on the dispersal of ticks and tick-borne pathogens.

During spring migration in 2009-10 and 2014-15, we caught 36893 birds and collected 1771 ticks, at several bird observatories in the northern Mediterranean basin. Ticks were analyzed by PCR for an array of bacterial/parasitic/viral pathogens.

Most of the ticks (88%) were found to be *Hyalomma marginatum* and *H. rufipes*. Rikettsia from the Spotted Fever Group, mainly *R. aeschlimanni*, were detected in half of the samples. We found Crimean-Congo Hemorrhagic fever (CCHF) virus in 3 ticks and Alkhurma hemorrhagic fever (AHF) virus in 6. The infested birds, Sedge warbler, Yellow wagtail, Redstart and Eastern Woodchat Shrike are medium to long distant migrants wintering in sub-Saharan Africa. Presumably, the ticks had attached prior to migration from Africa, as all Bird Observatories are located on where migrating bird first touchdown after crossing the Mediterranean.

CCHF has ongoing outbreaks in Turkey and recently appeared on the Iberian Peninsula, while AHF has emerged on the Arabian Peninsula and has appeared sporadically on the western coast of the Red Sea. Transport of infected ticks could present a method of dispersal of both viral and bacterial tick-borne pathogens and partake in the maintenance of outbreaks and epidemic infection as well as the initiation of novel mammalian-tick infectious cycles in other geographical regions. Surveillance of tick-borne pathogens emanating from endemic areas in Africa may also be performed by monitoring bird migration at selected sites.

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Research and Monitoring

Poster

Trends in spring migration numbers and timing at three Norwegian bird observatories

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The Jomfruland, Store Færder and Mølen bird observatories are situated about 40 km apart on the south coast of Norway. They have undertaken regular bird migratory observations and routine ringing since the early 1970s, and in 2018 a collaboration was initiated to analyse the 40-45 years of data with an initial emphasis on trends in spring observation counts. Surprising to many perhaps, "pleasure hunting" of bird species such as fieldfare (T. pilaris) and redwing (T. iliacus) is allowed in Norway in the period 10 August – 23 December. A new initiative to extend this hunting to include song thrush (T. philomelos) and blackbird (T. merula), caused a heated public debate, and revealed a lack of information within management authorities on migratory bird population trends. Thus, a key goal of the project is to contribute such management data, along with appreciative initiatives such the European Bird Census Council and others. The methods so far include GLM, GAM and TS modelling in R (http://www.R-project.org). Results are consistent between the observatories, and show significant population declines in species such as robin (E. rubecula), fieldfare, redwing, song thrush, willow warbler (P. trochilus), meadow pipit (A. pratensis), tree pipit (A. trivialis) and more. Contrary to this, numbers of chiffchaff (P. collybita), garden warbler (S. borin) and blackcap (S. atricapilla) have increased, while species such as blackbird and the lesser whitethroat (S. curruca) show no significant count changes. Most species examined show a clear trend towards earlier spring migration, and this is very distinct when comparing early and late 10-year periods.

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Outreach and Education

Poster

Climate Lab: Using Bird Data for Climate Change Education

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Many bird observatories are sitting on years of data on migration. These data often show changes in bird populations due to climate change. Although the scientific community benefits from the addition of these data to the growing pile of climate change effects on the natural world, at Manomet Bird Observatory we believe that more social change can be brought on through educating the public. Although we have over 1,000 visitors to our spring and fall migration banding operation each year, we wanted to scale up our educational reach. In 2015 we partnered with curriculum experts at TERC to create Climate Lab, a project that trains teachers to guide their students in creating their own long-term data sampling project in green spaces around their schools. Teachers benefit from professional development events and in-person training from Manomet scientists and the curriculum pieces use Manomet's bird banding data to teach lessons on the effects of climate change on wildlife. Over the last four years we have learned many lessons on how best to work with schools,

teachers and students. We believe that working with local schools is an excellent way for bird observatories to expand their educational reach and mission.

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Public outreach, education.

Poster

On-screen observatory - interactive visualisation of bird tracking data

Kristjan Adojaan*, 5D Vision Ltd, University of Tartu, Estonia; Urmas Sellis, Kotkaklubi, University of Life Sciences, Estonia.

Bird migration has always fascinated people. Nowadays, wider access and usage of geolocation technology has raised monitoring possibilities to the next level: accurate and frequently updated data are available to researchers.

Bird migration data have great potential to interest not only scientists but also general public. The vast popularity of online nest or colony webcams suggests that interactive web-based applications with animations of migration routes could be attractive as well.

Kotkaklubi and 5D Vision have developed an online portal: birdmap.5dvision.ee, to visualize GPS data of birds since 2007. Birds of 12 different species have been monitored, total number of individuals is more than 120. Currently over 400,000 data points are stored in the database.

Along with a developing new version, custom fork with several novel functions life-

vultures.rewildingeurope.com was created with 50 individuals and 800,000 thousand data points. The data is managed via web-based backend that enables different methods of importing GPS data (Movebank, manual upload for different receiver data formats). Illustrated data about species and individuals can also be added. To enable publishing of the data to Global Biodiversity Information Facility, synchronization to PlutoF biological data management platform is currently being developed. The aim of Birdmap portal is to increase awareness about nature and its protection by combining the possibilities and advances of modern technology with an attractive natural phenomenon.

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Research and Monitoring

Poster

Monitoring population trends of boreal forest birds with migration counts

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The Canadian Migration Monitoring Network (CMMN), which began in 1998, is a cooperative venture of over 20 bird observatories spread across the country coast to coast. Standardized daily counts are analyzed biannually by Bird Studies Canada to estimate population trends for all species, classified for each site as regular migrants or as other types (resident, irruptive, staging, etc.). Trends for well-monitored regular migrants represent population change over broad geographic regions, whereas trends for other species groups may be strongly influenced by change at local levels. For regions sampled both by the CMMN and the Breeding Bird Survey (BBS), trends from the two programs correspond well. The unique contribution of the CMMN is that it also monitors migratory species that breed in vast regions of the Boreal forest that are missed by the BBS (as demonstrated by feather isotope analyses). CMMN trends for some of these species indicate trajectories similar to those shown by the BBS for more southern populations, but for others the CMMN trends indicate important regional declines or increases not detected by the BBS. Recent status assessment of the CMMN has identified priorities for strengthening the network and further refining catchment areas for each monitoring station.

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Research

Poster

Estimating breeding densities of Icelandic redwings using point counts of singing individuals: what is the impact of timing?

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Assessment of population trends is an essential part of understanding the reaction of animals to their environment. Point counts of singing birds is the most widely used method for density estimates of passerines. At higher latitudes daylight gradually increases towards mid-summer while length of breeding season becomes shorter. This may change singing activity resulting in a less synchronized dawn chorus and shorten the period while birds are singing.

We studied how density estimates of singing Redwings (*Turdus iliacus*) predict the number of active nests. Our main focus was on how time within the season and time of day may influence the estimate.

The study was conducted at 64°N in Iceland where daylight is around 20 hours during the breeding season. In 2018 we performed weekly point counts during the breeding season and used program Distance for density estimates. Systematic nest surveys produced the minimum number of active nests.

Morning and noon counts underestimated the minimum number of active nests on average by 21% and 49% respectively throughout the breeding season. The highest density of active nests was found between 10 May and 15 June (ranging 301-349 nests/km²) and then dropping steadily. Corresponding morning point counts

gave on average 230 birds/km² with the best estimate on 18 May with 363 birds/km² (95% CI: 271-487) when active nests were $321/km^2$.

The wide daylight window might impact song intensity in our study. Song activity around the clock over the breeding season would help in defining the appropriate point count timing needed for further density estimates.

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Outreach and Education

Poster

Volunteers in action - long-term effort of science popularization at Vaibla Ringing Station

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Vaibla Ringing Station is the only inland bird station in Estonia. The station is run entirely by volunteers, mostly young students supervised by experienced ringers. Last year, station celebrated its 30th anniversary with an educational conference. Around 60 Estonian bird-enthusiasts, spanning all age groups, enjoyed presentations about the history of the station, current activities and bird biology. Sharing knowledge and educating people in biology has always been the major goal for the team. During the active season, daily updates are shared in various social media channels (fb.com/vaiblalinnujaam; vaibla.net), followed by growing number of new birders.

Since its founding in 1987 the station has been active in 19 ringing seasons. The total number of ringed birds is 86027 (ca 100 foreign recoveries) from 114 different species, 43% belonging to the family Acrocephalidae. Ringing starts in mid-July and lasts for up to 50 days. Last season alone, more than hundred guests from Estonia and abroad visited Vaibla and tens of volunteers worked there. Many bird ringers have improved their practical skills and obtained qualification for their ringing licence at Vaibla. As Vaibla's ringing history is quite long, the collected data is highly valuable. Currently a research project is going on, investigating the migration data of the reed warblers collected so far.

It is a good example of a successful science popularization activity. As the enthusiasm of Vaibla team is not declining we are thinking about the future – new projects and collaborative research with ringers from abroad.

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Research and Monitoring

Poster

Status of House Sparrow in Kodagu District, India

Imran Mannasaheb¹*, Syed Ali¹, Pallavi^{1,2}, Shashi B Mishra², Jadeyegowda M¹ and Kushalappa C.G.¹ ¹ College of Forestry, Ponnampet, Kodagu, Karnataka-571216, India ² Western Ghats Nature Foundation, Ponnampet, Karnataka-571216, India

House sparrows (*Passer domesticus*) co-evolved with humans and are known for their close relationship and dependence on humans. However, the sudden decline in the population of *P. domesticus* has shocked the scientific community. The most common causes for this crisis were a rapid increase in radio waves from cell-phone towers, urbanization, use of pesticides and herbicides and changes in agriculture practices. A present study was carried out in the Virajpet taluk of Kodagu district in central Western Ghats of India. Nine localities were selected, in each locality two transect have been marked one in each village and town. Time constant surveys of 30 minutes were followed in each transect between 1530 to 1730 hours during January- November 2018. All the direct and indirect birds were recorded along with their activity. This study results that the highest population of *P. domesticus* is in Gonikoppa (242) followed by Ponnampet (53), Virajpet (43), Kutta (41), Polibetta (40), Srimangala (24), Kakkabe (22) and least population recorded in Siddapura (8); whereas, we haven't recorded any population of *P. Domesticus* in Thithimathi. Among all these localities a high population density was recorded in towns compared to villages. This population variation may be due to the abundance of nesting sites behind the boards and fancy roofs. Also the availability of waste food from small hotels and grocery shops in towns that are not in the villages.

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Organization

Posters

The Observatories in Denmark. An example of developing three different Observatories under one umbrella.

Simon S. Christiansen*, Head of Skagen Bird Observatory, Birdlife Denmark & Bent Jakobsen*, Head of Blåvand Bird Observatory, Birdlife Denmark.

Birds, Knowledge, Community, Experience. Blåvand, Gedser and Skagen Bird Observatories are in the progress of working with the same values to develop and secure all three Bird Observatories for the future. Through meetings and frequent contact in a committee of leaders from each Observatory the activities, actions and recruitment are coordinated.

The Scandinavian Triple

Simon S. Christiansen*, Head of Skagen Bird Observatory, Birdlife Denmark

The Birdlife partners in Denmark, Norway and Sweden offer volunteers to come and work at both Skagen, Lista and Ottenby Bird Observatories in the same season. An initiative to recruit new experienced volunteers and develop their skills for the benefit of both the Observatories and the volunteers. Michael Heiss, Hornschuchstraße 7, 17489 Greifswald, Germany. Email: michaheiss@aol.com

Research and Monitoring

Oral

The development of the Besh Barmag Bird Migration Count in Azerbaijan and its importance for the monitoring of Eurasian migrant birds

The Besh Barmag bottleneck in Azerbaijan was discovered in autumn 2007. At this location, the foothills of the Greater Caucasus almost reach the shoreline of the Caspian Sea forming a narrow coastal plain through which migrating birds are funnelled. Furthermore, the direction of the shoreline coincides closely with the general north-south orientation of the migration route, which is expected to act as guideline for migrating birds A first comprehensive bird migration study was conducted in autumn 2011 and spring 2012. Since then the bottleneck site has further developed with annual visits of birdwatching tourists and the implementation of 'bird camps'. These camps were mainly used for demonstrating bird migration count methods and bird ringing, but also proved to be helpful for capacity building with Azerbaijani people and achieving a wide national and international publicity. Finally, the idea was born to establish a long-term monitoring for migratory birds that started in autumn 2018.

In autumn 2018 the passage of 2.32 million birds was observed. Since 2007, 316 species were recorded. Eight species were counted with more than 10,000 individuals in one of the counting periods, 31 species with more than 10,000 individuals and 69 species with more than 1000 individuals. Twenty-two species passed through the study area in numbers exceeding 1% of their world populations and 43 species in more than 1% of their flyway populations in at least one of the counting periods. These results underline the importance of this place for migratory birds and the need to continue the long-term monitoring.

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Research and Monitoring

Oral

Batumi Raptor Count: our strategy for monitoring more than one million raptors in the eastern Black Sea flyway

Triin Kaasiku*, Wouter Vansteelant, Batumi Raptor Count, Sakhalvasho, Republic of Georgia

The eastern Black Sea flyway is used by more than one million raptors on their way from Europe and Central Asia to wintering grounds in the Middle East and East Africa. Since 2008 the Batumi Raptor Count (BRC) has organized standardized migration counts in the Batumi bottleneck, situated between the easternmost shoreline of the Black Sea and the Lesser Caucasus range further inland. We developed a count strategy prioritizing species with high monitoring potential. This greatly helped to obtain high-quality count data and large samples of demographic data with an entirely volunteer-based organization. In this talk we present the history

and major activities of the BRC, summarize the main features of our count protocol, the rationale used for selecting target species, potential applications of our dataset, and the main pitfalls for end-users. Following the 10th anniversary of the BRC project in 2017 we have prepared our dataset to be published online open. BRC is committed to achieving the highest standards in transparent and reproducible science, and we consider open data to be an essential component in this endeavor. This presentation will include a brief overview of the data made available, and the accompanying R scripts for filtering and processing data, and estimating daily and annual species totals.

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Research and Monitoring, Capacity-building

Oral

Research on waders in Southern Azerbaijan, one of the last under-surveyed areas of the Western Palearctic

The Caspian Sea as a hub of the West Asian – East African flyway connects the breeding grounds of the Arctic, Subarctic and West Siberian Plane with the wintering grounds in the southern Caspian region, India, the Middle East and Africa.

Despite its importance for waders and waterbirds, this flyway and its stop-over sites are one of the least studied subjects in the Western Palearctic.

Within the Caspian region the Gyzylagach Gulf in Azerbaijan, one of the most important stop-over- and wintering sites at the western Caspian shore, forms, together with the Gilan region in northern Iran and the Northeast Caspian shore, an area which supports around 11.2 million waders, comparable with international wader hotspots like the Wadden Sea in Europe (12 million waders) or the Yellow Sea in China (>7 million waders).

The last comprehensive census of waders in the Greater Gyzylagach Gulf was conducted in 1984 and 1985. No reliable data for waders is available since then.

Due to the lack of knowledge and the negative population trends of many waders along the flyway, I conducted a wader census from July to September 2017 in southern Azerbaijan. Twelve wader species occurred or estimated to occur with more than 1% of their flyway population. Thus, the Gyzylagach Gulf and Lake Machmudchala were identified as 'Important Bird Area' for several wader species. Especially the Greater Gyzylagach Gulf hosted outstanding numbers of waders. The survey revealed that southern Azerbaijan is of higher importance for waders than previously thought.

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Outreach and Education

Oral

Illegal killing and Poaching of birds in Batumi Bottleneck

We are lucky to have a lot of birds in Batumi. Every year we count more than a million birds in Batumi bottleneck. Raptors from north to south migrate through Batumi. Many people from all over the world are trying to visit Batumi to see this spectacular migration during the fall. Every migration season we have huge flocks of raptors. With lots of raptors there is unfortunately lots of shooting of them. Local people shoot raptors mostly just for fun; although sometimes they use dead raptors as a game bird. Some people believe hunting was traditional in Georgia but that is not so. Even today raptor shooting is prohibited by the law but poorly controlled by the environment policy of Georgia. Falconry was a tradition in contrast to hunting and still today falconry is quite popular. One of the downsides to this is local falconers sometimes shoot raptors and then feed their falcons with raptor meet. Falconers believe that their falcon will be much more powerful and have better hunting instincts, which does not make any sense. One of the reasons why falconers kill raptors is because they do not need smaller raptors. For example, if a falconer catches a smaller raptor they are likely to kill it to prevent catching the same bird again. Every year 9 000-15 000 birds during the southbound migration in Batumi flyway and it affects not only raptors, but also other birds such as storks, pelicans and vultures as well. This is because poachers shoot all birds which fly overhead close enough to be hit via shotgun. Since 2008 many people are trying to reduce raptor shooting in Batumi and we have somewhat of a positive result. However, it is still not enough, so our aim is to continue to fight against poaching and illegal falconry. Our birds and our wildlife are our treasure and we need to keep them for our future generations and make birds a part of our niche.

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Research and Monitoring

Featured

Nocturnal flight call monitoring: potential and standards for quantifying bird migration

Simon Gillings^{1*}, Joost van Bruggen², Nick Moran¹, Magnus Robb³ & Gerard Troost^{2,4}
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Many bird species migrate largely, or exclusively at night, while others engage in nocturnal activities such as display flights and movements to nocturnal foraging grounds. There are several methods by which nocturnal bird activity can be studied, and all have strengths and weaknesses. Recording the vocalisations of night-flying birds has been popular in North America for over a decade but only recently has it gained widespread popularity in Europe and elsewhere. While the factors motivating individual recorders vary, the recent large growth in nocturnal sound recording presents the potential for valuable large-scale data to be collected. With some thoughts regarding standardisation, such data could inform questions concerning species composition, magnitude and timing of nocturnal bird migration, and complement insights from other observation methods. I will review the strengths and weaknesses of data derived from nocturnal flight call recording, highlight challenges for extracting standardised data, and introduce a recently developed protocol that aims to provide best-practice guidelines for people engaged in standardised nocturnal flight call monitoring.

Ricky Arnold - NASA Astronaut

Featured

No Borders, Only Beauty: a bird's eye perspective of our home planet

Having previously lived and worked in the Middle East and North Africa for 8 years while teaching children of all of the region's faiths, it is wonderful to return to a place that in many ways still feels like home. I recently returned from humanity's most distant outpost – the International Space Station. The ISS was built on the belief that when humans do leave Earth, we do so not as representatives of a country, but as of a species. The ISS has lived this vision since the arrival of its first crew in the year 2000 and has remained a continually crewed outpost of the human race since that time. It has been visited by astronauts from eighteen countries – and counting. Visitors to the ISS have the rare privilege to look down on our home planet and see its sublime beauty, apparently free of the political boundaries and strife that far too often accompany them. We orbit the Earth once every ninety minutes passing over time zones and date lines, mountain ranges and canyons, unfathomable depths and treacherous shoals for the expressed purpose of improving life on Earth while laying the groundwork for humankind's future exploration of the solar system. I am honored to join this international crew as we trace the flight of the swifts back into the eternal city of Jerusalem.

Yossi Leshem, SPNI & Tel Aviv University Email: yossile@tauex.tau.ac.il

Featured

Four decades of birding centers - the Israeli test case

Israel's position at the junction of three continents has resulted in the migration of 500 million birds over the country twice a year, in spring and autumn. Also the biodiversity of bird species (545) is exceptionally high relative to the small size of the country.

Four decades ago, in 1980, we began with plans for the first birding center in Eilat which developed over the years into an active network of birding centers.

In my lecture I will present the development of the vision, with the integration of NGOs, government and academic bodies to promote the network. The focus was on multi-disciplinary aspects, including nature conservation, research, ecotourism from Israel and overseas, environmentally-friendly agriculture, and regional and international ties.

The evolution of the birding centers network in Israel can constitute a model for other countries from all the comprehensive aspects.

Sunday 31st:

Ikram Quttaineh, Project coordinator at Hanns Seidel Foundation Jerusalem. 38, Keren Hayesod, Jerusalem 9214915 Email: ikram@hss.de

Outreach and Education

Featured

A Shifting Baseline in Birdwatching and Conservation in Palestine

Ikram Quttaineh, Project coordinator at Hanns Seidel Foundation Jerusalem. 38, Keren Hayesod, Jerusalem 9214915

There are 373 recorded bird species and less than 10 birdwatchers in Palestine who would tell the Palestinians about them. The challenge for us was how we could help open up the potential for the story of the birds to reach new and wider audiences in Palestine. In 2016, the foundation launched with its Palestinian partners the first non-profit trademark and website "Mahmiyat.ps" which means "nature reserves" in Arabic. This trademark aims at raising awareness for bird watching and conservation in Palestine through community involvement.

Each year around 2000 people have the opportunity to experience birdwatching with us and more than 7000 monthly readers use the website. Keeping with the goal of raising awareness and birds' conservation, we organized the first educational exhibition about "Birds of Palestine" and worked with mayors from 15 villages, connecting them to the birds. This generated, in turn, a commitment to establish the first birding observatory in Palestine in a northern village.

In 2019, we started a project with the University of Lausanne targeting farmers to install barn owl nesting boxes on their land and use the owls as biological controllers in lieu of pesticides. In addition, a school near the nativity church welcomed another project for installing Swift boxes as the recent refurbishing of the ancient wall of the church destroyed the swift nests.

Evidence has shown that if you provide the first connection between people and birds they will be ready to take the next step.

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Outreach and Education

Oral

Lighting the Spark: the important role of Bird Observatories for connecting people to birds and nature. A Case Study on the development of an education and outreach program at Bird Studies Canada's Long Point Bird Observatory.

Birds have always been one of the best subject matters to engage people with the natural world. For years Bird Observatories have leveraged the appeal of birds to the general public to help promote and communicate the importance of the bird population monitoring work that goes on at their facilities. Additionally, many Bird Observatories are situated in locations that provide excellent opportunities for the development of outreach and formal education programs.

Since the 1960s, Long Point Bird Observatory (a program of Bird Studies Canada) has been host to numerous school programs and youth-oriented camps such as the Young Ornithologist Workshop. Beginning in 2008, a formal science education program was launched in order to optimize impact of the work and to address a

demand within the local community. This effort grew to a very successful multi-faceted program that now includes off-site outreach programming, distance learning, special events and workshops. Providing case study examples of how we engage with students and the general public, lessons learned, recommendations for dealing with limited staff time and most importantly why this should be considered a valuable component of Bird Observatories will be discussed.

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Organization and capacity-building

Oral

How do we keep our most valued volunteers - using motivation to secure high quality work.

At the hearts of most observatories are their volunteers, the people who invest their time and dedication in getting up before sunrise, giving endless talks to school classes, doing censuses in all weathers, and all this often with very little pay.

In most cases, the bird observatories would have great difficulties getting the day to day work done without the efforts of these people. Getting just anybody to come and work is often not that hard for most established observatories, but if we want to maintain a high quality in our field work, research and outreach, we need to be able to get the very best, most experienced, people to return for more seasons.

I have reached out to former and present volunteers at a number of bird observatories. They have been given a questionnaire which covers different aspects of life as a volunteer at a bird observatory.

The most important factor is access to a fully equipped place to stay. Other important factors are access to WiFi, a room of your own, possibility to get a day off now and then and the opportunity to be part of science projects and/or international exchanges. Some people also emphasize the salary.

As employers, we have to be creative in our dialogue with the volunteer: what can we do to make her/his stay easier, more comfortable, more fun without breaking our budgets? Our tools can be everything from equipping the staff house to scheduling or loan bikes.

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Outreach and Education

Oral

Festival of Migratory Birds of Venezuela, an initiative of environmental education and outreach for the conservation of Venezuelan avifauna, aimed at children and young people of school age.

Our program is called Festival of Migratory Birds of Venezuela (FAMV) and aims to promote awareness and knowledge dissemination in favor of the conservation of migratory birds and residents of the country, through an itinerant festival of scientific-citizen integration and national and international cooperation. It adopts different locations, dates and themes each year, but keeps migratory birds as its functional objective. We have celebrated 4 editions in 3 years, in the State of Aragua "IFAMV2016: Passage of Portachuelo, gateway of the birds to South America", in the State of Vargas "IIFAMV2017: Celebrate the places of stop", in Lara State "IIIFAMVMay2018: World Day of the Migratory Birds, a celebration to the migratory oripopos", and in the Capital District" IIIFAMVOct2018: Celebrating the urban birds ". Achieving to serve more than 200 children between 4th and 6th grade of primary school and instruct more than 90 adults between professors and volunteers, with the integration and collaboration of 20 national and 3 international actors. The FAMV seeks to consolidate itself as an environmental education strategy that celebrates migratory birds and their scientific research in the country. Founded as a space aimed at the diverse public for cultural learning and appropriation as part of our identity and international responsibility in the Western Hemisphere. Its global goal is to build a network of activities-festivals in national and international cooperation, which allows all those interested to be welcomed by the education and conservation of migratory birds in the country.

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Outreach and Education

Oral

World Migratory Bird Day: A Global Education Campaign for the Protection of Our Shared Birds

Miguel Matta Pereira* and Susan Bonfield, Environment for the Americas, Boulder, Colorado, USA

Long-distance bird migrations join nations, scientists, and conservationists in efforts to conserve hundreds of species. Awareness of migratory birds, the delight they evoke, and awareness of threats is critical to bird conservation. World Migratory Bird Day is a global celebration of migratory birds that blends impactful conservation messages, compelling activities for youth and adults, and practical actions anyone can take to conserve birds, to inform communities about birds and their conservation. Our goal is to motivate bird conservation action at the personal, local, state and national levels. Community-based activities, education programs, and festivals, as well as via the media are primary ways to convey threats to migratory birds and how individuals and groups may help mitigate these threats. In 2019, WMBD focuses on the impacts of plastic pollution to migratory birds and challenges participants to join plastic cleanups around the world and to reduce plastic use. Events include cleanups at major conferences, including the IBOC, and in diverse habitats, including coastal, riparian, urban, and agricultural. In summary, Environment or the Americas (EFTA) coordinates long-term efforts of WMBD in the Western Hemisphere, working with governmental and nongovernmental organizations from Canada to Argentina and the Caribbean. We host over 600 programs and events, reaching thousands of participants. EFTA provides the framework for events, promotional and educational materials and direct training in multiple languages. With our partners, the Convention on Migratory Species and the Agreement on the Conservation of African-Eurasion Migratory Waterbirds, together, we coordinate efforts in Europe, Africa, and Asia as well.

Yael Lehnardt, Israel Ornithological Center, The Society for the Protection of Nature in Israel, 2 HaNegev street, Tel-Aviv, Israel. Email: <u>Hug.Tzaparut@gmail.com</u>.

Outreach and education

Oral

One day, all of this will be yours: birding clubs for children and youth at the Jerusalem Birds Observatory - a 46 years old success story

Yael Lehnardt* and Dan Alon. IOC, SPNI, Israel

"Why did you start birding and at what age?" was the question we asked tens of birders in Israel five years ago, when we re-established the children and youth birding clubs of the Society for the Protection of Nature in Israel. Children and youth birding clubs have an important role in training generations of birders, educators, bird- ringers, researchers and conservationists. The birding clubs were established in Jerusalem back in the 1970's and they were guided by some of the best Israeli birders since then, many of them are former participants of the clubs. In fact, the Jerusalem Bird Observatory (JBO) was established thanks to a friendship that started in these activities. Later, the clubs slowly faded along the 90's. Five years ago we decided to take some of the former participants of these clubs, now workers of the JBO, and re-established the project across the country. A survey we conducted to define our focal audience revealed that: (1) most hard-core birders started birding when they were 10-15 years old and (2) the main reason for becoming birders was the assistance of a more experienced birder. Therefore, we encouraged birders to guide weekly-meetings of birding clubs as a regular afternoon activity. Today, we have a third generation of children and youth birding clubs, with tens of participants across the country and we have the faith that the current participants will lead birding and nature conservation to a whole new level in the future.

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Environmental Monitoring

Oral

The rule of local birding clubs as a local nature watchers

Local birding groups and local birding clubs exist in many places around the world, as part of an established bird observatories or as independent group that are run by private people. In many cases birdwatchers have a good knowledge of their surrounding areas and they tend to visit local birdwatching spots quite often. Therefore, local birding groups can be a strong and important force when it comes to monitoring and surveying local natural habitat.

In 2014, Gaash birding group conducted a bird survey as part of a large and complete survey in the area of Arsuf Kedem in Hof Hasharon area, (20 km north of Tel-Aviv), which was a joint effort with the Society For the Protection of Nature, the Nature Parks Authority, and other organizations. The results of this survey

helped to construct a blockage of a large natural habitat that was disturbed nonstop by vehicles and motorcycles.

Another impact of this survey was a stronger connection of the local birdwatching community with their close environment, and a better knowledge of the local birds. In another case, local birdwatchers were the first to discover and report a wetland destruction by a local farmer in Israel, who was covering the land with soil for agricultural use. The case was reported to the authorities which stopped the destruction and investigated the farmer. Those cases highlight the rule of local birding groups as local "nature watchers" who always keep an eye open and help the authorities, local or national in protecting the local nature.

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Research and monitoring

Oral

Semi-automatic identification

Mans Karlsson* and Ola Hossjer, Department of Mathematics, Stockholm University, Stockholm, Sweden

Correct identification of species, subspecies, sex and age are of critical importance to get reliable time series of bird (and other taxa) population changes and migratory timings. Through a Bayesian latent variable approach, we present a way of obtaining aposteriori species probabilities based on measured traits, which generalizes to practically any group of species and any type of trait. One may also choose the degree of conservativeness through a parameter value determining the size of so called indecisive regions, which contain trait measurements that are not distinct enough to determine the species with acceptable confidence. In other words, our model does not only predict species, it also predicts when the measured traits are not sufficient for reliable species identification.

Note that the method presented above is not only applicable to species identification, but also to subspecies, sex or age determination, or a combination thereof. We illustrate usage of the method on a data set of four *Acrocephalus* species.

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Research and Monitoring

Oral

Refining the geographic source of a fall Neotropical Migrant at Inglewood Bird Observatory in Western Canada using $\Box 2H \Box$ measurements and genetic analyses of feathers.

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*Douglas M. Collister, Calgary Bird Banding Society, Calgary, Alberta
Keith A. Hobson, Department of Biology, University of Western Ontario, London, Ontario
Keith A. Hobson, Environment and Climate Change Canada, Science and Technology Branch, Saskatoon, Saskatchewan

Inglewood Bird Observatory (IBO) in Calgary, Alberta, Canada is a member station of the Canadian Migration Monitoring Network. Spring and fall migrations of land birds are monitored with the primary objective of quantifying population trends. Understanding the geographic source of the population is an important link to connect trends to conservation and management. We used \square^2 H analysis of feather samples collected during 2004 and 2008 to determine potential origins of Wilson's Warblers (*Cardellina pusilla*) migrating through IBO in the fall by applying a spatially-explicit assignment to origin analysis. This preliminary analysis indicated that Wilson's Warblers were potentially migrating through IBO from the south. We resampled migrant Wilson's Warblers in fall 2015 and conducted both \square^2 H and genetic analyses of feather material to refine our understanding of the geographic source of sampled birds. Subsequent assignment to origin using feather \square^2 H and 'genetic populations' delineated by Ruegg et al (2014) indicated that Wilson's Warblers monitored at IBO during fall are almost entirely from the Western Boreal population to the north and west of IBO. Our study provides an example of combining multiple approaches to determine connectivity and catchment areas for birds monitored at a migration stopover site.

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Research and Monitoring

Oral

CTT InSight: high-resolution tracking of small organisms with Motus-compatible transmitters

Until now, studies of small animal movement ecology were limited to labor-intensive VHF with transmitters weighing >1 g and having a short battery life. Development of the Motus Wildlife Tracking System allowed small bird species to be tracked at continental scales by leveraging large collaborative base station networks. These base stations, operated by numerous independent researchers, detect tagged birds as they pass within a certain distance of each station. However, these stations only localize to an approximate distance from the base station, and when a series of antennas is present, direction of flight. CTT has developed an affordable Motus-compatible system, CTT InSight, that allows individual tags to be localized at a fine-scale. This system consists of a grid of miniature base stations (nodes) that receive signals from each tag and transmits those data to a receiving base station. The receiving base station stores and transfers the data to the CTT cloud server where accurate, fine-scale locations are calculated. When a grid of nodes is setup at a study site, GPScomparable spatial resolutions of 3-20m can be achieved. Used with CTT LifeTags, studies are not limited by battery life of a tag because LifeTags run solely on solar power. In several recent studies of small rodents, hatchling turtles, and passerines we were able to detect fine-scale movements at high temporal resolution (2 s) allowing us to calculate micro-habitat selection and detailed space use. The CTT InSight system is an affordable solution for tracking fine-scale movements of small animals while also fitting within the broader continent-scale Motus network.

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Research

Oral

Departure decisions in songbirds with different migration strategies: rushed long-distance migrants depart earlier and more independently of wind than medium-distance migrants

Thomas Klinner¹, Florian Packmor^{1,2}, Bradley K. Woodworth³, Cas Eikenaar¹ & Heiko Schmaljohann^{1,4}
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Optimal migration theory predicts that medium-distance migrants have more time for their seasonal travels and organize these to minimize energy expenditure. In contrast, long-distance migrants probably maximize the speed of migration at the expense of higher energy costs. It was therefore hypothesized that resting until wind assistance improves pays off in terms of minimizing the energy costs of transport, but not in terms of minimizing the time spent on migration, because waiting costs time. Hence, long-distance migrants should organize their migration to minimize the time spent on migration, whereas the migration behaviour of medium-distance migrants should minimize the energy costs of migration. Yet, no study has investigated potential differences in their migration behaviour by jointly considering species of both groups simultaneously under free-flying conditions. The isolated island Helgoland offers ideal conditions to do so. Birds of both groups were tracked by a large-scale automated radio telemetry array. The presentation will focus on differences in departure decisions between long- and medium-distance-migrants.

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Research and environmental monitoring

Oral

Age-specific trends in timing and abundance of autumn passage reveal population dynamics in migratory raptors using the eastern Black Sea flyway

Dries Engelen* & Wouter Vansteelant, Batumi Raptor Count, Sakhalvasho, Republic of Georgia

Since 2008 the Batumi Raptor Count monitors the autumn migration of more than one million raptors along the eastern Black Sea coast in the Republic of Georgia. These counts offer a rare source of information about the state of raptor populations breeding between northeastern Europe and central Russia. We analyzed recent trends in abundance and timing for eight species of which approximately 1% of the global population is thought to migrate via Batumi. With increasing recognition of age-dependent migration behaviors in long-lived migrants we analyzed trends separately for juveniles and non-juveniles. Data was of sufficient and comparable quality to estimate age-specific trends across the period 2011 - 2017. Low to moderate variability in annual counts indicated high monitoring potential for most species except for Pallid Harrier (*Circus macrouros*) and for juveniles of Montagu´s Harrier (*C. pygargus*), Honey Buzzard (*Pernis apivorus*) and Lesser Spotted Eagle (*Clanga pomarina*). We detected significant increases in the number of non-juvenile Black Kite (*Milvus migrans*), Booted Eagle (*Hieraaetus pennatus*) and Short-toed Eagle (*Circaetus gallicus*), and a significant decrease of juvenile Booted Eagles. Neither age group of any study species significantly advanced or delayed timing of passage.

We argue that numbers of non-juvenile Black Kite, Booted Eagle and Short-toed Eagle at Batumi are growing due to a recent and ongoing shift towards safer wintering sites north of the Sahara. Accounting for age greatly aided interpretation of trends and we hope the open access publication of our data and code will stimulate the adoption of this approach elsewhere.

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Research and Monitoring

Oral

Management of and outputs from a large database and the role of bird observatories in Israeli ringing

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Bird-ringing in Israel started in 1936 and has been in continuous use since 1959. Today the Israeli Bird Ringing Center (IBRC) is managed by the Society for the Protection of Nature in Israel (SPNI), and ringing permits are granted by the governmental Nature and Park Authority. The IBRC trains new ringers, distributes rings and nets among the ringers and manages the ringing database. In recent years, the IBRC developed an online database which allows ringers to easily and quickly report their ringing data and get information about birds they caught which already had rings. The system has been online since 2018, providing an efficient and organized database that contains ringing data gathered in Israel since 1967, currently with over 1.2 million lines of data. More than half of these data were gathered during the last decade with about 65,000 birds ringed annually. Bird observatories that operate a permanent ringing station have a significant role in the obtainment of much of the ringing data in Israel. These stations provide a long, continuous monitoring of resident and

migratory birds, allowing a macro-scale view of the Israeli avifauna. Over the years, five main ringing stations were active in Israel for significant periods; today, two of the oldest stations are still operated by the SPNI: in Eilat and in Jerusalem. These ringing stations represent a diversity of bird species which use two different and important migration routes, and are thus important for the local and global understanding of bird's movements and bird's population dynamics.

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Research and Conservation

Oral

Long-billed Curlews (*Numenius americanus*) Through the Annual Cycle – Continuing Threats and New Developments

Jay Carlisle^{*1}, Stephanie Coates¹, Autumn-Lynn Harrison², David Bradley³, David Newstead⁴, Eduardo Palacios⁵, Erica Gaeta^{1,6}, and Heather Hayes¹.

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Like many large shorebirds (waders), Long-billed Curlew populations have declined across portions of their range. Along with collaborators, we're researching curlews during breeding, migration, and wintering seasons in an effort to better understand migratory connectivity and better identify threats in each time period and area. Multiple partners are continuing to add data to describe the migratory connectivity patterns of Long-billed Curlews using satellite telemetry, with recent additional study areas moving us closer to an initial look at range-wide connectivity patterns. Additionally, to address specific threats to breeding curlews in southwestern Idaho, including direct shooting of adults, we continue to collaborate on many forms of community education to help raise awareness and reduce threats. We will incorporate new findings – including preliminary data from an ongoing pilot study of wintering curlews in northwestern Mexico, highlight several new avenues for stakeholder and community outreach, and touch on future objectives.

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Conservation

Oral

Conservation of the Collared Pratincole (Glareola pratincola) in Hungary

The Collared Pratincole (*Glareola pratincola*) is an endangered bird species in Hungary, as the population has under gone a large decline. Only 20 pairs remained to the 2000's from the former 500 pairs breeding on salt steppes. The conservation efforts have stabilized the remaining population and there has even been a small increase in recent times in Hungary. Where conservation efforts are efficient, the breeding success is higher. Adequate protection needs the cooperation with the land owners and land users on the most important breeding sites as the breeding colonies are outside of the protected and Natura 2000 areas. All pairs are breeding on intensive agricultural areas as the species changed its prefered habitats from grazed grasslands to plow lands during the 1990's. The remaining population breeds near rice fields as these areas provide the insects for feeding. The intensively cultivated agricultural areas are strongly suboptimal breeding sites because of the large number of the endangering factors such as higher predation, nest destruction by machines during cultivation and damaging effects of heavy rains.

This presentation aims to introduce the conservation methods, from finding the nests to the creation of protection zones and cooperating with the farmers. The direct protection helps to optimize breeding success, the applied research techniques (control survey, nest cameras) provide the adequate data on each pair. The presentation also raises awareness as the collared Pratincole population is strongly dependent on conservation activities in several countries, while there is no proper data from different countries where larger numbers breed.

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Research and Monitoring

Oral

Feather Characteristics of Indian Pitta (*Pitta brachyura*): A Model for Making Feather Atlas for Indian Birds.

Ram Pratap Singh^{*}, Prateek Dey, Swapna Devi Ray, Sanjeev Kumar Sharma Sàlim Ali Centre for Ornithology and Natural History, Anaikatty, Coimbatore – 641108, India

Feathers are the most distinctive feature of birds, and the vibrant colours have attracted humanity for time immemorial. Feathers also hold an array of valuable information to be mined. Hence, we are collecting feathers from all the available species of birds in India to make a feather atlas by systematically documenting their macro and micro structural features. We collect feathers from across the country through a wide network of volunteers, interns, forest personnel and others trained by us. In effect, we are crowd sourcing manpower to contribute to the feather repository by outreach through electronic media, NGOs, colleges and forest department.

Our ultimate aim in building the feather atlas is to develop a robust App for species identification using a feather scan, through a means that does not demand direct sighting (not easy in certain situations) of the species in the field to confirm its presence. It would be a technique of high utility in citizen science programmes. Along this line, we conducted a pilot study to document feather variations of Indian Pitta, a passerine native to the Indian subcontinent. Feather barbs from all type of feathers were observed under a light microscope. Primary flight feathers were longest, whereas bristle feathers were shortest. The mean barb length was highest in wing feathers followed by body contour, semiplume, tail feather, down, powder down and bristle. Villi, nodes, prongs and internodes were recorded in down, powder down, semiplume and body

contour. A novel type of barb was observed in the dorsal body contour feather having plumulaceous barbules at the base followed by pennaceous barbules, termed as 'sub-plumulaceous' type. Using the same strategy, we are making feather database of other species for enumerable usages.

Shai Agmon^{*1}, Ella Fishman^{*2}, Yaron Charka³, Yoni Vortman⁴, Rachel Ben-Shlomo² * denote shared first authorship. Email: <u>natureisrael@gmail.com</u>

Research

Oral

"Nature's grossest blunder"? High occurrence of hybridization between two Acrocephalus species.

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Hybridization is the inter-breeding between two distinct biological species. While historically hybridization was considered maladaptive and thus rare, in recent years, there is growing acknowledgment that hybridization is more common. In avian species hybridization can occur between species that breed in sympatry. Several species of the *Acrocephalus* genus geographically overlap in their breeding distribution. Some of these species are morphologically similar and have been assumed to possibly hybridize. Reed warbler (*A. scirpaceus*) and marsh warbler (*A. palustris*) are two morphologically similar species which migrate through Israel during autumn and spring migration. In-light of their similar morphology occasional captured individuals where difficult to assign to one of the two species and were suspected as hybrids. Here, we molecularly examined the possible occurrence of such hybrids. During spring and autumn migration through the Hula Valley we sampled 85 long winged reed warblers and 46 marsh warblers. We identified five hybrid individuals which are approximately 10% of all marsh warblers sampled. These hybrids were not morphologically distinct and could not be identified as such by well experienced bird ringers. Hybrid were sampled during both autumn and spring migration which indicates viability. As these two species ecologically differ, our reported high level of hybridization suggests that behavioral mechanisms for prezygotic reproductive isolation would be selected for.

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Monitoring

Oral

Cranes, Farmers and Ecotourism in the Hula Valley, Israel

The Hula Valley is part of the Great Rift Valley, located in the north part of Israel. It held a fresh water lake and a wet-land until it was dried in the middle of the 20th century. Since then, intensive farming was developed on the pit soil valley floor. Changes in land and water management, and the effect on the water quality of the Sea of Galilee, brought the Israeli government to initiate the project of "restoration of the pit soil in the Hula Valley" in 1991. One of the outcomes of this project was a creation of a shallow lake in the center of the valley in attention to develop ecotourism around it. Another outcome was a change in the agriculture crops in the valley, replacing cotton with maze, sunflowers and peanuts.

About that time, Common Cranes started to winter in the Hula Valley, in small numbers at first, up to few thousands. Number of wintering Cranes increase annually, and in 1997, 7000 wintering Cranes caused significant damage to farmer's crops. The following year the "Cranes project" started. The Cranes project is a joint project of the SPNI, JNF, INPA, Agamon Hula Park and local farmers, the aims of the project are:

- 1. Minimize Crane's damage to farmer's crops
- 2. Enable ecotourism in the Agamon Hula Park

The Cranes project involves supplying alternative food for Cranes during the winter and guarding the farm fields. Wintering population of Cranes in the Hula valley is still increasing, in 2017 c 50'000 Cranes wintered in the Hula valley.

The success of the Cranes project in keeping Cranes in the Agamon park area and away from farmlands, created a major attraction in the form of huge numbers of Cranes and other birds in a very small area, and visitors from all over Israel and beyond started to attend the park. The increasing number of visitors changed the economy of the area in the winter and was part of creating a national trend of birding tourism. It encouraged the creation of more birding parks in Israel.

In our lecture we will show how a crops protecting project is supporting a large scale ecotourism operation, and the other way around. We will present different dilemmas in the short and long term management of a constantly growing wintering population of Cranes, and will try to shed some light on the future of the Cranes project.

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Research and Monitoring

Oral

A National Vision of creating a network of bird observatories in Mexico

Mexico, has an outstanding opportunity to monitor migratory birds of North America with less stations, less people, less money, less effort and more efficiency than any other country. This is due to the funnel shape of North America with a distance of 6,500 km, between the Atlantic and the Pacific oceans at the level of Canada and Alaska, that tapers off towards USA, and Mexico, where the distance reduces to just 217 kilometers in the Isthmus of Tehuantepec. Three of the four migratory corridors of North America converge at this point with the effect of concentrating species and migratory birds. Besides this, we believe that there is the phenomenon of a circular migration takes place in the Isthmus of Tehuantepec, which brings the birds from the migration route that swings off to the Caribbean islands. Setting up six stations in the following strategic points, we could be gathering information that would allow us to diagnose the health of populations, breeding success, winter survival rates and winter site fidelity of many species that travel south all the way from the Boreal Canada and USA to México, which is why we need to set up a network in Mexico for the exposed reasons.

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Oral

Anthropogenic effects on resident bird communities in Israel

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In the past century Israel has undergone major development resulting in significant reduction of natural landscapes. The majority of altered lands were transformed to agriculture, settlements and infrastructure. Birds are considered sensitive to environmental change therefore can be used as indicators for habitat intactness. We evaluated anthropogenic development effects on resident birds' community structure. We used bird point counts data collected by Hamaarag – Israel's Long Term Biodiversity Monitoring Program. Data collection was carried out in eight different habitats across Israel's climate gradient. Points in each habitat were divided between disturbed and natural areas and were revisited three times between 2012-2018. We compared resident bird community structure between disturbed and natural areas and accounted for life history trait differences between bird communities. We found significant differences in community structure between altered and natural areas in all of the habitats. Some changes in community life history traits were repeatedly different between altered and natural areas, such as feeding preferences, nest placement and primary habitat. One change that occurred in all habitats was the disappearance of insect feeding species near altered lands and their replacement by invasive and commensal species. Our results suggest that expansion of altered areas threatens local bird species and causes changes the local bird community structure. Our results can inform land managers on the way anthropogenic development effects biodiversity across multiple habitats and can help direct future conservation decisions.

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Research and Monitoring

Oral

Identification of migratory songbird African wintering habitats and implications for conservation

Tal Raz^{1*}, Gidon Perlman², Yosef Kiat³, Kevin Kardynal⁴, Keith Hobson⁴, Takuya Iwamura¹ ¹Department of Zoology, Tel-Aviv University, Tel-Aviv 6997801, Israel. ²Jerusalem Bird Observatory, Jerusalem, Israel. ³Israeli Bird Ringing Center, Society for the Protection of Nature in Israel, Israel. ⁴Science and Technology Branch, Environment Canada, Saskatoon, SK S7N 3H5, Canada. Migratory birds that breed in Europe are in decline. This trend is significantly more severe in long-distance migrants, which winter in sub-Sahara Africa than in short-distance migrants. Many studies consider the environmental conditions of these wintering habitats to be responsible for the decline, but despite their potential importance, there is a severe lack of knowledge regarding their ranges.

The current knowledge of wintering ranges is not accurate enough to estimate its consequences on the survival of the migrants and could possibly be misleading for conservation purposes. Thus, in this research we identified the African wintering habitats of a songbird that migrate through Israel, the Blackcap (*Sylvia atricapilla*). For this purpose, during the spring migration we collected feathers from 80 individuals in the Jerusalem bird observatory, which the birds grew in their wintering habitats. These feathers contain an isotopic signature of their growth area, meaning the isotopic ratio in the feather is correlative to the isotopic ratio in the growth area. Because different areas have different isotopic ratios, this signature in the feather narrows the possible wintering habitats of the birds that migrate through Jerusalem. Combined with species distribution model based on occurrence data form the Global Biodiversity Information Facility (gbif) and climatic and environmental factors, we can successfully narrow down the potential habitat range. Finally, we restricted the area according to the suitable habitat of the bird (e.g. shrubs) using a land cover map. This revised wintering area is much more realistic for conservation purposes than the previously known range.

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Environmental Monitoring and Conservation Projects

Oral

The "Be'er Sheva River Park" Birding Center - Wetland Restoration Two Decades After Draining

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The Be'er Sheva Valley, at the northern edge of the Negev desert, serves as one of the last stopover sites for southbound migrants, for refueling before crossing the vast Saharan desert. Within this arid valley, the city sewage ponds and surrounding agricultural fields, provided critical wetland habitat, hosting thousands of waders and waterfowl each autumn, and represented one of the richest bird hotspots in Israel. However, since draining the wetlands in the early 2000s, the valley no longer provides habitat for many bird species. Around this time frame, the Be'er Sheva municipality planned to turn the whole area into the largest urban park in Israel (530 ha): The Be'er Sheva River Park. This project included the creation of a 9 ha lake, of which 3 ha designated to become a bird sanctuary, in order to provide habitat for waterfowl, and attract migrants back to the valley. Water has started flowing into the lake since early August 2018. Hundreds of migratory waders and water-birds, including rare species, some of which not seen in the area for almost two decades, responded almost immediately. Future plans include restoring and introducing wetland vegetation, including various microhabitats and structures, to serve as a shelter and refueling station for migratory birds, and to increase bird diversity. In mid 2019 The Jewish National Fund will open an ornithological center at the site as part of the

"JNF wings" project. The center will promote environmental education, eco-tourism and scientific research for the benefit of birds and humans.

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Outreach and Education

Featured and Workshop

We fight windmills - bird and habitat conservation in and around Eilat, some experiences of the IBRCE - Towards community-based bird and bird habitat conservation.

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Israel and Palestine hold more population than its environment can afford. With this comes a change in land use, severe pressure on the open spaces and natural habitats, and energy infrastructure which crisscrosses the land and causes political strife. At the same time, we host one of the world's busiest flyways. Our long and successful campaign against a hazardous wind farm, here in Eilat, alongside other campaigns to save birds and habitats, has taught us that our best assets is our supportive public. At the crucial moments of almost every struggle, in a kibbutz vote against wind farms, attending planning committees, in the media or in sessions with decision makers, our community made the difference. How does one change a heart? How do we make our fight theirs? How do we recruit, prepare and activate our communities?

In our workshop, we will learn the importance of communal identity, authentic massages, creating a home for needs and feelings in our community, and adopting a friendly and cooperative approach to our relationship with the "others".

This is how we create peace with farmers, developers, decision makers and within ourselves.



