17 / 2022

Swan News

Newsletter of the IUCN SSC Swan Specialist Group

SWAN SPECIALIST GROUP

Part of IUCN SSC Species Survival Commission

Wetlands International

swansg.org

ABOUT THE SWAN SPECIALIST GROUP

The IUCN SSC Swan Specialist Group (SSG) is a global network of over 300 swan specialists from 38 countries who undertake monitoring, research, conservation and management of swan populations.

The SSG strives to facilitate effective communication between members and others with an interest in swan management and conservation world-wide, in order to improve national and international links for cooperative research, to identify gaps in knowledge and to provide a forum for addressing swan conservation issues.

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CONTENTS

EDITORIAL

Welcome to the 17th edition of the Swan Specialist Group News, for 2022. This has been a busy year and culminated with a very enjoyable and informative International Swan Symposium, held in conjunction with the Trumpeter Swan Society in Jackson, Wyoming, USA. My thanks to all who participated, whether in planning, assisting, attending or presenting. My only regret is that I did not spend more time with many colleagues from afar.

My personal impression is that the "hybrid" conference, with both in-person and virtual presentations, was quite successful. Virtual presentations are likely to be a large part of future meetings, and these have many advantages and disadvantages (see Downs *et al*. 2022). It would be very helpful to hear from others about their experiences and opinions in Jackson, with a view to organising future swan symposia.

Another issue that came to the fore (again) while compiling the Recent Literature section of this issue of Swan News related to language barriers. With numerous publications in Russian, Chinese and Korean script (among others), getting a citation correct becomes somewhat problematic. Language also presents an extra hurdle for researchers wishing to describe their work, verbally or in writing, to an international audience. SSG members have been very helpful, but aren't always available. This topic has of course been experienced more widely and is being assessed by those interested in overcoming language barriers in research and conservation (Negret *et al*. 2022; Steigerwald *et al*. 2022). The Swan Specialist Group has c. 300 members across 38 countries, and many members are multi-lingual, but I think we should still ensure that we are not limiting our information exchange by communicating primarily (solely?) in English. This can be challenging with limited resources but please do advise the Swan Specialist Group Committee and Coordinators if we need to do a better job in this regard.

Finally, I would like to thank everyone who contributed to this Newsletter in any way, whether by submitting news, articles, photographs or just by reading or sharing it. As always, I want to remind people that I merely compile what others contribute, and other people make the Newsletter readable and in fact, beautiful. Special thanks, and my best wishes to you all.

by **Carl D. Mitchell**

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Trumpeter Swan (**Photo:** K. Brides)

THE 7TH INTERNATIONAL SWAN SYMPOSIUM & 26TH TRUMPETER SWAN SOCIETY CONFERENCE

Participants of the 7th International Swan Symposium, Jackson, Wyoming, USA (**Photo:** L. Luigujõe)

The 7th International Swan Symposium (7th ISS) of the IUCN-SSC Swan Specialist Group (SSG) was held in conjunction with the 26th Conference of the Trumpeter Swan Society (TTSS), following a pattern established by the 4th ISS (at Airlie, Virginia, USA in 2001) and 5th ISS (at Easton, Maryland, USA in 2014) of combining these two major swan meetings for ISS held in North America. The symposium took place at the Snow King Resort in Jackson, Wyoming, from 24th - 27th October 2022, following a pre-conference reception held at the National Museum of Wildlife Art on the evening of 23rd October.

The invitation to hold the meeting in Wyoming was made by Walter Wehtje of the Ricketts Conservation Foundation (RCF) just four years ago, during the 6th ISS (at Tartu, Estonia, in October 2018), and the timing fulfils the Swan SG's recommendation, at that time, of continuing to convene swan symposia at 4-5 year intervals. Given the unprecedented events since then, however – notably the global Covid-19 pandemic, and the war in Ukraine – it is a huge credit to the Organising Committee that they were able (through monthly zoom meetings) to assess the uncertainties arising internationally and to ensure a remarkably well-attended and informative meeting.

Overall, 101 delegates registered, from 13 different countries, and the talks/poster presentations ranged geographically from Canada and the USA via Eurasia to Australia. Walter Wehtje (RCF) and Margaret Smith (TTSS), in particular, ensured that everything went well, including a virtual conferencing facility for those unable to be there in person. The ability to attend and/or present remotely – a first for a swan symposium – was invaluable for broadening the scope of the meeting, greatly enhancing the international component and discussions more widely.

During preparations for the meeting, it was noted that the history of the Trumpeter Swan Society and the IUCN-SSC Swan Specialist Group might not be familiar to more recent members of these organisations. The full programme of 49 talks, 14 posters and one film therefore kicked off on Monday morning with overviews on the origins, development, and current remit of the Trumpeter Swan Society and the SSG.

Attending talks during the conference (**Photo:** L. Luigujõe)

Presentations then moved on to updates on population trends for migratory swan populations in Europe, and also for the U.S. segment of the Rocky Mountain Population of Trumpeter Swans. In a keynote talk, Radoslaw Wlodarczyk described the results of his extensive 25-year study of Mute Swan breeding in central Poland, where the species first became established during the 1960s then increased in numbers over the decades to stabilise at 70–100 pairs.

On Monday afternoon the theme changed to focus on threats to swan species, with particular emphasis on lead poisoning from spent gunshot and anglers' weights. Lead remains a key threat to the birds, but with the source of the lead varying locally and regionally in accordance with the level of use following local guidelines and national/international legislation. The high standard of talks continued, with topics covered on Tuesday covering landscape/habitat use by the swans, factors (including social learning and climate change) affecting the timing of migration, and the efficacy of habitat management in mitigating for infrastructure development. Towards the end of the day, we considered outreach programmes and heard an interesting philosophical comparison of Darwinian and Aristotelian approaches to understanding the natural world.

Presentations at the 7th ISS:
(a) Margaret Smith (USA), (b) Radek Włodarczyk (Poland), (c) Martha Jordan with Walter Wehtje (USA), (d) Preben Clausen (Denmark), (e) Julia Newth (UK), (f) Dima Boiko (Latvia) (**Photos:** L. Luigujõe)

A new film from the "Flight of the Swans" project, in which adventurer and conservationist Sacha Dench famously flew the whole of the Bewick's Swans' migration route from the Russian arctic to the UK by paramotor, was a beautiful and timely reminder of the joy that migratory swans give to people along their flyway. The insight into the Russian people's feelings for the swans and emphasis on the importance of sustained international cooperation for conserving species that regularly traverse political boundaries felt particularly meaningful in these troubled times.

Snowy conditions during the mid-conference excursion (**Photo:** L. Luigujõe)

The mid-conference excursion on Wednesday proved unexpectedly challenging (at least for the bus driver) when, following a most enjoyable morning viewing wildlife (Moose, Pronghorn, Mule Deer and various waterbirds including Trumpeter Swans) around Jackson, then picturesque buildings dating from the earliest white settlers (Mormons), plans for visiting the Grand Teton National Park had to be curtailed due to heavy snow. The group returned to the Grand Teton Visitor Centre for lunch in the snow and a bit of a rethink. It was decided to make a visit to the National Elk Refuge, which combined good birdwatching with information on management of the refuge by the US Fish and Wildlife Service (USFWS). Vast machinery is used to provide a phenomenal 35 tons/day of alfalfa pellets to the thousands of elk which migrate to the refuge, as the snow sets in each winter. Fortunately, Bill Long had been planning a workshop on swan rearing techniques for those interested in aviculture, so a larger group than perhaps he expected were also able to visit the Wyoming Wetlands Society Breeding Facility at Valley Springs. The breeding success of swans at the site provide young birds for Trumpeter Swan reintroduction programmes in different parts of the U.S. segment of the Rocky Mountain Population of Trumpeter Swans, and it was fascinating to learn about his methods for maximising hatching success and juvenile survival. The day concluded with a smaller group of avicultural aficionados visiting Bill's egg incubation centre in downtown Jackson before returning to the hotel.

The final day of talks was devoted mainly to Trumpeter Swan studies – especially on their movements and the outcome of population restoration programmes – but with

additional information on the outcome of site management and protection for migratory Bewick's and Whooper Swans in NW Europe. In addition to the mid-conference visit to Bill Long's facility, and a TTSS Board Meeting, three other workshops were also held during the symposium. These consisted of: (1) an informal meeting of members of the Bewick's Swan Expert Group, to prepare for the 10-year review of the International Single Species Action Plan (ISSAP) developed for the NW European Population, (2) a meeting on the Interior Population Trumpeter Swan Management Plan (closed session), and (3) a workshop on the operation of the IUCN-SSC Swan SG. The last of these, open to all those attending the symposium (including online), was generally very supportive of the level of action and information exchange within the group, with Swan News (the Group's newsletter) being particularly well received. Ahead of the symposium, a call was put out via the SSG listserve to all SSG members, requesting nominations for a Co-Chair of the Swan SG. One standout candidate emerged, and Dr Julia Newth was duly voted as Co-Chair "nem con" to immediate applause by the c. 50 SSG members present at the workshop!

The excellent scientific programme was developed thanks to abstracts for presentations submitted by the authors, all assessed by the Scientific Committee: Eileen Rees (Chair), Dmitrijs Boiko, Dave Delehanty, Lei Cao, Preben Clausen, John Cornely, Craig Ely, Bart Nolet, Jeff Snyder, Diana Solovyeva and Radosław Włodarczyk.

Moose seen during mid-conference excursion (**Photo:** L. Luigujõe)

Trumpeter Swans at the Wyoming Wetland Society Breeding Facility (**Photo:** K. Brides)

Plans are now afoot to publish the Proceedings as papers in a Special Issue of the Wildfowl journal in 2023, with Preben and Craig kindly agreeing to serve as Editors of the Proceedings. Authors are encouraged to submit their manuscripts to the Editors by 1st April 2023, or preferably sooner, either direct to them or via the Wildfowl journal email: wildfowljournal@gmail.com. Meanwhile, the full Programme and Abstracts are currently available on the Trumpeter Swan Society website, at: https://www.trumpeterswansociety.org/file_download/inline/ee728785-09db-4a09-8c11-2dd051e99c3b

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The SSG is immensely grateful to the Trumpeter Swan Society and to the Ricketts Conservation Foundation for supporting the meeting, both in organising a highly successful event and for fund-raising activity.

We are also indebted to the conference sponsors for their generous donations: the Knobloch Family Foundation, the US Geological Survey (USGS), the Mississippi Flyway Council, the Central Flyway Council, the Pacific Flyway Council, the US Fish and Wildlife Service (USFWS) National Elk Refuge, Anonymous donations in memory of Harry Lumsden and of Dave Lockman, Northern Rockies Conservation Cooperative, Intermountain West Joint Venture, and Sara DePew. Last, but far from being least, the consistent effort put in by Organising Committee members (Craig Ely, Gary Ivey, Carl D. Mitchell, Dave Olson, Eileen Rees, Margaret Smith, Jeff Snyder and Walter Wehtje) in the lead-up to the symposium – but again particularly by Walter and Margaret – resulted in an exceptionally successful and enjoyable meeting.

We now look forward to the next international swan symposium, for synthesising and disseminating updated knowledge of the world's swan populations, in 3–4 years' time!

by **Eileen Rees, Julia Newth** and **Jeff Snyder**

Awaiting the results of the "Silent Auction" (**Photo:** L. Luigujõe)

Juliath Newth, with Bewick's Swan (**Photo:** K. Brides)

Appointment of Julia Newth as Co-Chair of the IUCN SSC Swan Specialist Group

Following the call put out to Swan Specialist Group members via the listserve in August 2022, requesting nominations for a Co-Chair of the Swan SG, one outstanding candidate emerged. This was reported to over 50 Swan SG members attending the IUCN SSC Swan Specialist Group workshop, held during the swan symposium in October, and Dr Julia Newth was unanimously voted as Co-Chair of the Swan SG by all those present at the meeting.

I'm now delighted to report that the nomination has also been approved by the IUCN SSC and that Julia has been appointed to the role. She is of course known to most (if not all!) Swan SG members, but it is worth reiterating that she has been very actively involved in swan research and conservation work since the early 2000s, with a particular focus on threats to swan species. Her PhD thesis, entitled "Lead poisoning and illegal hunting of migratory swans: from biological effects to conservation conflict", was on this subject. She has also participated in numerous expeditions to ring swans in Iceland and the Russian Arctic.

Julia's networking ability and diplomacy is particularly valuable. She works with scientists and community leaders in the Arctic to establish and maintain the Swan Champion Project which aims to foster care, concern and positive conservation action for swans and their summer wetland homes. Moreover, her work on lead poisoning in waterfowl and engagement with EU stakeholders, including the hunting community, has been an important contributing factor in the shift from hunters using lead to non-toxic shot in EU.

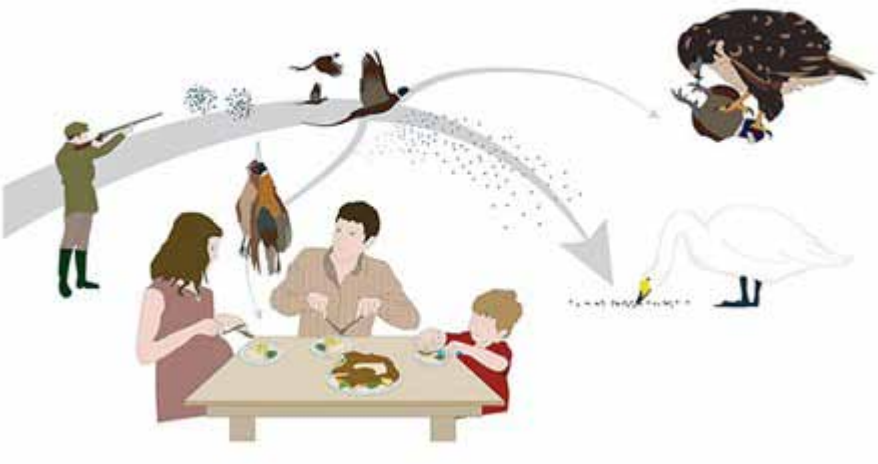
With Julia's as Co-Chair, levels of communication and cooperative activity within the Swan SG will reach new highs, and I look forward to seeing the results of research and conservation effort by Swan SG members benefit accordingly into the future.

by **Eileen Rees**

Read Julia's Q&A session;

Use your voice to secure a ban on lead ammunition

see page 22



Black-necked and Coscoroba Swan research

I continue my research projects on both Black-necked *Cygnus melancoryphus* and Coscoroba Swans *Coscoroba coscoroba* in the Mediterranean Region of central Chile, undertaken at the El Yali wetland Ramsar Site for more than thirty years. Over the last two years (October 2020 – 2022), I have also been studying both swan species on a weekly basis at "Last Hope Sound", Puerto Natales, in the extreme south of Chile (Figures 1 & 2). This project will continue for four more years, with counts being made monthly.

We have a database of more than twenty years of waterfowl population counts in Chile. The recent megadrought has caused dramatic changes in the waterfowl populations in the coastal wetlands of the Pacific Basin. It was thought that waterfowl would take refuge in the Magallanes wetlands, but the information collected weekly during the last two years indicates that they have not. The Mediterranean Swans populations and other waterfowl species have disappeared.

Unfortunately, there is currently little information available on the status of swans in the Atlantic Basin wetlands, notably in Argentina, Uruguay and Brazil.

by **Yerko A. Vilina**

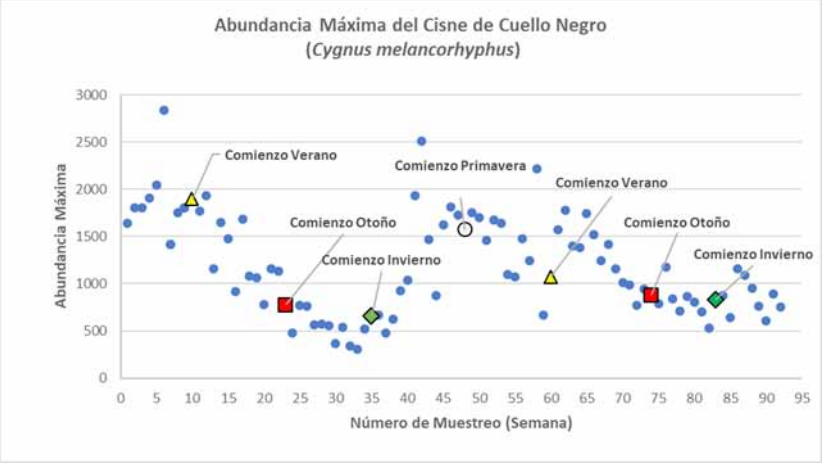


Figure 1:
Maximum abundance of Black-necked Swans at Puerto Natales by week, from October 2020 onwards

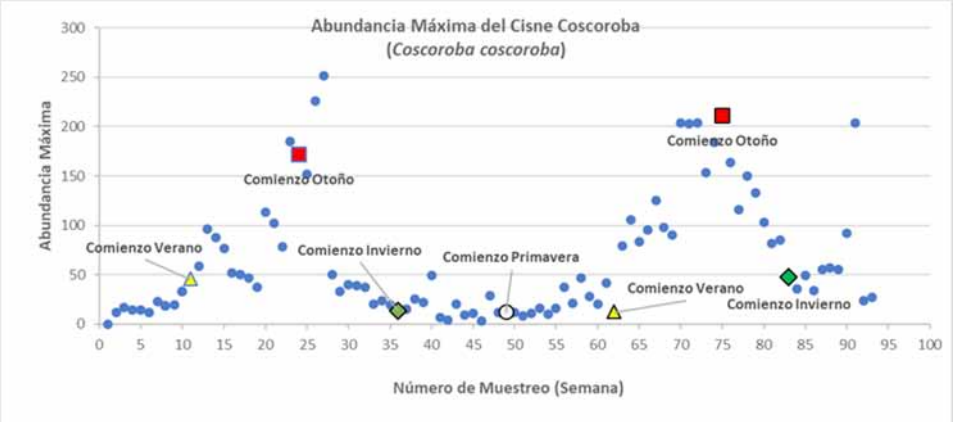


Figure 2:
Maximum abundance of Coscoroba Swans at Puerto Natales by week, from October 2020 onwards

Coscoroba Swans at southern coastal road to Puerto Natales (**Photo:** Y. Vilina)

Tundra Swan deaths in the Lower Coeur d'Alene river basin

Although swans in the lower Coeur d'Alene (CAD) River Basin are dying as a result of their ingesting toxic metals, scientists are working towards improving conditions on the ground. Recently a team of experts from the Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Coeur d'Alene Tribe and Idaho Fish and Game has embarked on a project which aims to develop tools for tracking long-term trends in waterfowl health and exposure to lead contaminants in the Lower Coeur d'Alene River Basin. The tools will help them to gauge how well on-the-ground restoration efforts are working.

The iconic and majestic Tundra Swan *Cygnus columbianus columbianus* is an important part of Idaho's rich wildlife heritage. Every spring, thousands of swans arrive in the Lower CDA River Basin, providing an impressive spectacle as the swans make a pit-stop during their migration from wintering areas in the central valley of California to their breeding grounds on the Yukon River delta and west coast of Alaska. The numerous marshes at the south end of the lake enable the swans to rest and feed before moving on to sites further north.

Tundra Swans, Lower CDA river basin (**Photo:** Coeur d'Alene Tribe)

It's no secret that Idaho also has an important heritage of mining, particularly in the Panhandle. An unfortunate by-product of historic mining practices is that marsh and river sediments in the Coeur d'Alene River Basin are heavily contaminated with lead and other toxic metals like arsenic, cadmium and zinc. These sediments entered the Coeur d'Alene system in an era when mine tailings were disposed of directly into the waterways of the Coeur d'Alene drainage. Such practices ended in the middle of the last century, but their legacy remains.

Although all species of waterfowl are affected by the contaminated sediments, swans are hit the hardest because of how they feed. Their long neck enables them to grub in sediments on the marsh bottoms in search of roots, seeds and other food. This increases their exposure to contaminated sediments to a greater extent than, say, a surface-dabbling Mallard *Anas platyryhnchos* or a terrestrial-grazing Canada Goose *Branta canadensis*.

Tundra Swan grubbing in the sediment (**Photo:** Coeur d'Alene Tribe)

Each spring, as the Tundra Swans stop-over in the Lower Coeur d'Alene River Basin, Fish and Game receives calls from the public about dead and dying Tundra Swans. The number of deaths varies each year depending on when the swans arrive and how long they stay in the basin. Average annual swan deaths since 2008 are estimated to be between 50 and 60 birds. As unfortunate as this is, the Tundra Swan population is considered to be stable.

There is really little an individual can do, but there is a multi-government effort actively implementing projects on the ground to address the problems. However, if you happen to see either a living or dead swan with a neck collar, you can help by reporting the collar colour, number and location to the Idaho Department of Fish and Game.

The Restoration Partnership is a group of federal, state and tribal governments that is taking action to reduce contamination exposure in swans and other wildlife. In 2015, the Partnership commenced restoring contaminated wetlands so that they offered clean and/or reduced contaminant habitats for wildlife. Similar work is still (and will remain) underway for several decades; when it comes to this type of work, the long-game is king! In 2018 the Partnership completed a comprehensive restoration plan which laid out a strategy and mitigation funding source for restoring wetlands and protecting waterfowl and other wildlife from further damage. It works closely with the Environmental Protection Agency to coordinate their efforts with EPA's mission to clean up the contaminated sediments and reduce lead exposure to wildlife and to people living and recreating in the Lower CDA River Basin.

Examples of swan neck collars
(**Photo:** Environmental Protection Agency)

Tundra Swan deaths in the Lower Coeur d'Alene river basin

Further information is available on the Restoration Partnership's website at: https://www.restorationpartnership.org/

Collaborative work by all involved in the Partnership has and will continue to play a critical role in restoring the habitats to which we and the swans both call home.

Please contact the Panhandle of Idaho regional office at: https://idfg.idaho.gov/region/panhandle or (208) 769-1414 if you have any questions, or would like to learn more about swans in the Panhandle.

Tundra Swan found dead on riverbank (**Photo:** K. Van de Riet / IDEQ)

by **T. J. Ross**

Interior Population Trumpeter Swan migration ecology and conservation

Trumpeter Swans *Cygnus buccinator* currently breed throughout most of the western Great Lakes region, including in Minnesota, Wisconsin, Michigan, Iowa, Manitoba, Ontario, and Ohio. However, beyond estimates of population size and trend and distribution, there is relatively little recent information about their ecology, hindering conservation decision-making. To address current information needs, we are marking a sample of Interior Population Trumpeter Swans with GPS-GSM transmitters. These transmitters record high-resolution, high frequency location and related data and transmit those data through cellular phone networks, and will allow us to:

1. Evaluate year-round swan movements, including determining the locations where swans spend the winter, and the timing and duration of their movements.
2. Determine whether and where Trumpeter Swans make molt migrations.
3. Evaluate year-round habitat use and selection patterns of Trumpeter Swans.
4. Estimate annual survival rates of Trumpeter Swans, if sample sizes are adequate and fates (*i.e.*, mortality events) can be determined

Results of this study will inform current and future Interior Population Trumpeter Swan conservation by providing basic information about migration, year-round movements, mortality risks, and use of agricultural and other landscapes. As part of this project, location data will be archived and made available to the public via a website that summarizes Trumpeter Swan movements and habitat use. Thus, the project will also offer the opportunity to actively engage and inform the general public about how their past investment in conservation made a positive difference to the region's natural heritage today.

Key concepts underlying the study are that: (1) Interior Population Trumpeter Swans have increased dramatically in abundance and distribution, well beyond original population objectives when they were re-established starting in the 1960s, (2) little current and region-specific information exists about their ecology, including about seasonal movements and habitat use, and (3) the project will provide information to help guide conservation as Trumpeter Swans continue to transition from a rare to a common part of the biological community in the western Great Lakes region. More information about the project and the map of tagged swans can be found online at: https://trumpeterswan.netlify.app/index.html

Editor's Note: Updates on these and many other swan research projects are available in the 7th International Swan Symposium/ 26th Trumpeter Swan Society Conference Program and Abstracts. This is available at: https://swansg.org/events/past-swan-symposia/

by **David Wolfson**

Trumpeter Swan in western Great Lakes region (**Photo:** B. Liddell)

Swan deaths from avian influenza H5N6 recorded in Xinjiang, China

With the warmer winters associated with climate change, thousands of swans now remain in Northern Xinjiang during the winter months, where several outbreaks of avian influenza have also been recorded in swans in the region. Cooperative monitoring of avian influenza in waterbirds has been carried out in several Central Asian countries over the last 15 years and four species of swans are known to be threatened by the disease, with cases recorded for Whooper Swans *Cygnus cygnus*, Mute Swans *C. olor*, Bewick's Swans *C. columbianus bewickii*, and Black Swans *C. atratus*.

The largest avian influenza mortality event for swans in the Xinjiang Uygur Autonomous Region occurred in early 2020, when the highly pathogenic H5N6 subtype of the virus killed at least 76 swans across 4–5 locations, across an area of 700 x 300 km2 (Figure 1). The region is occupied by about five million people (including in Yining County, Bole City, Manas County and Korla City).

Although this incident did not pose a direct threat to human life (*i.e.*, it did not spread to humans), it caused social panic and innocent poultry species were culled with the aim of reducing spread of the disease. According to the literature, various types of avian influenza have previously occurred in other provinces in China, and some variants (*e.g.* H5N1) have transmitted to people.

by **Ma Ming** and **Han Xinlin**

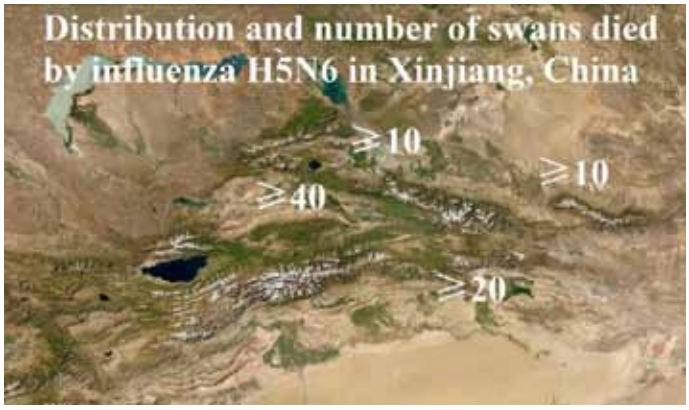


Figure 1: Distribution and number of swans dying of avian influenza (H5N6) in Xinjiang, China

Whooper Swan cygnet recovered in Xinjiang (**Photo:** Han Xinlin)

A rapid increase of large-sized waterfowl does not explain the populations of small-sized waterbirds at their breeding sites

While modern conservation biology has produced great success stories of restored species and ecosystem functions, rapid recovery of one species may cause unintended conservation consequences via complex interspecific interactions. This has occasionally triggered situations, in which a locally increasing, protected species heightens the vulnerability of threatened co-occurring species, often due to anthropogenic-driven changes in the environment. We examined whether the recovery of a flagship species, the Whooper Swan *Cygnus cygnus*, and the spreading of the non-native Canada Goose *Branta canadensis*, cause asymmetric competition with other sympatric waterbirds at their breeding sites in Finland, as there is a great controversy in the population trends of these large herbivorous waterfowl compared to smaller waterbirds. In Finland, pair numbers of the Whooper Swan increased from 15 in the 1940s to 9 000–12 000 in the 2010s, and the species' range now covers the entire country. The population growth of the Canada Goose in Finland was low until recent decades, when the population increased rapidly from 300–500 pairs in the late 1980s to 4 900–6 300 pairs in the 2010s, with population growth strongest in southern and central parts of the country.

In a public discussion, Whooper Swans are suggested as a reason for the negative trends of other waterfowl. The perception that large waterfowl are harmful to smaller waterfowl has management and conservation implications, since these perceptions might affect hunters' attitudes and social norms.

We used data from the national Finnish waterbird surveys collected in the late 1980s and early 2020s at 942 sites, to assess the site-level effects of large herbivore occurrence on other waterbird species, while considering their trophic overlap. We hypothesised that there could be competitive effects of large herbivores on smaller species, especially those with similar foraging niches.

We however not only found that the overall abundances of all foraging guilds (surface feeders, invertivore diving ducks, piscivores) were positively associated with Whooper Swan presence at sites, but also that the numbers of surface feeders and diving ducks, were positively associated with Whooper Swan colonisation. Thus, their populations have decreased less at sites occupied by whooper swans since the 1980s.

The Whooper Swan may potentially act as an indicator of habitat quality and further on as a flagship umbrella species with multidisciplinary conservation benefits, of which may accrue benefits also to other waterbirds exhibiting declining population trends. Our findings underline the importance of considering species interactions when designing and implementing management actions in conservation strategies.

The study has been published in full by Global Ecology and Conservation. For further information see: Holopainen, S., Čehovska, M., Jaatinen, K., Laaksonen, T., Lindén, A., Nummi, P., Piha, M., Pöysä, H., Toivanen, T., Väänänen, V-M. & Lehikoinen, A. (2022) A rapid increase of large-sized waterfowl does not explain the population declines of small-sized waterbird at their breeding sites. *Global Ecology and Conservation* 36: e02144 https://doi.org/10.1016/j.gecco.2022.e02144

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by **Sari Holopainen, Markéta Čehovska, Kim Jaatinen, Toni Laaksonen, Andreas Lindén, Petri Nummi, Markus Piha, Hannu Pöysä, Tero Toivanen, Veli-Matti Väänänen** and **Aleksi Lehikoinen**

What can webcams tell us about trade-offs in swan behaviour?

A growing number of nature reserves use live-streaming webcams to showcase their wildlife to the outside world. These webcams present an opportunity for researchers to study the behaviour of swans and other animals without needing to be physically present at the site. Remote data collection can also have advantages by reducing the impacts of disturbance on wildlife during the study, as well as reducing the carbon footprint associated with repeated visits to observation sites. For these reasons, webcams have become an increasingly popular research tool among biologists.

In a recently published study (Wood *et al.* 2022), we used a live-streaming webcam at the Wildfowl & Wetlands Trust's Caerlaverock wetland reserve to study the behaviour of two swan species that spend the winter there: the Mute Swan *Cygnus olor* and Whooper Swan *Cygnus cygnus*. Within Britain, both Mute and Whooper Swans have undergone substantial increases in population size since the 1980s (Wood *et al.* 2019; Brides *et al.* 2021). Their large size, white plumage, and use of open-water habitats, make them ideal focal species for studies of animal behaviour. For both swan species, we carried out 15-minute observations of 119 individual swans in winter 2020/21 to investigate whether the amounts of time spent engaged in key mutually exclusive behaviours (aggression, foraging, maintenance, and resting), were correlated.

We found a negative association between aggression and resting behaviours in both species, indicating that increased aggression is achieved at the expense of resting behaviour. In contrast, there was no apparent trade-off between aggression and foraging, aggression and maintenance, or maintenance and resting. Foraging and resting behaviours were negatively correlated in both species, highlighting a trade-off between these distinct modes of behaviour. A trade-off between foraging and maintenance behaviours was detected for the sedentary mute swans, but not the migratory whooper swans. The findings that we obtained show how swans can trade-off their time investments in mutually exclusive behaviours within their time-activity budgets.

Our study demonstrates how remotely-collected data can be used to investigate fundamental questions in behavioural research. Methods of collecting data remotely, such as webcams, offer a number of advantages to researchers. These include reduced impacts of disturbance on focal animals, reduced carbon footprint associated with repeated visits to observation sites, and greater accessibility for scientists who cannot physically travel to study sites. Remote methods can also offer a means to collect data during the Covid-19 pandemic, which has curtailed the ability of researchers to visit field sites to undertake traditional methods of in-person data collection.

Given these advantages, we expect that remote methods of data collection will become an increasingly valued tool for behavioural research.

by **Kevin A. Wood, Rebecca Lacey** and **Paul E. Rose**

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Project Bewick's Swan: new conservation concept for the NE European population in northern Germany

Over the past decades, Germany has become more and more important for the north-western European population of Bewick's Swans *Cygnus columbianus bewickii* during their migration and wintering season. Despite the ongoing overall decline of this population, numbers are increasing in Germany and thousands of swans migrate there to spend the winter and to fill their energy stores for migration (Beekman *et al.* 2019). The largest roosting flocks are found mainly in the three northern federal states of Schleswig-Holstein, Lower Saxony and Mecklenburg-Vorpommern (Fig 1). In these areas, Bewick's Swans mostly forage on arable fields and semi-natural wet grasslands during the day, in order to feed on carbohydrate-rich crops and protein-rich grass, while at night they fly to safe roosting places on water (Rees 2006).

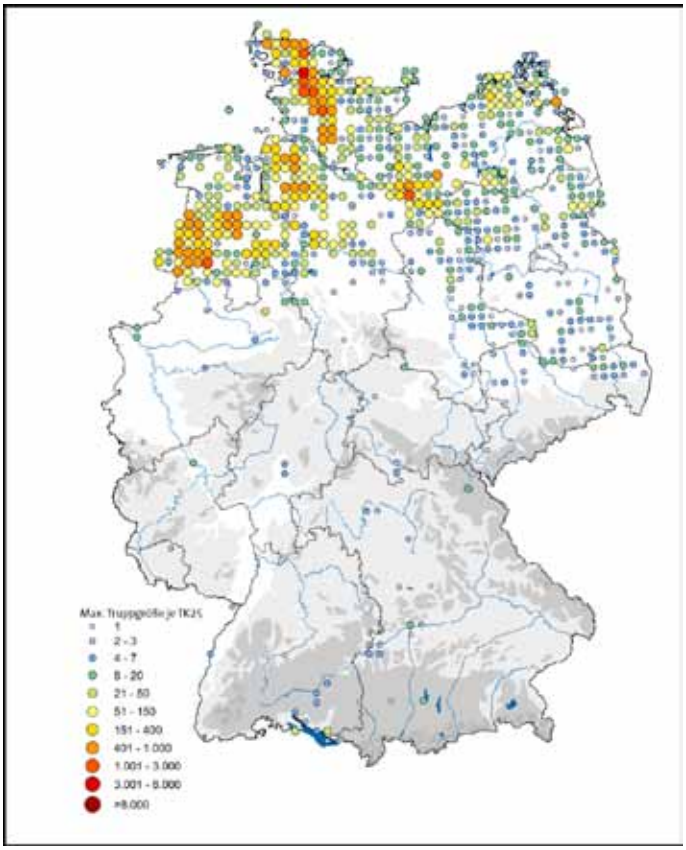

Figure 1: Distribution of Bewick's Swan in Germany in 2016-2020, based on data from ornitho.de and monitoring of migratory and wintering waterbirds (Prior *et al*. in prep.). Maximum flock sizes are given per grid cell (c. 120 km²).

With the increasing proportion of the population occurring in Germany comes an equally increasing responsibility which we have as a country for this valuable species. In order to contribute to a long-term recovery of the north-western European population of Bewick's Swans, the Michael-Otto-Institute at the German Nature and Biodiversity Conversation Union (NABU, BirdLife Germany), together with a group of associated project partners (see below), started a six-year research project in December 2020. This project was established as part of the Federal Biological Diversity Programme. Following the International Single Species Action Plan for Bewick's Swan published by AEWA (Nagy *et al.* 2012), we aim to clarify potential threats, habitat requirements, and necessary conservation measures in our country. To achieve this, we have set ourselves the following goals:

- Studying the spatiotemporal habitat use and the connectivity between night roosts and foraging sites by equipping swans with GPS trackers
- Evaluating conflicts with human activity (*e.g.* collisions with wind turbines/power lines and hunting) and developing appropriate solutions
- Examining (potential) causes of mortality
- Investigating possibilities to direct Bewick's Swans to more protected and optimised habitats by creating new roosting waters at suitable locations
- Improving the monitoring programme of Bewick's Swans in northern Germany by establishing an online census-area exchange for volunteers
- Raising public awareness through social media appearance, information boards at night roosts, brochures and a website with a map to follow our tracked swans
- Developing a National Action Plan for Bewick's Swans in Germany

From November 2021 to January 2022, we tagged our first Bewick's Swans with yellow GMS-GPS trackers from Ornitela in Lower Saxony and Zeeland, the Netherlands. For more than 80% of these swans we now retrieved data from one annual cycle. Data from the first winter season has shown a difference in home range sizes and distance between night roost and foraging site when using different foraging habitats, with home ranges and distances being larger when foraging mainly on arable fields than to grassland. By collecting data over several years, we can, among other things, study the differences between seasons to better understand habitat use by Bewick's Swans in northern Germany.
More information about the project and the map of tagged swans can be found here: https://zwergschwan.de/karte-senderschwaene. An English translation of the website is in progress.

Project Partners and Funding

The project is funded by the Federal Agency for Nature Conservation with funds from the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection. Furthermore, the project is financially supported by the Ministry of Environment of Schleswig-Holstein and Lower Saxony, Naturschutzstifung Emsland and NABU.

The project partners include the Federation of German Avifaunists (DDA) as well as the ornithological societies from Schleswig-Holstein (OAG), Lower Saxony (NOV) and Mecklenburg-Vorpommern (OAMV). The State Office for

Agriculture, Environment and Rural Areas, KUNO e.V. (Kulturlandschaft Nachhaltig Organisieren), WWT and Stiftung Naturschutz Schleswig-Holstein are incorporated as ideational partners. Cooperations concerning swan catches, data exchange and analytical support are carried out with the research group of Bart Nolet at NIOO and University of Amsterdam, the Netherlands.

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by **Lisa Vergin, Frauke Mohrwinkel** and **Jutta Leyrer**

Trumpeter Swans attacking nesting Sandhill Cranes

On 11th May 2019, Sandra Lines and I witnessed an unusual natural event in the Whitewater Wildlife Management Area near Weaver, Minnesota (MN), about 25 miles north of Winona, MN, USA. The unpaved road had recently reopened after being closed due to high water that spring. At the Dorman Pools we observed an active Trumpeter Swan *Cygnus buccinator* nest. We also saw an active Greater Sandhill Crane *Antigone canadensis* tabida nest c. 50 yards to one side, apparently built on an old muskrat nest. Both nests were clearly visible, though c. 100 yards away, and our presence did not appear to affect the nesting pairs.

As I observed and photographed the area, I saw that one crane was on the nest, and the other nearby. Soon, the nearby crane moved toward the nest, and I thought they were going to change places. I took several photos as they moved around, and I could see an egg on the nest. It wasn't until looking at my photos later that I saw there was also a very small chick, recently hatched.

In the meantime, the swan had left its nest, and the two swans were swimming in the area, and at one point flew up briefly. After about 20 min, I saw that the cranes were in an alert posture, one on the nest, the other in the water facing the swan nest, and that the swans were swimming toward them. The swans were clearly on the attack! The cranes put up a fight in the water, but the attack quickly moved to their nest. One crane tried to protect the egg, despite the much larger swan overpowering and biting it. At one point, both swans were on the crane nest, with one crane also still on it; the other crane had flown away. Soon the crane remaining on the nest also left, and a triumphant swan was alone on the crane nest.

The crane chick had disappeared, and I never saw it again. The cranes were forced to leave the nest and both flew off. One of them tried to fight the swans, without success. One of the cranes flew in front of us, and my photo shows it looking disheveled. Soon it turned back, and another photo shows its beak open, calling for its mate. The crane returned to its empty nest. The swans returned to their own nest.

The first photo taken at the site was at 10:33 a.m. of a swan on its nest. The last photo was taken at 11:11 a.m., also a swan on its nest. The photos of the swan attack were taken between 10:58 and 11:08 a.m., when the swans returned to their nest. The entire observation lasted 38 min, and the actual attack took 10 min.

I reviewed my photos looking for clues that might explain this attack. I found one where what looks like a Canada Goose *Branta canadensis* flying behind one of the swans, but I couldn't see anything in photos prior to the attack to indicate that the cranes and swans were in close contact.

Degtyarev and Pshennikov (2013) documented two interactions between nesting Siberian Cranes *Grus leucogeranus* and Bewick's Swans *Cygnus columbianus bewickii* in the lower Indigirka River basin, Yakutia, Russia. In one case the crane chased an adult Bewick's Swan away from its nest on a small (50x100m) pond. In a second incident, a Bewick's Swan cob repeatedly chased a foraging Siberian Crane away from its nest. In this case, the crane never approached closer than c. 80 m, and prolonged chases by the swan lasted for > 2.5 h and covered c. 1 km. Kevin Wood (Wildfowl and Wetlands Trust, pers. comm.) also shared a second-hand observation at Slimbridge, UK where a Mute Swan *Cygnus olor* approached and threatened a nesting Common Crane *Grus grus*, only to retreat when the crane presented threatening behavior. Thus, while swan-crane interactions on breeding sites are not unknown, they are not common, and none showed the violence of the attack documented here.

What precipitated the Trumpeter Swans attack on the Sandhill Cranes is unclear, but Trumpeter Swans are

known to defend their territories and cygnets against a variety of other species (Mitchell & Eichholz 2020). Based on when the respective young hatched (the swans' seven cygnets hatched about two weeks later), the cranes and swans had been in the same area for about one month. One speculation is that the hatching of the crane chick upset the swans for some reason.

This comment came from a knowledgeable friend: "It (the attack) was POSSIBLY the coming together of two unusual circumstances: 1) high water flooded preferred grassy wetland nesting habitat for cranes, and 2) they chose to nest, atypically, on a muskrat house rather than a more cryptic nest platform they make themselves. It seems unusual that the cranes chose to nest near a Trumpeter Swan nest; swans, particularly Mute Swans, are known to exclude nesting waterfowl from their territories; swans are heavier and stronger than cranes, so it is not unusual that they would be able to drive the cranes away. Cranes have a formidable bill that could have had impact on the swans, but your photos did not show the cranes attempting to peck the swans. A back story is the high water, a symptom of climate change, restricting bird accessibility to preferred nesting habitat. This observation would need to be supported by ecologists and climate experts. It is interesting that both these species are expanding their breeding range and numbers in MN, even with this incidence in mind. Newly flooded wet meadows and flooded marginal crop land (not yet drained) may actually provide more crane habitat, unless farmers stay ahead of the flooding with more efficient drainage." (Eric Nelson, U.S. Fish and Wildlife Service, pers. comm.)

In a photo taken prior to the attack, I saw a Canada Goose nest behind the swan nest, and much closer to it than the crane nest was. Apparently, that posed no perceived threat to the nesting swans.

This unique natural event provides more questions than answers. I felt privileged to witness and photograph it.

Acknowledgements
I thank Kevin Wood, Principal Research Officer with the Wildfowl and Wetlands Trust at Slimbridge, U. K.; Eric Nelson, retired Wildlife Biologist for the U. S. Fish and Wildlife Service; and Carl D. Mitchell, retired Wildlife Biologist for the U. S. Fish and Wildlife Service for their comments and contributions.

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Photographic note

In the following photos, numbers following the captions are the times the images were taken, Eastern Standard Time, from my camera on 11th May 2019.

10:43 - Sandhill Crane nest (left) and Trumpeter Swan nest (right) in the Dorman Pools, Whitewater Wildlife Management Area near Weaver, Minnesota

10:58:31 - Crane pair try to fend off Trumpeter Swan

10:58:33 - first defense by the cranes

by **Kay Petterson Shaw**

10:58 - Swan attacks crane on water, second swan nearby

10:59:07 - Swan bites crane on nest, second swan nearby

10:59:17 - Swans on the crane nest, one crane also on nest and another displaying nearby

10:59:20 - Cranes fly off and swan remains on the nest

11:00 - Swan on the crane nest

11:01:43 - Swans attack crane in water and chase in flight

11:07:03 - Crane returns to the nest, calling for mate

11:08:05 - Swans return to their own nest

Results of the 40th international brood count for NW European Bewick's Swan population in winter, December 2021

The Swan Specialist Group held a coordinated age count of Bewick's Swans *Cygnus columbianus bewickii* across Europe in the weekend of 11/12 December 2021, to determine how many cygnets had hatched and migrated successfully during the year. A record number of 10,224 Bewick's swans were aged during the survey. According to the latest results of the flyway population in January 2020 (Rees *et al*. in prep.) it means that we managed to check c. 80% of the strongly declining Northwest European population. The overall percentage of cygnets recorded in the wintering flocks was 11.0% in 2021, compared to 8.3% in 2020. The average brood size was also relatively large in 2021 at 2.08 young/pair; 12% higher than the average brood size of 1.86 young/pair in 2020. Both winters were categorised as being very mild during the mid-December counting period.

The Northwest European Bewick's Swan population has been declining since the mid-1990s. To try to understand the reasons for this decrease, it is important to know what the population structure might be, and to analyse the consequences of any changes over time. We therefore hold coordinated age counts across the swans' main wintering areas each year, and it was somewhat encouraging to see that the proportion of juveniles recorded in 2021 was the highest since 2013 (Figure 1), albeit not at levels recorded in some earlier years (Wood *et al.* 2016). Excellent data were obtained from a network of coordinators and organisations in eight countries along the swans' wintering flyway. Which is worth a great "Thank You" to all contributors on this the 40th anniversary brood count!

It is worth noting that more countries along the flyway have become involved with the international brood count in recent winters, as climate change has brought warmer weather conditions, resulting in the birds remaining further east (Nuijten *et al.* 2020).

For example, nowadays Poland receives c. 8% of the flyway population during mid-winter, according to the latest (January 2020) population estimate of 12,900 birds, presented by Eileen Rees at Wyoming (USA) during the 7th International Swan Symposium/26th Trumpeter Swan Society Conference in October 2022. Traditionally important areas (notably the UK and the Netherlands) therefore are now of lesser importance, with Germany taking the lead when it comes to hosting wintering flocks of Bewick's Swans in recent years. During the December 2021 brood count, 4,709 swans were recorded in the country, which is 46% of the total numbers of birds checked. The Netherlands is in second place with 2,924 birds (29%) and Denmark third with 1,052 swans (10%) in this 2021 brood count for the NW European wintering population.

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by **Wim Tijsen** and **Kees Koffijberg**

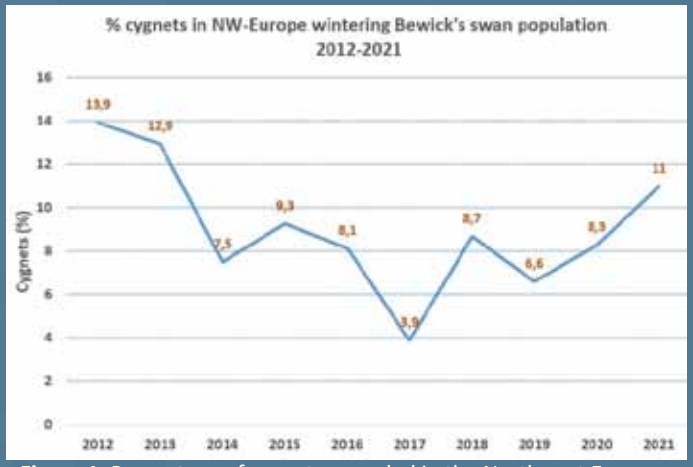

Figure 1: Percentage of cygnets recorded in the Northwest European Bewick's Swan population in early winter (December) 2012–2021.

Bewick's, Mute and Whooper Swans overwintering in eastern England: competition or co-existence?

The three swan species native to Europe have shown markedly differing fortunes in recent decades. Whooper Swans *Cygnus cygnus* have steadily increased in numbers, in both the Icelandic and northwest European Mainland populations (Laubek *et al.* 2019; Brides *et al.* 2021). Mute Swan *Cygnus olor* numbers rebounded strongly in the UK after the regulation on lead angling weights (Wood *et al.* 2019a) and are now stable or increasing elsewhere across Europe (Rees *et al.* 2019). In contrast, the northwest European population of Bewick's Swans *Cygnus columbianus bewickii* underwent a c. 40% decline between 1995 and 2010 and it remains a conservation concern (Beekman *et al.* 2019). An AEWA action plan set out a programme of work to diagnose the causes of the population decline and propose solutions (Nagy *et al.* 2012).

It is unclear whether the differing population trends of the three swan species could have a causal relationship. Mute and Whooper Swans are larger and competitively dominant to Bewick's Swans when foraging (Black & Rees 1984). Could Bewick's Swans face interference or depletion competition, or both, from their larger congeners whilst sharing habitat at their wintering sites? Any interspecific competition between these swan species should be detectable as measurable impacts on behaviour and energetics.

In a recently published paper (Wood *et al.* 2021), we investigated the behaviour and energetics of 1083 focal individuals of the three swan species on the agricultural land that surrounds the Ouse Washes in eastern England. Here, all three swan species feed on arable crops, including sugar beet, potatoes, maize, wheat, and oilseed rape (Figure 1). We aimed to determine whether individual Bewick's Swans altered the time spent on key behaviours (foraging, vigilance, and aggression), as well as their overall net energy gain, when sharing feeding habitat with other swan species. The time-activity budgets revealed that all three species spent more time on foraging than any other behaviour, accounting for 41–57% of observed time, which was unsurprising given the importance of the land surrounding the Ouse Washes as a feeding area for swans. Statistical analyses using mixed-effects models indicated that sharing feeding habitat with interspecific competitors did lead to some behavioural changes among Bewick's Swans. For example, higher densities of Mute and Whooper Swans increased the likelihood of engaging in aggression for cygnet Bewick's Swans, but not for adults. Higher levels of interspecific competition decreased the time spent by Bewick's Swan cygnets on foraging, whilst adults showed the opposite pattern. Furthermore, when among low densities of conspecifics (< c.200 individuals/ km^2), individual Bewick's Swans spent more time engaged in vigilance in the presence of higher densities of Mute and Whooper Swans, whilst individuals within higher density Bewick's Swan flocks showed the opposite pattern. However, despite these behavioural responses to interspecific competitors, we found no evidence that greater numbers of interspecific competitors in shared habitat affected the net energy gain of either adult or cygnet Bewick's Swans. Our findings suggest that individual Bewick's Swans have some capacity to adjust the relative amounts of time that they devote to different behaviours in order to maintain consistent levels of energy gain.

The lack of any detectable impact of Mute and Whooper Swans on Bewick's Swans net energy gain at our study site suggests that is unlikely that interspecific competition has contributed to the observed decline in Bewick's Swan numbers in the landscape surrounding the Ouse Washes (Wood *et al.* 2019b). Similar studies are needed, however, to assess the impacts of competition in other parts of the flyway of the northwest European population of Bewick's Swans, including other wintering areas, stopover sites, and breeding areas. Some stopover sites, for example, have limited aquatic food resources that are known to be depleted by migrating Bewick's Swans during their stopover period (Nolet & Drent 1998). The need is growing for assessments of competition at wintering sites further east of the UK, given the progressive eastward shift of the Bewick's Swan's wintering range due to climate change (Nuijten *et al.* 2020).

by **Kevin A. Wood, Julia L. Newth, Geoff M. Hilton** and **Eileen C. Rees**

Figure 1: A flock of swans in early-growth wheat field near the Ouse Washes during winter (**Photo:** K. Wood)

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Bewick's Swans and geese in field, Texel, Netherlands (**Photo:** R. Brouwer)

Interactions between sea lions and swans (*Intraccion lobos y cisnes*)

I have recently documented a novel relationship between the South American Sea Lion *Otaria flavescens* and Black-necked Swans *Cygnus melancoryphus* at a Ramsar wetland in Valdivia, Chile. Predation by sea lions on swans started in July 2018 and is still occurring. Predation is more intense during winter months. Some of the predation is documented in the following video:
https://drive.google.com/file/d/1UdC_UVOE6RwtqHdP1j0PXRnkosV9C83e/view?usp=drive_web

by **Eduardo Jaramillo Lopetegui**

Whooper Swan and Common Shelduck at the Rongcheng Swan National Nature Reserve (EAAF152), the People's Republic of China (**Photo:** Rongcheng Swan National Nature Reserve)

Rongcheng Swan National Nature Reserve
from post on the East-Australasian Flyway Partnership (EAAFP) website

The Rongcheng Swan National Nature Reserve in the People's Republic of China became a new Flyway Network Site (FNS) in the East Asian – Australasian Flyway (EAAF152) on 2nd February, in celebration of World Wetlands Day 2022. It is located in Shandong Province, on the west coast of the Yellow Sea, and is the 20th FNS for the country.

Rongcheng Swan National Nature Reserve is recognised its importance for Whooper Swan *Cygnus cygnus* and other endangered migratory waterbirds species. Over 20,000 waterbirds are estimated to use the site annually, including over 6,000 Whooper Swans (c. 11% of the species' flyway population) during the non-breeding season. Further information is provided in an article on the website of the EAAF Partnership at:
https://www.eaaflyway.net/rongcheng-swan-nnr-new-fns/ and the country's FNS page at:
https://www.eaaflyway.net/china/

The EAAF Partnership, launched on 6 November 2006, is an informal and voluntary initiative which currently includes 18 national governments, six intergovernmental agencies, 13 international NGOs, 1 international organisation and one international private enterprise https://www.eaaflyway.net/.

Its overall aim is to protect migratory waterbirds, their habitat and the livelihoods of people dependent upon them.

Use your voice to secure a ban on lead ammunition

Q&A session prepared by Julia Newth, Ecosystem Health & Social Dimensions Manager, Wildfowl & Wetlands Trust (WWT)

for public consultation in October 2022 on the use of lead ammunition in the UK

Q. Why are WWT so active in the campaign to ban lead in ammunition?

A. Lead is a highly toxic substance which is why laws have been passed to remove it from petrol, pipes and paint. People may therefore be shocked to hear that more than 8,000 tonnes of lead ammunition continue to be fired out of guns for sports shooting and hunting every year in the UK, contaminating our countryside and posing a grave risk to wildlife and people.

Birds and mammals ingest lead ammunition directly when they forage on contaminated land or indirectly by consuming other animals that have been shot with lead. We risk our own health when we unwittingly dish up a meal of wild game that is laced with a poison. The World Health Organisation (WHO) confirms that there is no safe level of lead - it harms virtually every system in the body

Q. As someone on the frontline of this, can you share some of your experiences of the impacts of using lead in gunshot?

A. The impacts are severe and distressing. Up to 100,000 waterbirds in the UK and one million in Europe die every year after ingesting poisonous lead shot. Those that survive face a nasty range of health impacts that affect behaviour, breeding and mobility. Sadly, my colleagues and I have encountered many lead poisoned birds over the years through our monitoring work, many of which have ended up on the post-mortem bench.

I'll never forget the first time I saw a lead poisoned Bewick's swan. An ordinarily graceful bird was reduced to a hunched, quivering mess, unable to lift its neck and with bruising on its wings as it tried to drag itself along the ground. There's something particularly tragic about a bird having survived a 2,500 mile migration to our shores from the arctic, overcoming all the challenges that journey may bring, only to succumb to a cruel illness that is entirely avoidable. I don't think anyone wants to see this.

Q. How long has WWT been working towards this and what changes have been made so far?

A. WWT has been working on lead for two decades. During this time, we've studied thousands of birds to determine the scale of the problem and its deadly impacts, undertaken research that's shown that the current (partial) regulations simply don't work, and worked with hunters to understand how a transition away from lead ammunition can happen. We also work alongside experts from food retail and the shooting industry as well as UN bodies who are concerned about the harmful consequences of lead.

Last year, an EU-wide law came into place which banned lead shot in and around wetlands. This was a huge step towards making lead poisoning history and we're very proud to have played a part in this historic win for health! This year, the Health & Safety Executive announced recommendations to further restrict the use of lead ammunition in Britain and this is now open for public consultation. Seeing countries like Denmark and the Netherlands successfully transition to non-toxic ammunition has set a great example. The travel of direction is clear and we're hurtling towards a lead-free future!

Q. Why are some people opposed to the idea of a ban?

A. Some hunters have concerns about the ballistic qualities of the non-toxic alternatives and how older guns may adapt. Fortunately, recent developments in these ammunition types have led to effective and available options, as various studies have shown. More and more hunters are now choosing to use non-toxic ammunition – they don't want to be known as poisoners and would rather take a sustainable approach to shooting. I'm afraid that the most significant resistance to a ban on lead ammunition comes from the lead ammunition industry itself and associated gun lobbies. Lead ammunition is big business and while many manufacturers now stock non-toxic ammunition, some are reluctant to adapt to ensure a healthier planet for all. On a more optimistic note, despite this resistance from powerful actors, we've made great progress and there's now huge momentum from all sectors (including shooting) to finally and completely phase out lead ammunition.

Q. What are you most excited about by the prospect of this new legislation which is under consultation?

A. This is a critical moment for the UK – after many years of work, we're on the cusp of banning lead ammunition and making lead poisoning, and all the suffering it brings, a thing of the past. Following the Health & Safety Executive's recommendation to ban the use of lead ammunition, this proposal is now open for public consultation. With this, we can finally glimpse a healthier future, one with cleaner soils and waterways, healthier wildlife and healthier people!

Harry G. Lumsden (1933 - 2022)

by **Kenneth F. Abraham**

Harry was one of the pioneers of waterfowl research and management in North America. He was a life-long student of birds and made major contributions to waterfowl and upland game conservation and management from his base with the Ontario Department of Lands and Forests which later became the Ontario Ministry of Natural Resources. He had a 40-year career with the Ontario government beginning in 1947. He was a contemporary and peer collaborator of Harold Hanson, Graham Cooch, Hugh Boyd, Alex Dzubin, Harvey Nelson, Harold Burgess and many other luminaries. He mentored many of us, including Dennis Raveling working with subarctic Canada Geese *Branta canadensis* and Paul Prevett and myself working with Snow Geese *Anser caerulescens* and Canada Geese. He conducted research and monitoring of Snow Geese and Canada Geese in the Hudson Bay and James Bay regions, and conducted a multi-year research program on Common Goldeneye *Bucephala clangula* in northern Ontario. He led the reintroduction programs in Ontario, both for Giant Canada Geese in the 1970s–1980s and for Trumpeter Swans *Cygnus buccinator* from 1982–2007. He was also well-known in grouse research and management circles for his work on Sharp-tailed Grouse *Tympanuchus phasianellus*, especially behavioral studies.

Harry served on the Mississippi Flyway Technical Section from its inception in 1952 to his retirement in 1988. He was also on the board of The Trumpeter Swan Society for many years. In 2003 he received the Order of Canada Award, and the following year became a Member of the Order of Canada, for his outstanding contribution to wildlife management and conservation. He also received the Distinguished Ornithologist Award from the Ontario Field Ornithologists (OFO) in 2008 and the Lieutenant Governor's Ontario Heritage Award for Lifetime Achievement in 2012 for his work with Trumpeter Swans, successfully reintroducing these birds to Ontario. Remarkably, he began publishing in 1947 and his last paper on swans was published in 2021, a 74-year spread. He was one-month shy of his 99th birthday when he passed away on February 8th, 2022. Much more detail about Harry's life, research and contributions to Trumpeter Swan conservation are presented in recent and earlier tributes to his many achievements (*e.g.* Abraham 2008, 2022).

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Harry with Trumpeter Swan family (**Photo:** S. Best)

David Charles Lockman (1947 - 2022)

by **Susan Patla**

Dave Lockman worked for Wyoming Game and Fish Department (WGFD) for 32 years (1971-2003), first as a field biologist (for 19 years), and then as the Department's Education Supervisor. Prior to working for WGFD, he earned a Bachelor of Science in Wildlife Biology and Range Management, and a Master of Science degree in Avian Biology from Colorado State University.

During his tenure as a field biologist, Dave made significant contributions to Wyoming's wildlife, whether it was testing new data collection techniques for big game or improved management techniques for waterfowl. Dave had a great interest in wetland and waterfowl with a particular focus on Trumpeter Swans *Cygnus buccinator*, and Sandhill *Antigone canadensis* and Whooping Cranes *Grus americana*. As the WGFD Western Wyoming Waterfowl Manager from 1982–1989, he was instrumental in developing plans and testing field methods for restoring and expanding Trumpeter Swan populations in Wyoming. He conducted inventories and population surveys, marked most of the adult swan nesting population, and initiated a wetland mapping and classification system used to identify and quantify swan breeding and wintering habitat available in Wyoming.

As a Pacific Flyway representative, Dave was key in organising the first Trumpeter Swan Population Management subcommittee for the U.S. and Canada. He was one of the main authors of the first North American Management Plan for Trumpeter Swans (1984) and the first recovery plan for Trumpeters in the Rocky Mountain Population (1986). He also led the Whooping Crane Management and Recovery Effort for Wyoming. Dave inspired many biologists and the public with his great energy and passion for "the big white duck" as he often called Trumpeters. He authored or co-authored many technical articles during his career and often gave public talks on the status of swans in Wyoming.

While Education Supervisor, Dave prepared and supervised the implementation and management of over 20 cooperative agreements with Wyoming communities and developed over 50 interpretive education projects, supervised the development of the Outdoor Recreation Education Opportunities program for Wyoming schools, coordinated the establishment of the National Bighorn Sheep Center in Dubois, Wyoming, and created wildlife viewing sites across the state as part of the "*Wyoming's Wildlife-Worth the Watching*" program. He planned and developed the first Wyoming Hunting and Fishing Heritage Exposition hosted by the Department. This became an annual event in Wyoming for over 13,000 families and youth annually. He co-authored the "*Outdoor Expo Planning Guide*", a collaborative effort between the Weatherby Foundation, Texas Parks and Wildlife Department, and WGFD. This guide was a practical handbook for states desiring to produce an Outdoor Expo. In 2003 he became the project leader for the Weatherby Foundation's North American Outdoor Expo Campaign. This included providing planning assistance to states and managing a national grant program for funding support to states. As a result, 22 states implemented Outdoor Expo education events, reaching 350,000 participants annually.

After retiring, Dave worked as a private consultant on a Trumpeter Swan habitat project for the state. He developed plans for 22 different wetland projects on 13 different ranches in the Green River swan expansion area of Wyoming. As part of this work, he wrote and co-authored a detailed prescription for constructing and managing wetland ponds for swans. He went on to work as a private consultant on numerous intensive wildlife and habitat surveys and evaluations. He also designed and implemented wildlife habitat improvement projects for private landowners and the oil and gas industry.

Dave was a man of inordinate energy and passion. Along with his wildlife work, he enjoyed time with his family and grandkids, hunting, fishing, as well as working around his cabin. He passed away on May 25, 2022, surrounded by family after a short illness. He is survived by family members: wife Janet, and sons Rex, Clint and Dusty, ten grandchildren and four great-grandchildren.

Dave Lockman was inducted into the Wyoming Outdoor Hall of Fame in 2014. He remains a key influence for many of us who have continued to work and champion swan conservation in Wyoming.

Dave Lockman with Trumpeter Swan cygnet, Red Rocks Lakes NWR, (MT), USA (**Photo:** Wyoming Game & Fish Department files)

Dave at Star Valley, (WM), USA during early translocations of swans to new wintering sites (**Photos:** Wyoming Game & Fish Department files)

Arnthor Gardarsson (1939 - 2022)

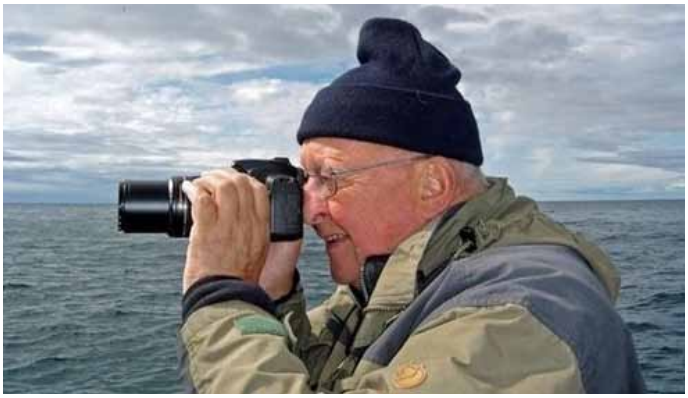
A personal reflection by **Chris J. Spray**

I first met Arnthor back in 1983 when he visited Aberdeen University where his student and then neighbour of mine, Arni Einarsson was registered for his PhD studying Barrow's Goldeneye *Bucephala islandica* at Lake Myvatn. A late-night discussion over a malt whisky or two on my experiences of catching large numbers of flightless moulting Mute Swans *Cygnus olor* in Scotland led to thoughts about doing something similar with moulting Whooper Swans *Cygnus cygnus* in various locations around Iceland, to try to tease out migration routes and wintering destinations in the UK and continental Europe. Arnthor was also increasingly thinking of Whooper Swans, having recently (in 1982) undertaken a census of Whooper Swans at moulting and autumn staging sites in Iceland, to produce a more accurate estimate of the size and structure of the Icelandic-breeding population of the species (Gardarsson & Skarphedinsson 1984).

Shortly afterwards, Arnthor invited me to come to Iceland to help him catch and put neck collars on moulting adult Whoopers in the first of a series of catches we did in 1984 and 1985; neck collars being a means of individual identification used in the UK for the first time in my study of the wild Mute swan population on the Outer Hebrides. Targeting flocks in the northeast at Skogalon (where we also caught a one-year female Bewick's Swan *Cygnus c. bewickii*!), along the south coast at Alftafjordur (where we were watched by a White-tailed Sea Eagle *Haliaeetus albicilla*) and lastly in the west on the Snaefellsnessysla peninsular (where the local farmer fed us Hákarl, an Icelandic delicacy of rotten shark), this was an amazing introduction by Arnthor to Iceland, its wildlife and culture! Camping in remote locations, eating large amounts of fish, smoked lamb (hangikjöt) and flatbread (flatkökur) all washed down with brennivin (Black death!), Arnthor was a superb host with a great sense of humour, often at the expense of the British (sic!) – a pyromaniacal cook, a source of amazing knowledge about Icelandic poets and sagas (being the reason many years later one of my sons did his PhD on Icelandic sagas!) and, of course an encyclopaedia when it came to Icelandic waterfowl, seabirds and wildlife.

These Whooper Swan catches led to publications in two areas: his interest in migration as seen in his paper at the Third IWRB Swan Symposium in 1989 on movements of Whooper Swans neck-banded in Iceland (Gardarsson 1991) and mine comparing rates of lead poisoning of Whoopers in their Icelandic breeding and Scottish wintering grounds (Spray & Milne 1988). Arnthor's interest and knowledge of Whooper Swans of course pre-dated this, not least his work at the Lake Myvatn Research Station, where he had been monitoring Whooper Swan numbers for decades (see his 4th IWRB Swan Symposium paper on long-term trends in the number of Whooper Swans moulting at the site; Gardarsson *et al*. 2002). In addition, he continued to be responsible for and undertake many censuses of the Whooper Swans in Iceland, latterly as part of the coordinated international swan censuses made every 5 years (*e.g.* Gardarsson & Skarphedinsson 1985; Worden *et al*. 2009).

Arnthor also paved the way for further studies on Whooper Swan breeding biology started by the Wildfowl & Wetlands Trust (WWT) and a range of Icelandic co-workers centred on Skagafjordur in 1988 and he was always a great supporter in promoting such cooperative studies of migratory waterfowl. In this respect, he will probably be even more well-remembered for his work on Eurasian Wigeon *Mareca penelope*. He was a great traveller, ready and willing to visit other parts of the world, not least Scotland where we were fortunate to play host to visits from Gudrun and he several times, delighted to be able to repay some of their kindnesses they showed me and my whole family over the years when visiting his beloved Iceland. Sadly, it was only by virtual, remote means that I was able to listen in to his funeral early last year - RIP.



Professor *emeritus* Arnthor Gardarsson, of the University of Iceland (**Photo:** Halldór Pálmar Halldórsson)

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Evgeny Evgenyevich Syroechkovsky Jr. (1968 - 2022)

Russian ornithology and conservation, and all those involved in these activities, have suffered a huge loss. Following a serious illness, the prominent scientist and a world-famous specialist in the biodiversity protection Evgeny E. Syroechkovsky has passed away. Evgeny was at the centre of all those interested in nature conservation, not only in the Russian Federation but along the birds' migratory flyways, and his many friends and colleagues will be shocked by this tragic news. Evgeny graduated from the Geographical Faculty of Lomonosov Moscow State University with a Candidate of Geographical Sciences degree. From the very beginning of his work, he combined scientific research with active conservation of rare and endangered species, involving all those interested in and supporting this activity.

During his long and eminent career, Evgeny worked at the Laboratory of Biodiversity Conservation and Use of Biological Resources of the Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences (IPEE RAS), and since 2010 he continued his scientific and environmental activities at the VNII Ecology (former VNIIprirody), where he held the position of Deputy Director, and then adviser on the conservation of Arctic biodiversity. The study of the Arctic and Arctic fauna was the most important of the tasks into which Evgeniy put his heart and soul. He undertook numerous complex expeditions to study the tundra's wildlife, and wrote wonderful articles about it, along with many scientific papers. Equally important, he made a huge contribution to the preservation of Arctic nature through international cooperation, in his roles as a permanent member of the Russian delegation of the Arctic Council Working Group on the Conservation of Arctic Flora and Fauna (CAFF), a representative of the Ministry of Natural Resources of Russia in the Partnership of the East Asian–Australasian Flyway Program (EAAFP), and coordinator of the Working Group on Geese of Northern Eurasia (RGG).

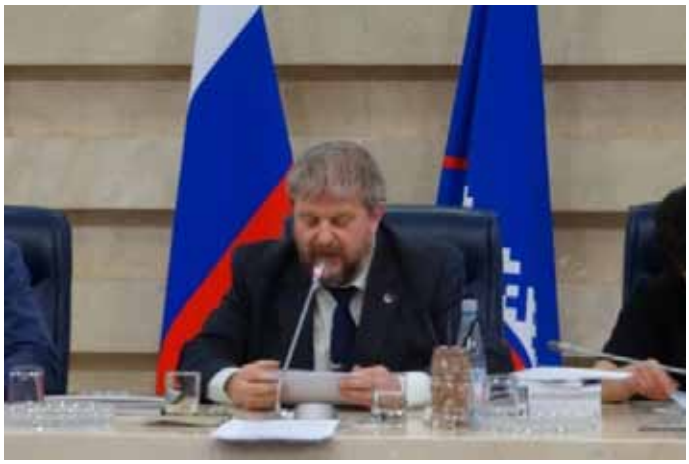
Great international authority and excellent organizational skills allowed Evgeny Syroechkovsky to develop and undertake, together with other outstanding Russian scientists and scientists from the UK, a project to preserve the Spoon-billed Sandpiper *Calidris pygmaea*. This is a unique project which aims to stop the extinction of the species and start restoring its numbers. The name of Evgeny Syroechkovskiy will undoubtedly be forever associated with this outstanding history of the revival of this species. He also pioneered and supported studies of migratory goose and swan populations, including publishing a key paper on the distribution and population estimates for swans in the Siberian arctic which remains an important reference to this day.

Evgeny was a wonderful negotiator; thanks to his openness, ability to find common ground, and simply - his deep humanity - he managed the impossible. A large number of our successful results in international negotiations with Asian countries were largely born thanks to the diplomatic tact and charm of Evgeny Syroechkovskiy. None could resist his disarming sincere smile and the iron irrefutable logic of a scientist. And who, if not Evgeny, could find a common language and a basis for negotiations with hunters, officials and nature lovers?

This remarkable ability allowed Evgeny to become a leader in another area of environmental protection – he was the permanent director of the Russian Society for the Conservation and Study of Birds (ROSIP).

We have lost one of the most outstanding and charismatic leaders of nature conservation. It is difficult to imagine how to cope with this loss. The name of Evgeny Syroechkovsky Jr., as well as his outstanding father, Evgeny Syroechkovsky Sr., is forever inscribed in the golden row of Russian scientists and nature conservationists.

by **Anna Belousova**



Evgeny E. Syroechkovsky Jr. during the "*Waterfowl of Northern Eurasia: Research, conservation, and sustainable use*" symposium, convened by the Goose, Swan and Duck Study Group of Northern Eurasia and the Wetlands International / IUCN SSC Goose Specialist Group in Salekhard, Russia on 30th November to 6th December 2015 (**Photos:** Eileen Rees)

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Bewick's Swan (**Photo:** J. S. Lees)