Swan news

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Newsletter of the Wetlands International / IUCN SCC Swan Specialist Group

About the Swan Specialist Group

The Wetlands International / IUCN SSC Swan Specialist Group (SSG) is a global network of over 400 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.

Swan Specialist Group Committee and coordinators

This issue of *Swan News* was edited by Carl D. Mitchell (USFWS, retired).

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Editorial

Greetings all!

Here, finally, is the Swan Specialist Group (SSG) newsletter promised at the 5th International Swan Symposium. Various unavoidable issues and circumstances caused considerable delay in producing this newsletter, for which I apologise. However, here we are.

The objective of the newsletter is to help inform SSG members about what other SSG members (and others) are doing in regard to swan research (and sometimes management); to provide a forum for questions and insights not otherwise suitable for other outlets; to alert SSG members to publications and meetings they may not have heard about; to let swan biologists and research scientists know who else is involved and in what capacity; and overall to foster informal information exchange between SSG members (and others who may be interested).

When the newsletter first came out in the late 1980s and early 1990s, the internet and electronic mail was not yet available. It's hard to believe, especially for some younger members. Thus, a printed newsletter, laboriously but very competently produced by Dr. Eileen Rees, and mailed at no little expense to members around the world, was the only means to communicate large amounts of data. At least now we have the means to share information electronically.

But this increase in communications capability is a double-edged sword. With the internet and e-mail, it is also much easier to keep track of other biologists, their projects (many of which have their own websites), publications, or meetings. We think there is a role for a newsletter like this, but whether it is successful, and whether it continues, will be up to the SSG members. We will need comments, suggestions, and contributions if this is to continue.

In the interim, we hope you will find what follows to be interesting and useful.

Best wishes,

Carl D. Mitchell

Fifth International Swan Symposium

Eileen Rees & John Cornely

The 5th International Swan Symposium (5th ISS) of the Wetlands International / IUCN-SSC Swan Specialist Group (SSG) was held at Easton, Maryland, USA from 3–6 February 2014. International swan symposia have been convened at *c.* 10-year intervals since the inaugural meeting at Slimbridge, UK (in December 1971), with subsequent gatherings at Sapporo, Japan (February 1980), Oxford, UK (1989) and Airlie, Virginia, USA (February 2001). The 5th ISS was hosted by The Trumpeter Swan Society (TTSS) and the coincided with the 23rd TTSS Conference. John Cornely (TTSS former Executive Director) and Becky Abel (Associate Director) co-chaired the host committee with Jerry Serie (Local Committee chair) whilst Eileen Rees coordinated the scientific programme along with the Scientific Committee members: John Cornely, Bart Nolet, Chris Perrins, Ma Ming and Scott Petrie. John Cornely stepped down as Executive Director prior to the symposium to take on the role as the TTSS Senior Conservation Advisor. The historic Tidewater Inn in the heart of Easton provided a pleasing venue and there was a consensus from attendees that it was an excellent meeting.

About 100 swan researchers and conservationists attended from 16 countries, from Australia, Canada, China, Denmark, Estonia, Germany, Netherlands, Iceland, Japan, Latvia, Lithuania, Poland, Russia, Sweden, UK and the USA. Three days were dedicated to presentations and workshops, which covered a wide range of information and issues. The talks considered all aspects of swan ecology, with sessions on: (1) populations and distribution, (2) habitat and diet, (3) management, (4) breeding biology, (5) migration strategies, and (6) threats to swan species. Key management issues – with voices on both sides of the debate – included the control of the non-native Mute Swan within North America. The illegal shooting of migratory swans in Europe, the illegal poisoning and trapping of swans in China and lead poisoning in North America were raised as points of conservation concern. A special workshop led by the Avian Power Line Interaction Committee (APIC) addressed avian interactions with power lines and focused on methods to minimise swan collisions with the cables. Three other workshops were convened, on the use of stochastic growth models for estimating swan populations (led by Dr. E.O. "Oz" Garton), the organisation of the Swan Specialist Group, and on the implementation of the AEWA Bewick's Swan Action Plan, respectively.

Other highlights included a local field trip sponsored by Waterfowl Chesapeake to observe Tundra Swans and other waterfowl wintering on the eastern shore of Chesapeake Bay, coupled with a stop at Blackwater National Wildlife Refuge and Visitor Centre. Refuge staff gave a presentation on the unique wetland ecosystem that supports the diverse flora and fauna of the Bay and the threat of a rise in sea level on coastal resources and communities.

Tundra Swans feeding in stubble fields during the field excursion to Chesapeake Bay (photo: Dave Weaver).

The banquet on Wednesday night featured a presentation by the author and naturalist Tom Horton and award-winning photographer David Harp, who spoke on the Bay's bounty and beauty and underscored future challenges of living on the edge between land and water. A special lifetime membership award was presented to Easton resident Don Cochran, the one living founder of The Trumpeter Swan Society established in 1968.

Conference delegates during the banquet, from left to right: Dima Boiko (Latvia), Peter Glazov (Russia), Diana Solovyova (Russia), Julius Morkūnas (Lithuania), Sibyl Cochran (USA) and Nico Stenschke (Germany). (photo: Dave Weaver).

A special TTSS life-time achievement award to Prof. Bill Sladen was accepted by Tom Wood on Bill's behalf. Pelle Andersen-Harild (Denmark) received a presentation for being the only person to have attended all five international swan symposia; Julius Morkūnas (Lithuania) and Bart Nolet (the Netherlands) were highlighted as each having given three presentations during the meeting. TTSS presented the *George Melendez Wright Trumpeter Swan Conservation Award* to outgoing Executive Director John Cornely, the highest honour that the Society can bestow. Previously the award has been presented to Harry Lumsden, Jim King and Harold Burgess. TTSS President Gary Ivey proclaimed the conference an overwhelming success, and stated that "*...the collaborative efforts to exchange vital information among swan researchers and managers at this conference will significantly advance our understanding and conservation of swans worldwide*."

Pelle Andersen-Harild (Denmark, right, with Eileen Rees), recognised for his attendance at all five international swan symposia since the first meeting was held at Slimbridge, UK, in 1971 (photo: Dave Weaver).

John Cornely (USA, left), with Scott Petrie (Canada), during presentations at the 5th International Swan Symposium banquet, February 2014 (photo: Dave Weaver).

Following on from the meeting, seven key papers presented at the symposium have now been published as a 'mini proceedings' in *Wildfowl* 64. *Wildfowl* is an open access and pdfs of the papers (which range from tracking Tundra Swan migration and a study of Bewick's Swan breeding biology, through the control of Mute Swans on Chesapeake Bay, to new work on Black Swans in Australia) are now accessible on the journal's website at **http://wildfowl.wwt.org.uk/index.php/wildfowl**. There was also universal agreement within the Group that we should meet more frequently, perhaps at five-year intervals, with the 6th International Symposium now scheduled for 2019.

Presentations at the 5th ISS: (a) Radek Włodarczyk (Poland), (b) Lizhi Zhou (China) (c) Jerry Serie (USA), (d) Leif Nilsson (Sweden), (e) Bart Nolet (Netherlands), (f) Jon Coleman (Australia), (g) Diana Solovyeva (Russia), and (h) Chris Perrins (UK) (photo: Dave Weaver).

Development and implementation of the AEWA Bewick's Swan Action Plan

Eileen Rees, Kevin Wood, Szabolcs Nagy, Julia Newth, Geoff Hilton & Bart Nolet

The Northwest European Bewick's swan *Cygnus columbianus bewickii* population is of conservation concern because its numbers are in decline. There was an increase in population size during the 1960s–1990s, but a coordinated international census in January 2005 recorded a total of *c.* 21,500 birds, a 27% decrease on the peak count of 29,277 made in January 1995 (Figure 1; Rees & Beekman 2010). The January 2010 census (which recorded *c.* 18,100 birds) and national totals indicate that the decline has continued since then (Beekman *et al.* in prep.).

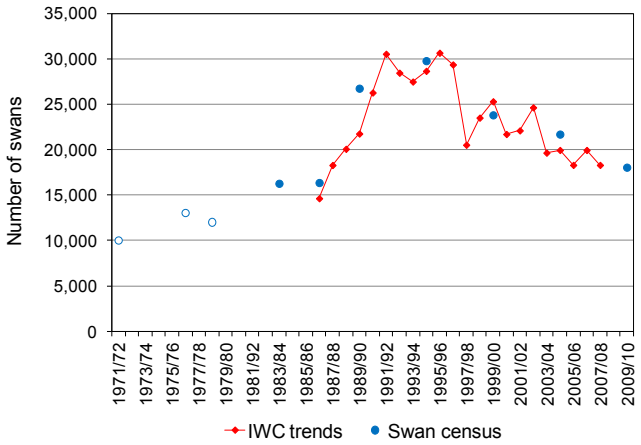

Figure 1. Population trend of NW European Bewick's swan population based on International Waterbird Censuses (Wetlands International 2008) and International Swan Census data (Beekman *et al.* in prep.). Census figures for the 1970s may be incomplete (Nagy *et al*. 2012).

A group of 30 Bewick's swan experts therefore convened at a planning workshop held in Saint Petersburg in September 2009 (Figure 2), hosted by Lenoble Priroda, and organised jointly by Wetlands International (WI), the WI-IUCN SSC Swan Specialist Group and the Wildfowl & Wetlands Trust (WWT). Participants identified potential threats to the birds and developed the monitoring, research and conservation work required to halt and reverse the population decline. It was agreed that no single issue could explain the decrease in numbers since the mid 1990s, and that a combination of factors affecting the swans' survival and productivity, such as weather and habitat changes, should be examined in further detail (Nagy *et al.* 2012).

Figure 2: Delegates at the Bewick's swan action planning workshop, St Petersburg, September 2009 (photo: Nicky Petkov).

The importance of sustaining a chain of key sites sufficient to support the population throughout its annual cycle, together with introducing measures to reduce known and potential risks to the birds' survival and breeding success, were identified as priorities for conservation action.

The draft Bewick's Swan Species Action Plan (BSSAP; Figure 3) resulting from the meeting was amended in line with comments received following government consultation with range states, and the finalised BSSAP (Nagy *et al*. 2012) was adopted by the African-Eurasian Waterbird Agreement (AEWA) in May 2012. The immediate aim of the BSSAP is to halt the decline and begin recovery of the population to its 2005 level (*c.* 21,500 birds), with the long-term goal of maintaining the population minimally at its 2000 level (*i.e.* 23,000 birds). Conservation efforts described within the plan are to take place over the next ten years, after which the status of the population will be reviewed and the need for further action will be considered.

Since its adoption, several initiatives have been developed for taking forward actions identified within the BSSAP. A National Bewick's Swan Action Plan has been developed for Estonia (Luigujõe 2014), which is now in implementation. Also, in recent months, the January 2015 international migratory swan census was

extended to cover areas traditionally considered the wintering range of the Caspian population of Bewick's Swans, with a view to assessing any population interchange. In 2014, WWT launched a successful fundraising appeal to fund a two-year programme of research into the causes of the population decline, and postdoctoral researcher Dr Kevin Wood has been appointed to carry out three key stages of this work: (1) statistical modelling to relate demographic rates to potential environmental drivers (*e.g.* climatic variables and predation pressure), including identification of any between-site differences, (2) use of data on demographic parameters and their environmental drivers in a population model to examine their contributions to the population decline and project future changes in population size and structure, and (3) development of an individual-based model of Bewick's Swans on their wintering grounds, with a focus on their traditional stronghold of the Ouse Washes in eastern England. Individual-based models can simulate the movement and resource-use of animals within a landscape based on fitness-maximising behaviour, and so are powerful tools for predicting how individuals and populations will respond to changes in their environment (Wood *et al.* 2015). Most recently, the Netherlands Institute for Ecology (NIOO) obtained a grant for a PhD student to likewise analyse Bewick's Swan population dynamics using integrative population modelling, with a focus on the Netherlands which has long been an important wintering area for the species. A flyway approach in collaboration with researchers in other range states should enable us jointly to predict how recent changes in land management and competition with the larger Whooper Swans have affected Bewick's swan body condition, habitat use, and survival. We look forward to reporting on the outcome of these various initiatives in future issues of the Swan Specialist Group Newsletter.

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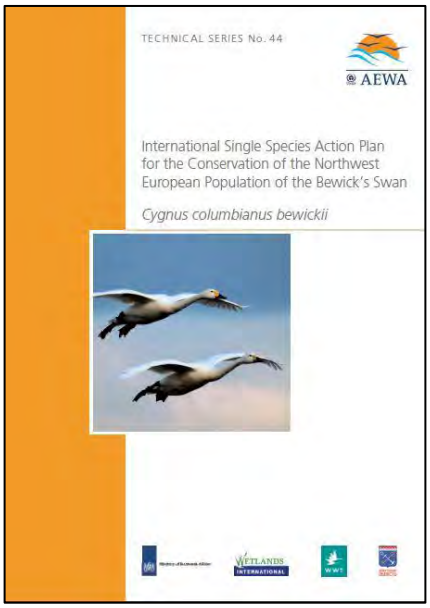

Figure 3. AEWA Single Species Action Plan for the Northwest European Bewick's Swan population. Contributors: Koen DeVos (Belgium), Jon Erling Krabbe (Denmark), Andres Kuresoo (Estonia), Leho Luigujõe (Estonia), Johannes Wahl (Germany), Dimitris Boiko (Latvia), Saulius Svazas (Lithuania), Rene Alma (The Netherlands), Jan Beekman (The Netherlands), Mennobart van Eerden (The Netherlands), Szabolcs Nagy (The Netherlands), Bart Nolet (The Netherlands), Nicky Petkov (The Netherlands), Wim Tijsen (The Netherlands), Marc van Roomen (The Netherlands), Maria Wieloch (Poland), Olivia Crowe (Republic of Ireland), Anna Belousova (Russia), Valery Bozun (Russia), Andrey Glotov (Russia), Konstantin Litvin (Russia), Alexander Kondratyev (Russia), Oleg Mineev (Russia), Yuri Mineev (Russia), Vladimir Morozov (Russia), Alexander Solokha (Russia), David Stroud (UK), Geoff Hilton (UK), Baz Hughes (UK), Julia Newth (UK), Graham McElwaine (UK) and Eileen Rees (UK).

Bewick's Swan National Action Plan for Estonia

Leho Luigujõe

Estonia is one of the most important staging areas for the NW European population of the Bewick's Swan *Cygnus columbianus bewickii*, which is currently in decline. The swans occur there in both spring and autumn, mostly frequenting shallow lakes and coastal bays (where they feed on aquatic vegetation, particularly *Chara* and *Potamogeton*) but also feeding on agricultural land (mainly cereals; also sugar beet, oilseed rape and potatoes), refuelling for onward migration and developing body reserves for nesting or over-wintering (Figure 1).

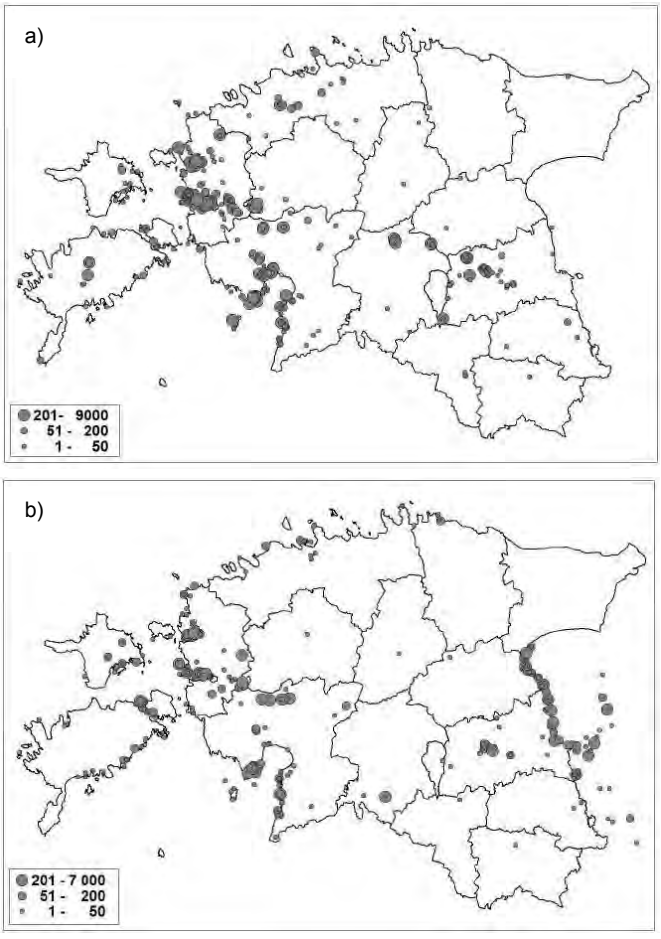

Figure 1. Bewick's Swan a) spring and b) autumn staging sites in Estonia.

The swans' staging period in Estonia is generally longer than other stopover sites (23 days versus 3–11 days; Luigujõe *et al.* 2013), and feeding conditions in Estonia are considered crucial not only for completing migration but for breeding successfully during the summer. In

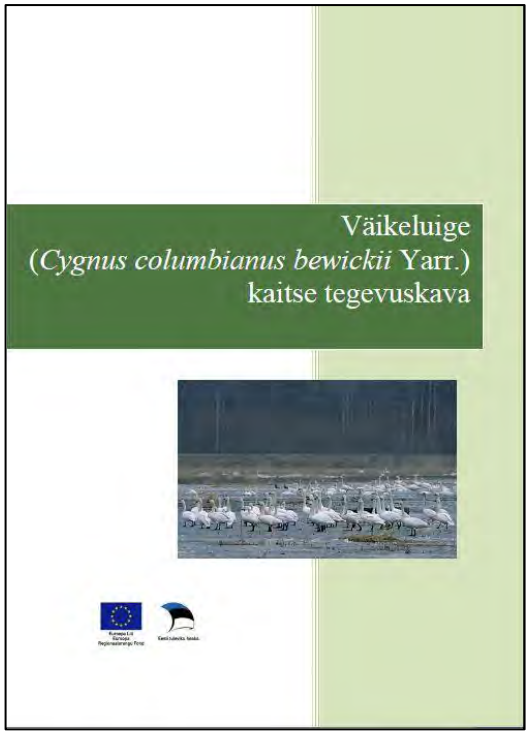

Figure 2. Bewick's Swan National Action Plan for Estonia.

autumn swans arrive to Estonia in the beginning of October and leave in mid November, passing through Estonia in two waves – non-breeders arriving ahead of the birds with young. During the 1990s, a total of 41 Estonian spring staging sites and 28 autumn staging sites were classed as being of international importance for Bewick's Swans (*i.e.* received > 1% of the total population), when peak numbers were recorded at Audru Polder (17,500 birds in 1996), Matsalu Bay (14,500 in 1994) and at the Lao-Liu coastal area along Pärnu Bay (10,000 swans in 1998) (Luigujõe et al. 1996, 2013). Now just 27 sites are of international importance for the species (Luigujõe *et al.* 2013).

Following an increase in numbers to around 29,200 birds in 1995, the NW European Bewick's Swan population dropped to around 21,500 birds in 2005 and has continued to decline since then (Rees & Beekman 2010). A Bewick's Swan Single Species Action Plan therefore was prepared with the aim of halting and reversing the decline, and this was adopted by the African-Eurasian Waterbird Agreement (AEWA) in 2012. Given the importance of Estonian wetlands for

the species in both autumn and spring, Estonia developed a National Action Plan for the species under the auspices of the AEWA Bewick's Swan Species Action Plan, which runs for five years until 2017 (Luigujõe 2014; Figure 2).The main aim of the Bewick's Swan Action Plan for Estonia is to protect and maintain the swans' main staging areas in their traditional natural habitats (*i.e.* coastal bays, coastlines and mires), semi-natural (floodplain) communities and also on agricultural land. In particular, it is important to ensure that at least 30 sites in Estonia are maintained in favourable conditions for the species and that at least 80% of the total population are able to utilise favourable feeding and roosting habitats on Estonian wetlands. Several actions are planned to achieve this aim, including enhanced protection of the swans' night-time feeding areas. Additionally, we plan to make a full inventory of the swans' feeding and roost sites, and to analyse any changes inland use in the areas. Monitoring programmes determining the status and turnover of Bewick's Swans in Estonia will be continued, and opportunities explored for public participation in swan conservation.

Acknowledgements

Funding for the National Action Plan was provided by the European Union's National Strategic Reference Framework 2007–2013 (NSRF) and the Development of Living Environment operational programme (for sustainable use of the environment infrastructure and support systems and management plans and species action plans to address biodiversity preservation) under the European Regional Development Fund. The Environment Agency and the Ministry of Environmental Professionals provided amendments to a draft of the text, included in the final version of the National Bewick's Swan Action Plan.

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Bewick's Swans (photo: WWT).

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Lead poisoning from lead ammunition: global policy update

Julia Newth & Ruth Cromie

Lead poisoning, through the ingestion of spent lead gunshot, represents an ongoing 'One Health' issue, affecting human, domestic animal, wildlife and environmental health. As a highly toxic heavy metal that acts as a non-specific poison, it remains an important cause of morbidity and mortality in wild swans globally where lead gunshot is used. Wild swans are commonly poisoned following the ingestion of spent lead shot, either inadvertently or when mistaken for food particles or grit which is retained in the muscular gizzard to aid mechanical breakdown of food. Once in the gizzard, the pellets are ground into smaller particles and toxic lead salts absorbed into the bloodstream. Swans feeding in wetland or terrestrial areas shot over with lead ammunition are therefore susceptible to lead exposure, ingestion and poisoning.

The risk to birds from poisoning from lead gunshot has lead to many countries imposing legislative restrictions on its use. In Europe, legislation has largely resulted from a request for the phasing out of lead shot over wetlands within the action plan and subsequent resolutions of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). However, partial restrictions have proven to be ineffective due to poor compliance and because birds often feed and ingest lead in areas where restrictions do not apply. It is widely believed that the replacement of lead shot with non-toxic alternatives for shooting across all habitats represents the most practical and effective solution. Non-toxic alternatives are generally widely available and provide a viable alternative.

The Prevention Poisoning Working Group of the UNEP Convention on the Conservation of Migratory Species (CMS) has recently drafted an ecological review detailing the risks of lead ammunition to migratory birds. In November 2014, the 120 Contracting Parties of the UNEP-CMS adopted Resolution 11.15 "Preventing Poisoning of Migratory Birds", and its accompanying Guidelines. The Guidelines include a three-year timetable to phase out lead ammunition in all habitats by 2017. Under the Resolution, Parties are given the flexibility to determine their own implementation of the Guidelines. However, the intent of the Resolution is clear in that Parties with significant poisoning risks in their territories should follow the Guidelines. This is a binding Resolution and is the first time that lead ammunition has been highlighted as an issue on a global stage, in all habitats.

The Resolution can be found here **http://www.unep-aewa.org/en/document/unepcms-resolution-1115-preventing-poisoning-migratory-birds** and the Guidelines and ecological review can be found here **http://www.cms.int/en/document/review-and-guidelines-prevent-poisoning-migratory-birds**.

A lead poisoned Whooper Swan (photo: WWT).

International Bewick's and Whooper Swan Census in northwest Europe

Jan Beekman, Colette Hall, Bjarke Laubek & Eileen Rees

Every five years, the Wetlands International / IUCN SSC Swan Specialist Group organises a flyway-wide international swan census (ISC) for the three migratory swan populations in northwest Europe: (1) the Northwest European Bewick's, (2) the Northwest Mainland Europe Whooper, and (3) the Icelandic Whooper, with the most recent census of these populations taking place in January 2015. The ISCs are scheduled to coincide with the mid-January International Waterbird Censuses (IWCs) coordinated by Wetlands International (whereby waterbirds are counted annually at some 25,000 sites in more than 100 countries across the globe), to keep duplication of effort to a minimum. Although the IWCs cover many of the sites frequented by wintering swans, additional effort is required during the ISCs to survey areas not regularly covered by the national schemes (*e.g.* feeding sites in agricultural areas) and thus provide an estimate of total population size.

In addition to collecting information on abundance and distribution, observers are also asked to record habitat type and undertake age assessments. Data from the census can, therefore, be used to calculate trends, estimate population size, determine sites of national and international importance, determine any major shifts in site or habitat use over time, and provide a comprehensive measure of the percentage of juveniles in flocks across the wintering range.

During the 1980s and 1990s, relatively few Bewick's Swans wintered in southern Europe and Whooper Swans in these areas were through to be mainly from a separate Black Sea/East Mediterranean population. Following an increase in the numbers of Bewick's Swans wintering on the Evros Delta in Greece, however, from a handful of individuals in 2005 to >2,000 birds in February 2010 and >3,000 birds in February 2014, the January 2015 ISC was extended to include countries thought to be wintering haunts for the Caspian Bewick's Swans and the Black Sea/East Mediterranean Whoopers. Whether Bewick's Swans wintering in Greece are mainly from the NW European or the Caspian population has yet to be confirmed, but extending coverage during the ISC should help to provide some insights into the situation.

Bewick's Swans (photo: James Lees / WWT).

Results from previous Bewick's Swan censuses

The first complete census of the Northwest Bewick's Swan population took place across Europe in 1984, when a total of *c.* 16,300 swans was recorded, of which 54% were recorded in the Netherlands, 31% in Britain, and the remaining 15% mostly in Germany, Denmark and the Republic of Ireland (Beekman *et al.* 1985). By January 1995 the population had increased to a peak of *c.* 29,800 birds, of which 66% were recorded in the Netherlands (Beekman 1997). However, since then the population has rapidly declined, with only 18,055 recorded in January 2010 (Beekman 1997, Rees & Beekman 2010, Beekman *et al.* in prep.; Figure 1), and trends from annual national surveys indicate that the decline is continuing. Concern about the rapid decline in numbers led to a meeting of Bewick's Swan experts (held in St Petersburg in February 2009) and the drafting of a Bewick's Swan International Action Plan which was adopted by the African-Eurasian Migratory Waterbird Agreement (AEWA) in May 2012. The overall goal of the Action Plan is to return the population minimally to its 2000 level of at least 23,000 birds (Nagy *et al.* 2012), and the ISCs are crucial for assessing the

effectiveness of conservation initiatives undertaken as part of the Action Plan implementation process.

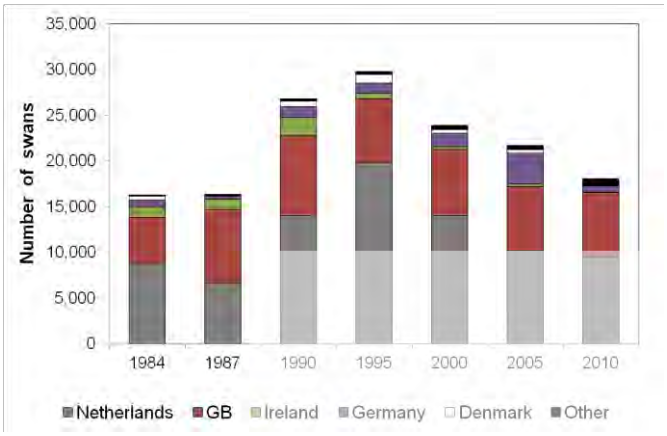

Figure 1. Number of Bewick's Swans recorded during international censuses of the Northwest European breeding population, 1984 to 2010 (Beekman *et al.* 1985, Beekman 1997, Rees & Beekman 2010, Beekman *et al*. in prep).

Results from previous Whooper Swan censuses

The first comprehensive census of the Icelandic Whooper Swan population, covering Britain, Ireland and Iceland, was carried out in January 1986 resulting in an estimated population size of 16,742. Numbers have since increased to a peak of 29,232 (January 2010) and there also indications of a possible southwards shift in the swans' wintering distribution (Hall *et al.* 2012). Since 1986, an increasing proportion of the overall population has been wintering in England, with 2010 seeing a 20% increase compared with the first census (Figure 2). Over the same period there has been a corresponding decrease in Scotland, though to a lesser extent, and there has also been a decline in the proportion recorded in Ireland, most notably in the Republic of Ireland. Only England has seen a consistently higher rate of increase in numbers when compared with the overall population increase, suggesting that the population as a whole is shifting south. There has also been an increase in the number of Whooper Swans remaining in Iceland for the winter, with numbers recorded during the 2010 census being 75% higher than in 1986. However, further monitoring is needed to see if this trend continues before any conclusions can be made as to why this is occurring.

The Northwest Mainland Europe Whooper population also has been increasing since the mid 1980s (Laubek *et al.* 1999), with the population most recently estimated at 90,000 birds in January 2005 (Wahl & Degen 2009).

Census results for this population have yet to be confirmed as historical data are still being collated. But we hope that a recent call asking National Count Organisers to send Bjarke Laubek and Eileen Rees (see page 15 for contact details) data for the January 2000, 2005 and 2010 censuses will result in the counts being made available for analysis and publication in a collaborative paper on the trends and any changes in distribution of this Whooper Swan population.

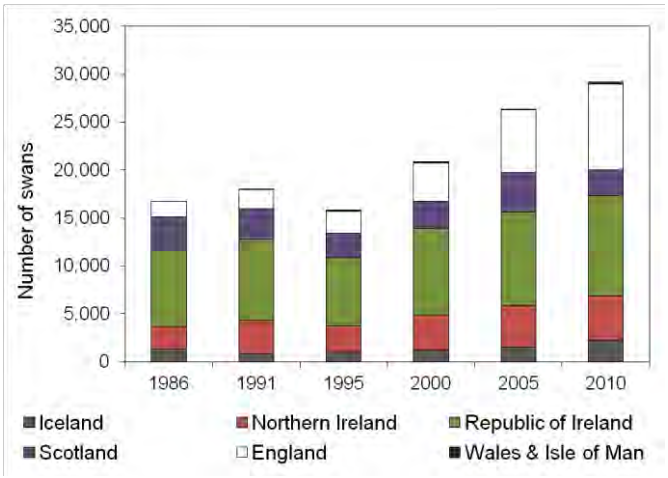

Figure 2. Number of Whooper Swans recorded during international censuses of the Icelandic breeding population, 1986 to 2010 (Boland *et al*. 2010, Hall *et al.* 2012).

Future plans

Results of the 2015 census are still being collated at the time of writing. We therefore would be grateful to any National Count Organisers who have yet to send in their data if they could forward the counts to the census coordinators (see page 15 for contact details), who will gratefully receive any remaining records. Meanwhile, analyses of the earlier census results are underway, with a view to publishing the results more fully as papers in scientific journals by the end of the year.

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Whooper Swans (photo: Paul Marshall / WWT).

Tracking Whooper and Bewick's Swan migration

Larry Griffin, Eileen Rees & Baz Hughes

Serial development of wind farms along migration routes are an important consideration in determining the potential cumulative effect of these developments on populations, but the extent to which both offshore and onshore wind farms occur along migration routes has received relatively little attention. The Wildfowl & Wetlands Trust therefore has tracked migration routes for the two migratory swan species that occur in the UK (Whooper Swans migrating to Iceland and Bewick's Swans migrating to the Russian arctic), to inform the Offshore Energy Strategic Environmental Assessment (SEA) being undertaken by the Department for Energy and Climate Change (DECC), by highlighting key areas where the construction of offshore wind farms may pose a risk to the birds.

Whooper Swan migration

In winter 2008/09, forty backpack 70g solar MTI GPS PTT-100 ARGOS satellite transmitters were fitted to Whooper Swans wintering at sites of international importance for the species (at Caerlaverock, Martin Mere and Welney) in the mid and southern part of their wintering range, and these provided near-hourly data on the swans' locations during the main spring migration period (8 March – 15 May). A further ten transmitters were fitted to swans caught in the breeding range in Iceland in summer 2009 to provide additional data on their autumn migration (these provided locations at two-hour intervals during autumn), and five more tags were fitted to swans at Martin Mere, NW England, in 2009/10 to determine consistency in migration routes across winters.

The 2008/09 spring migration tracks revealed that a high proportion (75%) of swans migrating from NW England crossed at least one offshore wind farm footprint, compared with 7.1% of those tracked along the east coast from SE England (Griffin *et al.* 2010a,b). These movements were all across consented or operational wind farms off the Cumbrian coast or in Scottish Territorial Waters, but because the tracking was undertaken after the application process, only visual and radar observations were used to inform collision risk estimates and barrier effects in Appropriate Assessments for these sites. None of the Whooper Swans were recorded flying across the larger areas of the "Round 3" (R3) footprints, where future wind farm development is scheduled for British coastal waters (Figure 1).

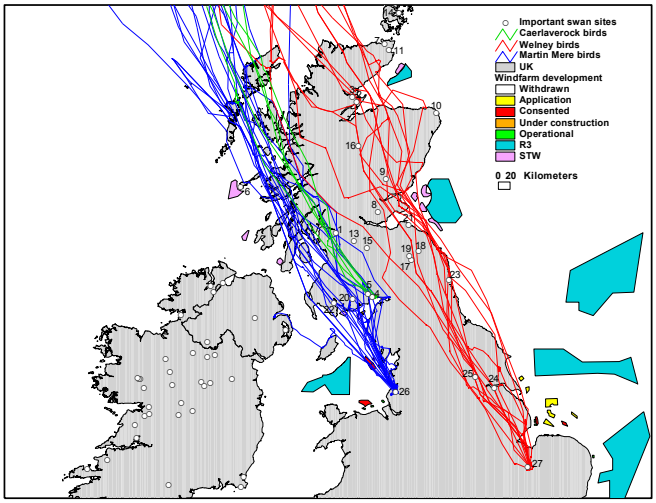

Figure 1. Whooper Swan migration routes in relation to offshore wind farm sites in spring 2009 showing movements from wintering sites at Caerlaverock (five birds), Welney (15 birds) and Martin Mere (20 birds).

The autumn 2009 and spring 2010 data indicated some variability in the swans' flight-lines, with autumn migration having a more westerly trajectory. Swans tracked from NW England also took a more westerly migration route in spring 2010 than in spring 2009 (Griffin *et al.* 2011). On taking onshore (terrestrial) sites into account, it was found that the flight-lines for 80% of the Whooper Swans tracked in 2009 and 2010 passed over at least one proposed or operational terrestrial wind farm site, and that of individuals tracked from Martin Mere and Welney, 39% and 21.5% respectively crossed at least three wind farm sites/footprints (offshore/onshore) during a single migration (Griffin *et al.* 2011).

Bewick's Swan migration

More recently, Bewick's Swans have also been tracked from sites of international importance for the species. Eight birds were fitted with 50g collar-mounted Ecotone GPS/UHF/GSM loggers on the Ouse Washes, SE England in winter 2013/14, and a further 14 in winter 2014/15 (of which four were fitted at Slimbridge in SW England), to determine the potential impact on the swans of offshore wind farms proposed between SE England and the Netherlands. Analysis of the Bewick's Swan tracks is still underway, but one individual tracked in spring 2014 crossed not only the East Anglia offshore wind farm zone but also two consented offshore wind farms in Dutch coastal waters, and subsequently made a number of flights between fields used for feeding to the northeast of the operational Velling Maersk / Taendpibe wind farm in Denmark and roosting areas on Ringkøbing Fjord (Griffin *et al.* 2014). There were a few technological glitches with most of the tags deployed in 2013/14, but the upgraded loggers fitted in 2014/15 gave detailed half-hourly to hourly location data on movements across the North Sea and beyond, with a proportion (five tags) also collecting altitude data. Additionally, four of the original eight swans with the most functional tags returned with loggers that still worked, and these have provided an insight into their summer haunts in the Russian arctic. Two of these birds were in Novaya Zemlya in early September and two others on the coastal tundras of European northern Russia; one returning to the UK with its mate and three young (Figure 2).

Figure 2. Return migration (to December 2014) for four Bewick's Swans named "Andres" (yellow), "Eileen" (pink), "Hope" (orange) and "Lech" (green) tracked in spring and autumn 2014.

Analyses of the swans' tracks in relation to wind farm locations will be undertaken during the summer 2015, with a view to providing a final report to the Department of Energy and Climate Change (DECC) by the end of the year to inform DECC's Offshore Energy Strategic Environmental Assessment (SEA) programme.

Acknowledgements

The tracking studies were undertaken for COWRIE Ltd. and for the Department of Energy and Climate Change under contract to Hartley Anderson Ltd. We are particularly grateful to Phil Bloor and to John Hartley for facilitating the work, and our colleague Robin Jones for his major contribution in synthesising and mapping the satellite-tracking data. We are also immensely grateful to Icelandic colleagues for arranging the catching programmes in Iceland, the cannon-netters, ringers and volunteers who organised and participated in swan catches in the UK, and ornithologists across Europe for providing valuable updates and observations of tagged swans in the field. Each of these contributions was and remains crucial to the study, and we wish to take this opportunity of thanking all those involved.

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Trumpeter Swan recovery planning and management in Alberta, Canada

Mark Heckbert

Fish and Wildlife Policy Manager and Trumpeter Swan Recovery Team Lead, Alberta Environment and Sustainable Resource Development Update for Trumpeter Swans in Alberta.

The status of Trumpeter Swans in Alberta was down-listed in 2014 from Threatened to Special Concern. One of the key messages that was conveyed and supported by the Minister of Environment and Sustainable Resource Development, was that management actions such as land use setbacks to breeding wetlands, were key to the positive population trends and that setbacks were necessary and would be continued in order to prevent Trumpeter swans from slipping back to a Threatened status.

Planning is underway in Alberta in order to deliver the 2015 breeding survey for Trumpeter Swans. Completed every five years, such a large survey delivery is expensive and requires many cooperative partners. Due to the wide breeding distribution across several areas of the province and remote setting of most breeding sites, the survey is delivered entirely through aerial census. The majority of the breeding range occurs in the north western part of the province. Trumpeter swans in Alberta now form a substantial (and increasing) fraction of the Rocky Mountain population (48.5%), and an important fraction of the species' global population (10.1%). Productivity, as measured by brood size and the number of cygnets in the post-breeding population, is higher in Alberta than in any other jurisdiction within the range of the Rocky Mountain population. In Alberta, the survey is scheduled to occur between 20 August – 10 September, 2015.

The cooperative delivery of range-wide surveys in Alberta started back in 1985. Between 1985 and 2005, a total count census was undertaken in the province. In preparation for the 2010 survey, wildlife managers in many jurisdictions including Alberta understood that the increasing breeding range and density of Trumpeter Swans and the resultant costs to complete total count surveys necessitated a change in survey design. So, in 2010, and for the first time, a modified stratified random block survey design was implemented in Alberta for most of the breeding range. Two smaller polygons of breeding habitat, the Beaver Hills east of Edmonton and the Pincher Creek-Waterton area in the extreme south west corner of Alberta contained densities of breeding Trumpeter Swans that could still be censused in one day through the total count method.

Alberta plans again to utilize a modified stratified random sampling design for the 2015 survey. We hope to be able to continually improve on the stratification design in order to deliver the most cost-effective and efficient survey yet! Interest in supporting the 2015 survey has been high, and in addition to funding and logistical contributions from the provincial and federal governments, groups like the Friends of Elk Island Society and other corporate partners see the value in contributing to the survey. One of the goals of resourcing this survey is to broaden the funding base.

Two other projects that we hope to initiate in 2015 include an evaluation review of the Elk Island transplant program and a follow up evaluation to the habitat enhancement initiatives and wetland health assessment on a series of key migration stopover sites north east of Calgary.

Trumpeter Swan (photo: James Lees / WWT).

Behaviour of Trumpeter Swan families post-hatching

Jeff Snyder

As an adjunct project to David Bush and David Delehanty's work on nesting and incubation behaviour, cygnet mortality and genetics, my students and I are conducting a preliminary study of Trumpeter Swan family behaviour post-hatching. This behavioural work is intended to augment data on cygnet mortality and its causes at Grays Lake National Wildlife Refuge, Idaho, USA.

Trumpeter Swan (photo: George J. Reclos / WWT).

Incubation behaviour of Trumpeter Swans at Grays Lake National Wildlife refuge, Idaho, USA

David Bush and D. Delehanty

The current Trumpeter Swan (*Cygnus buccinator*) population breeding at Gray's Lake National Wildlife Refuge was formed by trans-locating 67 non-migratory trumpeter swans from a wild population at Red Rock Lakes National Wildlife Refuge from 1988 to 1991. The intention behind restoring trumpeter swans at Gray's Lake National Wildlife Refuge was to produce a breeding flock that would expand to other wetlands in the area. High cygnet mortality has continued to limit population growth in the region. In order to see if parental behaviour is having an impact of cygnet survivability, we monitored swan incubation behaviour using continuous videography. We measured daily recess and incubation times until eggs hatched, as well as causes of disrupted incubation. Swans were attentive to the nest, incubating until after sunrise, taking many recesses during the day, and returning to the nest before the sunset. Incubation occurred throughout the night with very few recesses. Predators were not seen approaching nests in any video. After hatching, we placed radio transmitters on cygnets. These transmitters allowed for continued monitoring and for quick retrieval upon death. Cygnets retrieved in this way were sent to veterinary services to see if there was a commonality in cause of death. Genetic relatedness within broods will be determined using retrieved cygnets, eggshell fragments, and unhatched eggs. The results of the genetics will allow us to tell if a genetic rescue is needed on the population.

North American Trumpeter Swan Survey 2015

The U.S. Fish and Wildlife Service, Canadian Wildlife Service, and States and Provinces are due to conduct a North American Trumpeter Swan Survey in 2015.

The survey is a cooperative, range-wide survey to monitor the species in North America. It was first conducted in 1968, repeated in 1975, and has since continued at five-year intervals. The objective is to provide comprehensive assessments of trumpeter swan abundance and productivity throughout the species' entire breeding range.

The results of the 2010 survey can be found at The Trumpeter Swan Society's webpage: **http://www.trumpeterswansociety.org/docs/North%20American%20TRUS%20Survey%202010%20Rept.pdf**.

Note, other North American swan survey reports can be found at **http://www.fws.gov/mountain-prairie/species/birds/trumpeterswan/rm_population_archive.htm** and **http://search.usa.gov/search?affiliate=fws.gov&commit=Search&page=1&query=swan+survey+reports&utf8=%E2%9C%93**.

The Canadian Wildlife Service, Provinces and States also have various survey reports. Many of these can be accessed through links at The Trumpeter Swan Society's website **http://www.trumpeterswansociety.org/** along with a great deal of other information on North American swans.

Historic distribution of swans in North America: part 1, historical records

Carl D. Mitchell, Jeff Snyder and Arnella Trent

We are surveying the scientific and historical literature and museum specimens to document the distribution of all swans (*Cygnus* spp) in North America at the time of European discovery, exploration and settlement. We will also prepare maps of species seasonal distribution. We hope this effort will inform reintroduction efforts, habitat management (by indicating aboriginal sites used) and contribute to the ongoing discussion of Mute Swans (*Cygnus olor*) as North American exotics.

We anticipate a part 2 to consist of occupancy modelling to compare with the original mapping based solely on historical accounts.

Tundra Swan (photo: WWT).

Andres Kuresoo: 1954–2014

Leho Luigujõe, Taej Mundkur & Eileen Rees

For those not already aware of the sad news, we are deeply sorry to report that Andres Kuresoo passed away at his home on 2nd September 2014. Andres was a pivotal figure in waterbird and wetland conservation, not only in his native Estonia but in Europe and more widely. On graduating from the University of Tartu, he moved to the Estonian Institute of Zoology and Botany, where he was notable not only for his work on waterbird ecology but for finding ways of communicating results of monitoring and research programmes in Estonia with scientists in western Europe, at a time when dialogue between East and West Europe was constrained by both language and political barriers. Following Estonian independence, he continued facilitating collaborative research, and was always generous with his time in helping or advising others, both at conferences and in the field.

Andres presenting at the 5th International Swan symposium (photo: Dave Weaver).

Throughout his illustrious career as a researcher the Institute of Zoology and Botany, and in due course the Estonian University of Life Sciences in Tartu, Andres maintained his strong interest in waterbirds. In 1994 he received (along with Olav Renno, Kalev Rattiste and Vilju Lilleleht) the prestigious Estonian National Science Award for his work and in the same year gained the National Science Prize for co-authoring the "Estonian breeding bird atlas". He served as Chair of the Estonian Ornithological Society from 1994–2000 (and as a member of its Council from 2003–2006), and was on the Estonian Commission to the Ramsar Convention from 1994–2012. His extensive ecological knowledge and experience in environmental impact assessments were fundamental in developing national and international action plans for a number of threatened species such as the Great Snipe, Steller's Eider and Long-tailed Duck. For many years he acted as the Estonian national coordinator of the International Waterbird Censuses, and also as the Member Delegate of his country to Wetlands International. He has also been an active member of the Swan Specialist Group, with several publications on the three swan species that occur in Estonia, most notably on site use by migratory swans staging in Estonia and on the status of swan species in the east Baltic region.

In 2009 Andres made valuable contributions at the workshop convened to develop an international action plan for the Northwest European Bewick's Swan population, and it is notable that Estonia has prepared the first National Bewick's Swan Action Plan following adoption of the international plan prepared under the African Eurasian Waterbird Agreement in 2012. He gave a presentation on the subject at the 5th International Swan Symposium in early 2014, where concerns about land use change in Estonia and the decline in Bewick's Swan numbers were tempered by plans to address the issue. It was a delight to see him in the USA, the third international swan symposium that he has attended (along with an additional workshop convened in Estonia in 1993), and it hard to think that it was his last. There's no doubt that he'll be sorely missed, but that his work on waterbird and wetland conservation will continue through the inspiration that he has provided to others.

Recent swan literature

Here, we list recent papers, published in the last 5 years, on various swan species, habitats and surveys. Please note that this list is far from being comprehensive, and that citation details for other recently published papers would be most welcome.

Black Swan (photo: Jon Coleman).

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Black-necked Swans (photo: Eileen Rees).

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Coscoroba Swans (photo: Graham Maples / WWT).

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Mute Swan (photo: Martin Senior / WWT)

Announcements

Forthcoming meetings

International Conference on "Waterfowl of Northern Eurasia: Research, conservation, and sustainable use"

Salekhard, Russia, 30 November – 6 December 2015

The Goose, Swan and Duck Study Group of Northern Eurasia and the Goose Specialist Group of Wetlands International and IUCN-Species Survival Commission are pleased to invite you to an international conference on the waterfowl of Northern Eurasia, to be held in Salekhard, Russia from 30 November – 6 December 20115. The meeting is supported by the Government of Yamalo-Nenetskiy Autonomous Okrug, the A.N. Severtsov Institute of Ecology and Evolution, and the Institute of Geography, Russian Academy of Sciences. Further detailed information is available at the conference website at **http://onlinereg.ru/Salekhard2015**. Please share it with your colleagues!

North American Duck Symposium (NADS7)

Annapolis, Maryland, USA, 1–5 February 2016.

The 7th North American Duck Symposium will be held at the Westin Annapolis Hotel, on 1–5 February 2016. This conference will draw together researchers, government, non-government conservation organizations, and industry representatives to address shared priorities for waterfowl and wetland conservation and management. Further information is available via the NADS website: **http://northamericanducksymposium.org/.**

Call for a new Swan SG logo

To all artistic members of the Swan Specialist Group – we're currently seeking contributions/suggestions for a new Swan Specialist Group logo, and hope that you may be able to help. The artwork for our initial logo (illustrated right), from the days when we were the IWRB Swan Research Group (back in the 1980s), has been lost in the mists of time, and it would be good to have a new logo for the SSG in the 21st century. We therefore would be most grateful if you could send images for proposed logos by email to Eileen Rees (eileen.rees@wwt.org.uk). These will then be considered by the Swan SG Committee/Coordinators, who will make a selection.

The winning logo will be announced in *Swan News* 12, and will be used on the Swan SG website (currently in development) and on the cover of future issues of *Swan News*.

Also of interest

- Wildfowl is now an open access journal, and pdfs of the papers are now accessible on the journal's website at **http://wildfowl.wwt.org.uk/index.php/wildfowl**.
- Winston Banko's seminal monograph *The Trumpeter Swan It's history, habits and population in the United States* is available to download free of charge at **http://fwspubs.org/toc/nafa//63**.
- The 3rd edition of *Ducks, Geese, and Swans of North America* was also published in 2014. This is a classic reference for North America, and should be of interest to many waterfowl biologists. The two volume revision is an outstanding piece of work and is highly recommended. The author, Dr. Guy Baldassarre, was a highly respected authority on waterfowl ecology and management. Regrettably, he died in 2012, after the book was finished but before it was published.
  Ducks, Geese and Swans of North America. The Wildlife Management Institute, Johns Hopkins University Press, Baltimore, MD. xxvii + 1027 pages. ISBN: 9781421407517. $69.95 (Hardcover). **https://jhupbooks.press.jhu.edu/content/ducks-geese-and-swans-north-america**.

Does anyone know where this wonderful photo was taken? If so, please inform the Editor (mitch@silverstar.com).

Question for Readers

If we are to continue and improve communications among the Swan Specialist Group members, and others, we need to hear your opinions.

Is an electronic newsletter the best way to inform members? How often should it be produced? Would it be better to have a list-serve, where members could post material that would be sent out as it is received? Would you prefer to be able to post items on the SSG website? Please let us know what you think (mitch@silverstar.com).

Thank you!

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