

When the fox preaches, take care of your geese: the urgent need for international collaboration to manage migratory geese

The mission for a goose conservationist in the early 1950s was clear. Economic development and post-war reconstruction was leading to widespread loss and degradation of wetlands across Europe. Poorly restricted (or even unrestricted) hunting – often commercially motivated – was adversely affecting populations. The few protected areas that existed were greatly limited in extent and distribution, and typically restricted to roost areas only. At that time, there were no effective international frameworks within which to address these issues other than at a national scale, while the overall knowledge of numbers and trends was poor. In 1960, population estimates made by Hugh Boyd suggested that there were 100,000 individuals from ten populations of seven species in Britain.

The conservation agenda for the following decades, led by such pioneers as Luc Hoffman, Peter Scott, Hugh Boyd, Geoffrey Matthews and others, set out to tackle these issues progressively, leading to the development of the Ramsar Convention on wetlands in 1971, the EU Birds Directive and Convention on Migratory Species in 1979, and ultimately the Agreement on the conservation of African-Eurasian migratory Waterbirds (AEWA) in 1995. Regulation of hunting was much improved, through a new generation of national legislation and by the hunters themselves. Coherent networks of wildfowl refuges and national protected areas were established, including the creation of no-shooting refuges within larger sites. The progressive development of national waterbird monitoring, stimulated by IWRB/Wetland International's International Waterbird Census, led to increasingly improved population trends and estimates. Targeted conservation actions pulled populations back towards favourable conservation status. Things were most certainly on the up.

In parallel with these developments, agriculture was becoming ever more intensive, with widespread homogenised landscapes

stimulated by technological change and the EU's Common Agricultural Policy. Although St Werburgh was banishing geese from English fields in the seventh century, until very recently agriculture has never served up such rich monocultures of goose food as is currently the case in Europe. The geese feeding on single-species stands of grass and arable crops, waste roots, and unharvested and spilled cereal grains (all selectively bred for their food quality) can sustain unimaginably high food intake rates compared with those possible when foraging on saltmarshes or low-intensity pastures, where birds are constrained to search among diverse swards for the most nutritionally rewarding grass blades. Little wonder that, in response, geese have progressively abandoned their natural habitats to exploit this larder of superabundance and, when scared away, show little desire to abandon nutritionally rich agricultural fields for the natural and semi-natural habitats that were formerly their exclusive foraging habitats.

The implications for geese have been profound. In Britain, in the last few years, we estimate that Boyd's ten populations of seven goose species now comprise well over one million individuals. Of course, this represents a major conservation success story and one for which the pioneer generations of conservationists can be rightly proud.

Yet there are 'uncomfortable truths' now emerging from this achievement. The impact of geese on agriculture represents a significant and increasing economic cost – in 2009, at least £1.6 million was paid in various forms of agricultural subsidy via seven goose schemes in Scotland to accommodate geese, while outside areas covered by these schemes there were considerable additional direct losses to farm incomes. Costs have only gone up since then. Elsewhere in Europe 'compensation' scheme payments are much greater. Burgeoning numbers of both migratory and resident geese near major airports, such as Schiphol in the Netherlands and Copenhagen

in Denmark, have been the cause of increased air-strike rates and heighten the risk of catastrophic collisions – highlighted by the downing of US Airways Flight 1549 into the Hudson River by Canada Geese *Branta canadensis* in January 2009.

The development of resident goose populations from a variety of sources and the establishment of temperate breeding colonies of Arctic-nesting species such as the Barnacle Goose *B. leucopsis* are increasingly blurring our understanding of what constitutes ‘natural’ breeding distributions. Resightings of marked birds clearly demonstrate that individual geese can, and do, switch between such ‘populations’ despite the contrasting ecological constraints operating in either situation. A further consequence is the loss of cultural significance as geese increasingly are seen by some as ‘junk birds’: the perceived difference between a Barnacle Goose nesting far up on its traditional Russian tundra habitats and one gobbling bread in an urban park is considerable.

Increasing goose populations have impacts on not just human interests. The profound ecological changes to some North American Arctic ecosystems caused by super-abundant Lesser Snow Geese *Anser caerulescens caerulescens* in recent decades are well documented. Access to Eurasian breeding areas is much more limited, yet there is growing awareness that similar significant ecological impacts are now also occurring on some Palearctic tundra areas. Impacts are also apparent in other wetland ecosystems arising from increasing goose densities, further exacerbated by the increasing overlap of different populations.

For those geese that have made the transition to exploit food in agricultural landscapes, there are now almost unlimited food resources with which to sustain the future growth of populations. Most show little or no signs of density dependence at the overall population level and doubling times for some populations are short and becoming shorter.

The hard truth for goose conservationists is that the current laissez-faire approach to these increasing populations is becoming ever more difficult to justify – ecologically, economically and politically. With the increasing clamour from those parts of

society adversely affected by their impacts, there is a very real risk that continued uncontrolled growth of goose populations will trigger irrational and spontaneous political responses – to the detriment of wider conservation objectives.

AEWA recognises ‘adaptive harvest’ as a fundamental management principle, and the adoption of the first fully adaptive harvest management plan for Svalbard-nesting Pink-footed Geese *A. brachyrhynchus* by Contracting Parties in 2012 has provided a valuable model for dealing with other goose populations. Prior to that international plan, unregulated shooting in one Range State undermined the conservation actions of others, and indeed jeopardised the long-term conservation status of the population. In agreeing to sustain this population at somewhere between 50,000 and 70,000 individuals, the plan now attempts to balance the interests of multiple stakeholders in the relevant Range States.

Because of the success of conservation actions for many of the populations, and especially because of the success of the geese themselves at adapting to contemporary farmland landscapes, we now have many more geese in Europe than at any other time in living memory. But the conflict that their abundance is now creating with some sectors of society requires novel, coordinated and wide-scale approaches. There is increasing need for conservation bodies to develop their thinking to embrace desirable/sustainable population levels, and the management required to adapt populations to these. This will not be easy. After many years of protection, many will find it difficult to accept that population regulation of *any* kind is necessary. But the increasing risks of air strikes associated with goose population growth are undeniable, and fatal consequences from such accidents are perhaps inevitable.

Rather than the chaos of uncoordinated and unilateral control without limit, the challenge is to integrate the resolution of multiple conflicts into flyway management plans to tackle these issues through structured decision-making frameworks. Goose populations move between many countries during their annual cycles and belong to no single jurisdiction, so such frameworks will also

ensure that interventions across Range States are coordinated to maintain favourable conservation status.

This is not new ground in wildlife management: ungulate populations have long been subject to such adaptive approaches to limit undesirable impacts. The difference is that actions related to long-distance migratory waterfowl necessitate international cooperation, monitoring and coordination. It is absolutely essential that such an adaptive approach is enshrined within existing legal frameworks so that management can respond in a sensitive and evidence-based manner to demographic changes. This does not mean throwing away the very tools that have been responsible for our conservation successes; indeed it will be fundamental to retain these conservation instruments as a critical safety net to safeguard minimum population levels. These are legal requirements of AEWa and the EU Birds Directive, which will ensure the healthy survival of such populations should a future emerge that is different from that anticipated.

In October 2015, at a conference convened by the Danish Nature Agency, Danish Ministry of Environment and Food, and Aarhus University, delegates from ten northern-hemisphere countries reviewed the way in which those countries currently attempt to resolve these conflicts, both nationally and locally. The conference also attempted to assess the various levels of satisfaction across stakeholder groups with management outcomes. What was evident was that internationally coordinated management plans are essential for the effective delivery of conflict resolution at flyway, national, regional and local scales. It is of critical importance that such plans should have internationally agreed objectives and transparent governance. Integrated monitoring and timely feedback to decision-makers is also an essential element of international plans, in order to facilitate changes to management actions as necessary.

As a result of representations from this conference, the recent 6th Meeting of the Parties gave the AEWa Secretariat the mandate to establish a multispecies goose

management platform to address the sustainable use of goose populations and provide for the resolution of human–goose conflicts. Such an initiative provides a powerful framework to address many of the challenges we now face regarding goose conservation management, as well as potential mechanisms for funding work to find specific solutions for particular populations, whether of increasing numbers or declining abundance.

We have come a long way in restoring goose populations since the 1950s. For some populations with unfavourable status (such as the Greenland White-fronted Goose *A. albifrons flavirostris* and Taiga Bean Goose *A. fabalis fabalis*), we still have far to go and need to redouble efforts to restore favourable conservation status. The annual migrations of geese from our shores to their distant Arctic breeding grounds are no less inspiring or spiritually uplifting now than they were in the 1950s, or indeed long before. However, abundant goose populations are now affecting other elements of biodiversity as well as presenting considerable challenges to society through their impact on livelihoods, the economy, ecosystem services and threats to human life. We cannot afford to let others decide unilaterally about the future trajectories of these populations. Yet if we are to avoid this, all relevant parties must be involved in discussions on management objectives and implementing actions for different goose populations. It is also crucial that the necessary safeguards are in place within these frameworks to avoid undesirable outcomes. Most fundamentally, there will need to be trust and a sense of common purpose if the process is to succeed – and that will mean listening to, understanding and respecting the viewpoints of others as well as taking collective responsibility for finding solutions. As a community we have a great deal more to learn if we are going to be effective in guiding the future development and perpetuation of these inspiring and magical birds.

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