Progress in Aviculture by The Wildfowl & Wetlands Trust in 1989

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Breeding and developments

The 1989 breeding season was busy compared to the previous one. One hundred & forty-two species and subspecies produced eggs, and 2003 young of 119 kinds were reared.

Whistling ducks *Dendrocygna* bred well at several Centres in the hot summer weather; at Slimbridge all eight species laid and seven were reared, including seven Spotted *D. guttata*. All the swans bred successfully, although Bewick's *Cygnus columbianus bewickii* (at Arundel) and Coscoroba *C. coscoroba* (at Slimbridge) raised only single cygnets. Geese were mostly reared in small numbers, but Ne-nes *Branta sandvicensis* again produced well and a large number of Barnacle Geese *B. leucopsis* were reared for a behavioural research project. Sheldgeese generally did not breed well but six Orinoco Geese *Neochen jubatus* were reared at Slimbridge. A variety of dabbling ducks was raised, and young stock of several was obtained from other breeders. A number of species which bred poorly or not at all will be housed to maximise breeding in 1990. Arundel's 1988 success with Blue Ducks *Hymenolaimus malacorhynchus* was repeated with four young reared; a third aviary has been built to house these birds. Among the diving ducks, Baer's Pochard *Aythya baeri* bred at two Centres. The endangered White-winged Wood Duck *Cairina scutulata* laid at Martin Mere and young birds produced at the Jersey Wildlife Preservation Trust were received to pair with our own stocks. South American Comb Ducks *Sarkidiornis melanotos carunculatus* again bred at Peakirk. 1989 was a poor year generally for seaducks (Mergini), though most species held were reared in small numbers. Smew *Mergus albellus* were raised at Arundel, while Washington and Slimbridge were successful with Barrow's Goldeneye *Bucephala islandica*. Most stifftails (Oxyurini) laid well but rearing problems were experienced. However, among others Slimbridge reared 20 White-headed *Oxyura leucocephala*, 27 Black-headed *Heteronetta atricapilla* and two Peruvian Ruddy Ducks *O. jamaicensis ferruginea*.

Flamingos, unusually, bred only at Slimbridge, where 12 Chilean *Phoenicopterus chilensis*, 12 Caribbean *P. r. ruber* and a record 15 Greater *P. r. roseus* chicks were raised by their parents.

The process of establishing a bird collection at the Trust's first Welsh Centre at Llanelli was begun by moving eggs and downy young from Slimbridge and Martin Mere. This first season was successful with 186 birds reared, mainly of native species. It is intended to follow a strict policy of stocking Llanelli purely with eggs and downies to avoid the introduction of diseases from other collections. All birds hatched at Llanelli will be vaccinated with the experimental avian tuberculosis vaccine. In 1990, many more birds will be reared there to provide a large and varied collection ready for opening in 1991.

Nigel Hewston was appointed avicultural co-ordinator in February to support the work of the aviculturists at the Centres, and the appointment of Dr Simon Pickering as flamingo research officer will also benefit the Trust's avicultural activities through the behavioural and other studies which have been started on the captive flamingos.

Species and subspecies lost from the collections in 1989 were Mexican Duck *Anas platyrhynchos diazi*, Pelew Island Grey Duck *A. superciliosa pelewensis*, African Pygmy Goose *Nettapus auritus* and Common Scoter *Melanitta nigra*. At the end of 1989, the Trust held 7055 wildfowl and flamingos of 165 kinds.

Animal health and mortality

Tuberculosis remained the largest single cause of mortality of adult birds at Slimbridge, accounting for 40.5% of 271 adult deaths. Although experimental vaccination of young birds is being undertaken, further research into a reli-

able diagnostic test in live birds is urgently required, so as to eliminate individuals in the early stages of infection and those which are carriers of the disease. Renal disease (10%), trauma (7%) and enteritis (5%) were the only other major causes of death of adults. The relatively large numbers of young adults, especially seaducks, dying from renal problems continues to be a cause for concern, and calls for modification of the diet of several species that tend to be fed exclusively on high protein pellets ('Lab Diet A').

There was a significant increase in the number of Slimbridge juveniles presented for examination (61); this is partially accounted for by the increase in numbers of birds hatched and reared during 1989. Problems with respiratory disease (21% of juvenile mortality), however, resulted in the loss of many birds during July and August and only the continuous use of antibiotic therapy averted higher losses. Although enteritis (26%) was the main cause of death in juveniles, it does not reflect a true picture of mortality in the duckery area, as many of the deaths from this cause were of late hatched stifftails and occurred after they had been introduced into the grounds. Many of the birds had hatched as late as September, and losses through all stages of rearing had been high compared with early-hatched birds.

Losses of downy young at Slimbridge were higher than in the previous year (177 *v* 83), again in line with the larger number of birds hatched. In addition, many birds which had been parent-hatched in the grounds were brought into the duckery for rearing, a practice which must be discontinued if we are to preserve a reasonable standard of hygiene indoors. Despite higher levels of hygiene in the egg storage and incubator areas, the main cause of death of downy young was yolk sac infection, accounting for 24% of mortality.

Enteritis (16%), respiratory infections (12%) and chilling (11%) were the other major causes of mortality at Slimbridge. Many of the cases of enteritis were considered to be stress-induced in parent-hatched, hand-reared birds. The high incidence of respiratory disease may also stem from downy young brought into the duckery from the grounds, as the first cases of air saculitis/chronic respiratory disease were in these individuals. The subsequent infection throughout indoor and outdoor rearing areas caused problems and time had to be spent in treatment.

Tuberculosis was again the major cause of death of adult birds at Arundel, accounting for 45% of mortality in this age group. Species such as Pheasants *Phasianus colchicus*, pigeons *Columba* sp. and Jackdaws *Corvus monedula* which occur in large numbers especially during the winter months, are almost certainly involved in the transmission of TB within the Centre. Renal disease, which accounted for 12.5 % of adult mortality, was the second most common cause of death of adults. Alteration to diets, especially for seaducks, has already taken place with the use of a low protein expanded pellet; the next 12 months should indicate whether this measure reduces kidney problems.

Peakirk was the only Centre, apart from Martin Mere, where tuberculosis was not the major cause of adult mortality, accounting for just 16% of deaths in this group. Renal disease (22%) was the most frequent finding in adult bodies, although its incidence was not so worrying as at some other Centres, being mainly confined to geese some of which were very old. Enteritis (12.5%) and trauma (9%), mostly due to predation, were the only other findings of note. Mortality among young birds at Peakirk was heavy, especially in the stifftails. Only a small proportion of these were submitted for *post mortem* examination but over 60% were found to have died from enteritis. A further 25% of mortality of juveniles was due to aspergillosis.

The level of mortality at Washington remained similar to that of previous years. Tuberculosis (32% of adults) remained the most important cause of death, accounting for many of the older captive birds. Trauma (11%) was the second most common finding, many of the birds dying following shooting or attempted capture by vandals at night. Another cause for concern was the number of birds (10%) found drowned in the water pipes that link the ponds at this Centre; presumably they are sucked into the pipes by the strong water flow. Among juveniles, a small number of sheldgeese died after gizzard worm (*Amidostomum*) infestations, despite worming with Panacur; this indicates the need to worm at two-weekly intervals, as re-infection in heavily contaminated areas is extremely rapid.

Only ten young birds were examined from the LLanelli Centre, most mortality being due to deformities or failure to grow. Two birds were found to have ingested metal nails, a common problem where recent building and construction work have taken place.

Vaccination

Duck virus enteritis vaccine was again widely used at all Centres except LLanelli and contained outbreaks of the disease at Martin Mere, Washington and Slimbridge. Approximately 660 birds were vaccinated throughout the Centres.

The use of the experimental TB vaccine was continued and 380 birds were vaccinated during the first week of life. This total included all the birds sent to, or hatched at, LLanelli and half of all birds hatched at Slimbridge.

Worming

Mebenvet compounded into normal rations was routinely used at all Centres to assist the control of parasitic infections. At Slimbridge all juveniles were wormed prior to release into the grounds or despatch to other Centres. Approximately 500 adult geese, including all of the Barnacle Goose flock, were treated with Ivomec injectible wormer which has given outstanding results and is less stressful to the birds than traditional drenching methods. Ivomec not only seems to destroy the existing worm infestation but prevents re-infection for a considerable length of time.

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