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NOTES ON THE IV INTERNATIONAL SYMPOSIUM ON BREEDING BIRDS IN CAPTIVITY

by Josef Lindholm

All living Guam Rails *Rallus owstoni* and Guam Micronesian Kingfishers *Halcyon c. cinnamomina* (*Todiramphus cinnamominus cinnamominus* in Clements, 2007) are descendents of birds brought into aviculture in the late 1980s, before the last wild specimens were exterminated by the invasive Brown Tree Snake *Boiga irregularis*.

In his book *And No Birds Sing*, science journalist Mark Jaffe (1994), described the beginnings of the programmes that resulted in the establishment of captive breeding populations of these two taxa. A pivotal development was the meeting of Bob Beck of the Guam Division of Aquatic and Wildlife Resources and Guy Greenwell, Larry Shelton and Don Brunning, the Curators of Birds at the National Zoological Park, Philadelphia Zoo and Bronx Zoo, respectively. The meeting took place in 1983, in Los Angeles, California, at the Jean Delacour/IFCB Symposium on Breeding Birds in Captivity.

Although, at the time, few people, if anyone, were aware that the future existence of two taxa of birds would be determined by the above meeting at this symposium, it was certainly apparent to everyone present that a remarkable assemblage of zoo people, private aviculturists, ornithologists and other research workers had been brought together - in the words of the Wizard of Oz - "to confer, converse, and otherwise hobnob."

The same could be said of the symposium that preceded it, in Seattle, in 1978 (Anon., 1978), and of the one that followed in 1987, also in Los Angeles. The proceedings of all three remain important reference points (Risser et al. 1981; IFCB, 1983; IFCB, 1987). It was hoped by all those involved that further symposiums would be held at regular intervals, but this was not to be. Mark Jaffe (1994) chronicled the sudden and unexpected downfall, in 1988, of the International Foundation for the Conservation of Birds, the organisation which had funded the second and third symposiums, as well as the publication of the proceedings of all three.

There was much excitement when it was announced that a fourth symposium, hosted by a major American zoo, would be held in 2000. Speakers were recruited and the preparation of papers began, but for reasons I am not aware of, these plans eventually came to nothing. Therefore, at the end of 2005, when I learned that there were again plans afoot for a fourth symposium, this time in Toronto, Canada, in 2007, I was somewhat skeptical. So were many others and, up until several months before the scheduled time, rumours were rife that, again, nothing would come of this.

The symposium was planned originally for October 2007, but it became necessary to move it forward to September. This was unfortunate, as it meant it coincided not only with the Annual Conference of the (American) Association of Zoos and Aquariums (AZA) but also that of the European Association of Zoos and Aquaria (EAZA). Attendance at the symposium was further affected by anxiety caused by unanticipated delays by the US Government in granting passports to its citizens, who prior to the sudden change of policy, had not had to concern themselves with such documents when travelling to southern Canada.

Nonetheless, approximately 120 delegates gathered in Toronto, from September 12th-September 16th 2007. They came from over 22 countries, including Cuba, Brazil, Sweden, Latvia, Morocco, United Arab Emirates and Saudi Arabia. Papers and poster sessions were presented by 43 speakers from 15 countries. In addition, there were spirited round table discussions on the European bird import ban and the potential for collaboration between private and institutional aviculture. A commercial exhibitors' room provided participants with the opportunity to learn about the latest publications, nursery apparatus, diets and medical procedures. The closing banquet afforded the opportunity to recognise avicultural achievements, with the Conservation Award to Jurong Bird Park, Singapore, for its Pied Hornbill reintroduction programme and the ISBBC Avicultural Award to Martine van Havere for her work with Threskiornithidae (Ibises), as well as Lifetime Achievement Awards to Lynn Hall, Mike Lubbock and Robert J. Berry.

It was not immediately apparent to most of the speakers and delegates that the staging of the symposium was the achievement of two men - Myles Lamont and David Longo. Myles Lamont, Avian Manager at the Hancock Wildlife Center in British Columbia, as well as an editor at Hancock House Publishers, arranged the programme and recruited the speakers. Myles was all of three years old in 1987 when the third symposium was held. David Longo, who appeared to be not much older than Myles, is an Ontario professional aviculturist specialising in conservation significant parrots. He was responsible for logistics and finance, arranging the conference hotel and international transportation of the speakers, and a myriad of other

practical considerations. Both men were in constant motion throughout the conference and, if by the end, they appeared exhausted, it was only to be expected. It was only after all was said and done, that the scale of their endeavour could be truly appreciated.

During the symposium heavy emphasis was placed on aviculture as a means of preventing the extinction of critically endangered taxa. In some cases, the outcome remains uncertain. Although a robust self-sustaining captive population of Northern Bald Ibis or Waldrapp *Geronticus eremita* has existed for several year, the establishment of reintroduced wild populations has so far met with only limited success. In his paper entitled - Why is reintroduction of the Northern Bald Ibis so complicated? - Chris Bowden, International Species Recovery Officer for the UK-based Royal Society for the Protection of Birds (RSPB), presented an overview of the challenges involved. A similar situation exists with Attwater's Prairie Chicken *Tympanuchus cupido attwateri*. Molly Coym of Houston Zoo discussed the methods by which a captive population has been maintained for over a decade. Despite the frequent release of captive-bred birds, however, the wild population barely persists in two small Texas preserves. Thus, the captive flocks, distributed among six institutions, represent the most certain likelihood of the continued existence of this subspecies.

A paper on the plight of a species that exists now only in captivity and is clearly exhibiting the effects of a very small founder population, was presented by Richard Switzer who, in May 2007, in his capacity as the new Curator of Birds at Al Wabra Preservation, Qatar, assumed responsibility for the majority of living specimens of Spix's Macaw *Cyanopsitta spixii*. Among this population are birds exhibiting "almost all the known diseases which affect parrots." Furthermore, the lack of genetic diversity has resulted in "infertility, late maturing, embryonic mortality and chick deformities." In the face of these challenges, staff at Al Wabra developed "what is arguably the most thorough and extensive health management programme for any bird species in the world." At the time the manuscript of his paper was submitted, there were 47 Spix's Macaws in Qatar. The number had, through the successful rearing of chicks, risen to 51 by the end of 2007.

Genetic swamping of one species by another, due to habitat degradation, is an increasing problem. A species that may in the future cease to exist in its pure form is the Madagascar Pond-Heron *Ardeola idae*, threatened by the recent invasion of the Squacco Heron or African Pond-Heron *A. ralloides*. Simon Bruslund Jensen, now (2008) Zoological Director of Walsrode Birdpark, discussed his institution's work with the Madagascar Pond-Heron, both in establishing a captive population and in preserving its remaining habitat, and presented a general overview of Walsrode's extensive

programmes in Madagascar.

Taxonomic revisions can complicate conservation programmes. The total population of the Northern Brown Kiwi *Apteryx mantelli* has declined by more than a third in the past decade, due to habitat loss and predation by alien predators, with the situation rendered even more drastic by recent molecular research which indicates that this species - only recently 'split' from the other 'Brown Kiwis' - is itself comprised of distinct 'races', yet to be given scientific names. Martin Bell of the Kiwi and Birdlife Park at Queenstown, discussed Auckland Zoo's attempts to augment the much reduced population of the Northland 'race' by collecting eggs from the wild and releasing the resulting offspring into, hopefully, safe habitats. As the founders of the current captive population of the North Island Brown Kiwi outside of New Zealand were imported before any of the 'races' were recognised, their taxonomic situation appears unclear. Kathleen Brader, Senior Bird Keeper at the Smithsonian National Zoological Park, presented a poster session discussing the history of kiwis in the UK, continental European, Asian and American collections, and the implications for the future. The first kiwi hatched outside of New Zealand was hatched at the National Zoo in 1975 and is still alive and well. The overall survival of captive-bred offspring has, however, been disappointing. Only five of the 22 hatched at San Diego Zoo between 1983-1999 were still alive in 2007. Somewhat better results have been achieved at Frankfurt Zoo, with 16 of the 32 hatched there since 1986 still alive in 2007. Kathleen told me she hopes that kiwis of unclear provenance, rescued following dog attacks, may eventually find their way into the overseas zoo population.

Martin Bell also presented a paper on recent promising developments regarding the aviculture and reintroduction of the spectacular Takahe *Porphyrio mantelli.* For years results appeared tenuous, but recently birds reared using hand-puppets have been confirmed to be breeding in the wild at several locations. (A Takahe hatched from the first clutch of eggs collected from the wild is still alive 25 years later.)

Chris Bowden's second paper concerned the plight of three species of south Asian vultures - the White-rumped or Oriental White-backed *Gyps bengalensis,* Indian *G. indicus* and Slender-billed *G. tenuirostris* - which were once abundant but are now near extinction, due to secondary ingestion of the cattle analgesic diclofenac. Along with efforts to remove diclofenac from the environment, a captive breeding programme is in its early stages. As of early 2007, 165 vultures representing all three species in roughly equal numbers, had been brought into captivity in India. Within the next two years it is hoped that the breeding programme will have at least 75 pairs of each species. A similar programme planned for the White-rumped or Oriental

White-backed Vulture in Pakistan's Punjab Province was presented in poster form, authored by Campbell Murn and Uzma Khan.

Papers were presented on two South African projects which are likewise at early stages of development. William Horsfield, who has achieved remarkable breeding results with parrots and toucans at his Amazona breeding facility in KwaZulu-Natal, discussed the deteriorating status of the Cape Parrot *Poicephalus robustus* and the attempts to establish a stable captive population. There are at present fewer than 100 specimens listed in the International Studbook. The only registered birds outside of South Africa are at Mulhouse Zoo in France. They are descendents of the famous breeding pair at Basel, augmented with birds from an importation in the 1980s. Jeanne Marie Pittman, Hospital Supervisor at Johannesburg Zoo, dealt primarily with the medical aspects of the Wattled Crane Recovery Programme. Recent research has shown that the South African population of the Wattled Crane *Bugeranus carunculatus* is genetically unique and is best managed separately from birds descended from founders from the Botswana population. It is hoped that a captive population may eventually be used to augment wild populations.

Africam Safari at Puebla, Mexico, has in recent years worked on propagating a number of conservation significant birds endemic to Mexico and Meso-America (Central America). Curator of Birds Juan Cornejo, spoke briefly on its projects with the Maroon-fronted Parrot *Rhynchopsitta terrisi*, Socorro Conure *Aratinga brevipes*, Tuxtla Quail-Dove *Geotrygon carrikeri* and Bearded Wood-Partridge *Dendrortyx barbatus*. His main focus though was on the Horned Guan *Oreophasis derbianus*. Always rare, the Endangered Horned Guan appears not to have been brought into captivity until the 1970s. As far as is documented, a successful full captive breeding did not occur until 1994. Africam Safari acquired seven wild-caught specimens and six captive-bred birds in 2000 and has achieved the best captive breeding results. Juan is the International Studbook Keeper for this species and is Mexican coordinator of the International Committee for the Conservation of *Oreophasis derbianus* and its Habitat. He presented a detailed account of the aviculture of this species of which he hopes a self-sustaining captive population will be established. The first Horned Guans kept alive outside of Mexico were those sent from Africam Safari to St Louis Zoo in 2006.

A memorable feature of the second symposium was the showing of slides documenting the development of Horned Guan chicks hatched from eggs collected from the wild in 1982. The slides were included in a presentation by Dr Jesus Estudillo Lopez (1983). Dr Estudillo has for well over 30 years been renowned for his magnificent aviaries and particularly for his

work with cracids. In the *Avicultural Magazine* Vol.83, No.l, pp. 50-53 (1977), the then 86 year old Jean Delacour, wrote an enthusiastic account of his first visit to Dr Estudillo's collection. With approximately 500 taxa of birds, it may now be the largest collection in the Western Hemisphere. Dr Estudillo's presentation in Toronto focused on his unique success propagating the Northern Resplendent Quetzal *Pharomachrus m. moccino* and the conservation status of this glorious bird, but was also an elegiac summary of his years of field work in the Neotropics.

As might be expected, with the emphasis being on threatened birds, the conservation of island endemics occupied a substantial part of the programme. Dylan Kesler of the University of Missouri presented his research on Pacific island kingfishers. This focused on the beginnings of conservation projects for the Critically Endangered Niau Kingfisher *Halcyon gambieri gertrudae*, as well as a study of the Pohnpei Kingfisher *H. cinnamomina reichenbachii* (*Todiramphus gambieri gertrudae* & *T. cinnamominus reichenbachii* in Clements, 2007), to help better understand the needs of the Guam Micronesian Kingfisher.

The extinction in the wild of the Guam Micronesian Kingfisher and the Guam Rail occurred in the 1980s, whereas the Aga or Mariana Crow *Corvus kubaryi* did not die out on that island until 2002 or 2003. At present there are fewer than 200 on the nearby island of Rota and a few were reintroduced from there to Guam. A few birds were sent to US zoos in the 1990s, but a captive population was not established. At Toronto there was a poster session on the efforts to stabilise the Rota population and re-establish this crow back on the island of Guam. Despite the continued presence of the Brown Tree Snake, chicks have in recent years been reared by birds translocated there from Rota.

Other poster sessions dealt with two of the myriad of bird species restricted to the Philippines. Three authors discussed the first captive breeding of the Philippine Eagle-Owl *Bubo p. philippensis* and eight authors presented a report on the first survey of the Critically Endangered Negros Bleeding-heart *Gallicolumba keayi*. It was observed at multiple locations and it is reassuring to learn that populations may tolerate low-level agriculture. An avicultural programme has begun at the S. Y. Reyes Zoological and Botanical Garden.

Gary Ward, responsible for the softbills and pigeons at the Durrell Wildlife Conservation Trust, discussed the logistics of the so far successful project to establish a captive population of the Critically Endangered Montserrat Oriole *Icterus obei*. The initial decline of this species was due to much of its mid-elevation forest habitat on the West Indian island of Monserrat being cleared for agricultural use. The main threat to the

remaining population is from volcanic activity and hurricanes. It is entirely possible that a future natural disaster could wipe out the remaining wild population. Therefore, it is reassuring to know that this species has proved "relatively easy to breed and seems well suited to life in captivity, so long as certain requirements are met." Plans are afoot to establish further captive populations.

A further encouraging report came from Richard Switzer, regarding the *in situ* project to boost the population of the Mauritius Fody *Foudia rubra* by "rescuing and harvesting" eggs and chicks from nests in the wild. After having been hand-reared, the birds are released on an offshore island, on which they are closely monitored. The overall population is estimated to have grown by 60% since 2002.

Especially encouraging was the presentation by Peter McClelland, Programme Manager for Outlying Islands for the New Zealand Department of Conservation. The flightless Campbell Island Teal *Anas aucklandica nesiotis* was feared extinct, but was then rediscovered in 1975 on tiny Dent Island. At the time there was estimated to be no more than 50 birds. Eleven were collected between 1984-1990, but captive propagation did not commence until 1994. A population was successfully established on a 'holding island', while far grander plans were afoot. In 2001, the largest rat eradication programme ever attempted, began on Campbell Island, on which rats had been resident since 1812. It involved "four helicopters and 120 tonnes of bait" and was declared a success in 2003, when during an exhaustive survey no remaining rats were discovered. After an absence of more than a century, this teal is again living on Campbell Island, following the introduction of 158 birds from breeding facilities and the 'holding island,' that were introduced in phases, from 2004-2006. An expedition in 2006 discovered not only that the teal was breeding freely, but the 'Campbell Island Snipe' (listed in Clements (2007) as an undescribed form of the Subantarctic Snipe *Coenocorypha aucklandica* ssp.) had recolonised the island and petrels were nesting there for the first time in decades. Peter presented a second paper, which outlined the general principals of island translocations, based on more than 20 years' experience of such endeavours.

Alan Lieberman, who in various capacities has been employed for more than 30 years by the Zoological Society of San Diego, gave an overview of the Hawaii Endangered Bird Conservation Programme, administered by the zoological society in collaboration with state and government agencies and private corporations. Working with 22 endangered species, of course, entails mixed results. On one hand, Alan described the depressing experience of caring for the last Po'o-Uli *Melamprosops phaeosoma*, a species only

discovered in 1973, which "dying, and yet in Death alive" - in the words of P. D. Q. Bach - has, in part, become an inmate of the 'Frozen Zoo' maintained at the society's Center for the Reproduction of Endangered Species (CRES). On the other hand, in eight years, 113 Critically Endangered Puaiohi *Myadestes palmeri*, the smallest of Kaua'i's two thrushes and perhaps the only extant one, have been reintroduced and, 10 other species of Hawaiian passerines, some on the edge of extinction, have also been bred at the programme's breeding centers.

Another island project launched by San Diego's Center for the Reproduction of Endangered Species (CRES) and also administered by Alan Lieberman, though funded by the US Navy, involves the San Clemente Loggerhead Shrike *Lanius ludovicianus mearnsi*. Two posters were presented by Susan Farabaugh, who co-authored them with seven colleagues. One considered changes in the release protocol which has resulted in a much improved survival rate among captive-bred birds over a period of several years. None of the birds liberated between 1992-1999 survived to breed, whereas since then some of the birds released each year have joined the breeding population and the number of birds has increased substantially. As one might expect, parent-reared juveniles fare better than hand-reared birds. The other poster dealt with the logistics involved in the annual production of captive-bred birds for release, working with a captive flock of approximately 60 birds.

The Loggerhead Shrike was also the subject of a paper presented by Jessica Steiner, who coordinates the recovery effort for the eastern subspecies *L. l. migrans* in Ontario. By 1995 only 30 breeding pairs were estimated to remain in Canada. Since 2001, however, 221 captive-bred shrikes have been released, 129 of them in 2006. Reproduction by released birds has now begun to be documented. There are at present 24 propagation and release enclosures, located at field sites in southern Ontario.

Programmes for a number of other North American birds were also profiled. Paul Williams, Animal Care Supervisor at the British Columbia Wildlife Park, discussed the reintroduction of the Burrowing Owl *Athene cunicularia* in British Columbia, from which this charming owl had almost disappeared by the 1970s. Since 1989, roughly 600 of these owls have been hatched at the park and others have been bred at Burrowing Owl Conservation of BC, enabling more than 800 to have been released so far. In addition, 700 artificial burrows have been installed.

By the close of the twentieth century, the population of the Light-footed Clapper Rail *Rallus longirostris levipes* - a subspecies found only in southern California - had declined to fewer than 600 individuals. Its decline was almost entirely due to the extensive commercial development of its wetland

habitat, now fragmented into 23 disjunct locations. Laurie Conrad, Assistant Curator of Birds at Sea World California, San Diego, discussed a programme to augment these fragmented populations with captive-bred birds, to prevent the effects of inbreeding. Pairs of wild-caught adults have been set up and commenced breeding in 2001 and, 146 offspring, both parent-reared and artificially incubated and the chicks hand-reared, have been released in five areas. In the most recent census, 408 pairs were counted on 18 marshes, the highest number of pairs for many years.

Steller's Eider *Polysticta stelleri* has proved the most difficult of the eiders to establish and maintain in aviculture over long periods. A poster session by Heidi Cline, who co-authored it with Tuula Hollmen and Nora Rojek, explained the Alaskan Sea Life Center's experiments with the use of artificial incubation to produce a captive flock at the centre and its role in enhancing productivity in wild populations by safeguarding eggs from predators.

An inspiration to all concerned, were the papers presented on two famous species, the populations of which had plummeted to fewer than 30 living specimens of each and now number in the hundreds, thanks to successful reintroduction programmes. Michael Wallace gave an overview of his 28 years work with the California Condor *Gymnogyps californianus* at Los Angeles Zoo and San Diego Wild Animal Park, describing the challenges and disappointments that have attended efforts to re-establish wild populations. Lead poisoning from bullet-ridden carcases remains a major source of mortality and now that chicks are being parent-reared in the wild, the ingestion of 'micro trash' proffered to them by their parents is a serious cause of neonatal deaths. On the other hand, it was satisfying to hear Dr Wallace's account (with pictures) of condors feasting on beached Grey Whales *Eschrichtius robustus* - some of which had been dead for a year! Joseph Duff's account of his innovative use of ultralight aircraft to track the migratory routes of new populations of Whooping Cranes *Grus americana* had a broad general appeal.

In the UK, several populations of the once extirpated Red Kite *Milvus milvus* have been established in the past decade. Campbell Murn of the Hawk Conservancy presented a poster, co-authored with three other researchers, detailing the set backs and eventual successes in Hampshire, with birds of various ages and backgrounds.

Two papers dealt with aviculture related to the ancient art of Arabic falconry. In both cases French veterinarians are responsible for taxa of bustards once regarded as forms of a single species, but each now considered a separate (full) species in its own right. Since 1999, Frederic Lacroix has been Manager of the Emirates Center for Wildlife Propagation in Missour, eastern

Morocco, where more than 19,000 North African Houbara *Chlamydotis u. undulata* have been produced since 1997; of which 8,146 were produced in 2007. It was anticipated that nearly 6,000 would be released between September 2007-March 2008. Previous releases have totalled 5,454 birds, "with a survival rate of about 70% one year after release." In the near future they hope to be rearing 5,000 Houbara a year. At the same time, efforts are being made to conserve existing populations of Moroccan Houbara by the creation of non-hunting zones.

Similar efforts are underway with the Asian Houbara or Macqueen's Bustard *C. macqueenii* at the National Avian Research Centre in the United Arab Emirates (UAE), where Olivier Leon is Manager of the Captive Breeding Department. Dr Leon explained that unlike other bustard species, the Houbara does not breed well under normal captive conditions and is very sensitive to stress. Consequently, successful captive breeding of the Houbara not only has to use and adapt techniques developed by the poultry industry, such as artificial insemination and artificial incubation, but it is also necessary to keep the birds "tamed from hatch to death," which is extremely demanding in terms of manpower. While this may seem to lead in the direction of some new sort of domestic fowl, careful attention is paid to "maintaining the original genetic diversity of the founders."

The establishment of a population of American Kestrels *Falco sparverius* as laboratory animals was examined by Dr David Bird, Director of the Avian Science and Conservation Centre at McGill University. For 35 years he has managed a research colony that has numbered as many as 500 birds at a time. Propagation has been achieved through many generations and is now formulaic. Emphasis has been placed on toxicology studies, but these birds have also been the subject of research into "reproduction, physiology, morphology, behaviour, veterinary medicine, nutrition and parasitology."

Several of the presentations were of a highly technical nature. The paper entitled - A Medical Approach to the Atricial Chick - by Dr Michael Taylor, Service Chief in Avian and Exotic Animal Medicine at Ontario Veterinary College, was based primarily on work with parrots and placed heavy emphasis on the development of the cloacal bursa. Coleen Lynch of the Association of Zoos and Aquariums' Population Management Center in Chicago discussed the principals of population biology, especially as they apply to recovery plans for animals which have gone through genetic bottlenecks. In a poster session, Austin and May Ann Hughes revealed their hypothesis that many US migratory birds have comparatively little genetic diversity, as a result of habitat restriction during the Ice Age.

Phillip Seddon, Director of the Wildlife Management Programme at the University of Otago, New Zealand, spoke of the risks imposed on birds

stemming from their having been maintained in captivity. He said, candidates for release programmes must be evaluated taking into account these potential risks. "Each risk factor will have an associated risk function, the cumulative probability of a deleterious effect with time spent in captivity, and each will necessitate specific mitigation measures." Kate McInnes presented a poster session, co-authored with three fellow New Zealanders, addressing the disease issues faced by three New Zealand captive breeding and release programmes and the strategies to deal with them. DNA-based tests for psittacine beak and feather disease, Pacheco's virus, avian polyomavirus, avian tuberculosis and other such afflictions have been developed by the HealthGene Laboratory.

More traditional aviculture was not ignored. There were two papers on traditionally difficult cockatoos. First, William Horsfield went into great detail on the husbandry of the Palm Cockatoo *Probosciger a. aterrimus*, which he has consistently been successful with in South Africa; then Australian aviculturist Neville Connors dispelled some longstanding "avicultural myths" regarding cockatoos of the genus *Calyptorhynchus*, all four members of which are thriving in private collections in Australia.

Peter Karsten, who following a long and distinguished career at Calgary Zoo, has put much effort into establishing an aviary-bred strain of Pekin Robins *Leiothrix lutea*, presented two talks, as well as a poster session. His paper on breeding livefood will be a valuable source of reference for others wishing to do likewise. Each day Peter's softbills consume live insects, of four species, worth roughly US$100 (£50) if he had to rely on purchasing them from commercial suppliers. Instead, not counting an hour or so a day of his own labour and the capital investment, Peter estimates that it costs him just US$5 (approx. £2.50) to produce the 4,200 insects he feeds to his birds each day. His poster session laid out the aviary conditions necessary to successfully breed Pekin Robins and his key note speech, at the closing banquet, emphasised the continued importance of collaboration between private and institutional aviculturists.

A poster by Nebraska aviculturist Jason Beck, detailed his experiences setting up six pairs of Piping Hornbills *Bycanistes fistulator*, a species which US zoos, already committed to programmes for other African hornbills, have little capacity for.

Kathy King, Chair of the Ciconiiformes and Phoenicopteriformes Taxon Advisory Group of the EAZA, reviewed the status of the 6,700 flamingos in European zoos and discussed the challenges of maintaining the various species into the future.

Mike Lubbock, with more than 40 years of work in major collections of ducks, geese and swans, discussed the results of two 2004 surveys of the

status of anatids in American aviculture. He foresees a rather depressing outlook for the future of many of these species, as zoos follow the general trend of reducing the number of taxon they exhibit and the number of private waterfowl breeders appear to be on the decline. On a brighter note, Mike elaborated on the transition of his Sylvian Heights Waterfowl Center from a private facility to a public exhibit, that will continue to be a major and reliable source of waterfowl for collections around the world.

Another master waterfowl breeder, Peter Kooij, who continues the business his father started in the Netherlands many years ago, was a lively participant in the above mentioned round table discussions, along with Peter Karsten, Simon Bruslund Jensen and John Azua, Curator of Birds at Denver Zoo, taking some thought provoking stands during discussions on the future of European aviculture, and the realities involved in private and institutional partnerships.

One hears practically nothing about birds in African zoos outside of South Africa. Therefore, a poster presented by Jonathan Fayomi and Olugbenga Eniola Bada of the zoo which is part of the University of Ibandan, Nigeria, was of particular interest. After 30 years of benign neglect, the aviary, once a proud feature of the zoo, had fallen into disrepair and housed only the remnants of a collection. It has now though been renovated and restocked and its inhabitants are "expected to breed and multiply in number so that they can replenish the Earth."

My paper on the avicultural history of hummingbirds, ended up as a more than 90 page manuscript, a development I had not anticipated, but one gracefully received by Myles Lamont. My primary source of information was the *Avicultural Magazine*. Jean Delacour, remembered most for his achievements with pheasants and waterfowl, worked with hummingbirds for at least seven of his nine-and-half decades, and I cited 42 of his publications from 1922-1973. I found it appropriate, in that Dr Delacour was invoked as a sort of 'Patron Saint' of this symposium and was very much a presence at the first two. (A poster session on his achievements at Bronx Zoo in the 1940s, which I presented at the 1983 symposium, eventually became an article in the *Avicultural Magazine* (Lindholm, 1988)).

Although, for reasons noted earlier, the number of delegates was fewer than had been hoped for, there was, as at previous symposiums, a wonderful mix of people. I was especially delighted to meet Juan Soy, Head of Conservation Programs for Cuba's Empresa Nacional para la Protección de la Flora y la Fauna. Dr Soy, who is also on the faculty of the University of Havana and has served as an Assistant Director of Havana Zoo, has worked closely with researchers from other countries and has been featured in such publications as the *National Geographic*. He has conducted field work on

the Critically Endangered Cuban Solenodon *Solenodon cubanus* (a large, long-tailed, shrew-like, insectivore) and is presently working to establish a captive population of the Endangered Blue-headed Quail-Dove *Starnoenas cyanocephala*, the sole member of the genus found only in Cuba. The proceeds of the symposium banquet auction were earmarked for the project with the Blue-headed Quail-Dove.

I met people from several other countries, including Brazil and Saudi Arabia, and two staff members from Jurong Bird Park, Singapore. Harald Schmidt, Curator of Birds at Rotterdam Zoo, told me about the zoo's breeding colony of European Bee-eaters *Merops apiaster*. It was a pleasure to meet for the first time Jo Gregson, Senior Head Keeper of Birds at Paignton Zoo, a long-time contributor to the *Avicultural Magazine*. It is always a delight spend time with John Ellis, Senior Curator of Higher Vertebrates at the Zoological Society of London (ZSL), who had taken time off from the busy preparations for the re-opening of the renovated Bird House - renamed the Blackburn Pavilion. Nancy Clum, Assistant Curator of Ornithology at Bronx Zoo, my old friend Grenville Roles, in charge of the bird collection at Disney's Animal Zoo Kingdom in Florida, John and I, served as the Awards Committee for the symposium. Peter Kooij supplied us with much needed advice.

Quite a number of American zoos were represented by delegates. There was also a good turnout of those involved in one way or another with US private aviculture, including a number well-known for their services to the avicultural community: Walter Sturgeon, Lynn Hall, Ivo Lazzeroni (who made an impassioned plea, during poster sessions, for private aviculturists to focus greater attention on native birds), Natasha Schischakin, Dick Schroeder, Luke Thirkhill and John Del Rio, among others.

I, and quite a few others, were indebted to Tom Mason, Curator of Birds & Invertebrates at Toronto Zoo, who was a wonderful host to those of us who were able to visit the zoo, providing transport (not just to the zoo, but also to other places of interest) and spending much time showing us around the exhibits and explaining the zoo's extensive programs.

The general consensus was that the fourth symposium was a great success and, the primary question was, when will the next one be?

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* * *

SNIPPETS OF INFORMATION

Among "snippets of information" reported by a "correspondent" in Seattle at the first symposium (*Avicultural Magazine* Vol.84, No.2, pp.114-116 (1978)), was that the Bali Starling *Leucopsar rothschildi* (at the time called Rothschild's Myna or Grackle) can be sexed by the length of the crest - that of the male being over 60cm (2½in) long whereas that of the female is under 55mm (2¼in) long.

The first item in News & Views in the above issue of the magazine (p.116), noted that Jersey Zoo had imported eight of these birds in 1971, and from them some 70 young had been reared, 47 of which had been sent to six different countries.

THE NESTING BEHAVIOUR OF THE MUSOPHAGIDAE

(continued from Vol. 114, No.1, pp.2-12)

Part 2

Further notes on the White-cheeked Turaco *Tauraco l. leucotis*

by Myles Lamont

In the summer of 2005 and again in 2006 one of the female White-cheeked Turacos *Tauraco l. leucotis* at the Hancock Wildlife Research Center constructed a nest of her own, on both occasions in a dense tangle of English Ivy *Hedera helix*. In summer 2005, she was seen carrying nesting material throughout a large mixed aviary (3.6m x 3.6m x 60m (approx. 12ft x 12ft x 196ft)) whose occupants included some 10 other White-cheeked Turacos, three Ross's *Musophaga rossae*, two Guinea *T. persa* and two Red-crested Turacos *T. erythrolophus*. Despite the apparent competition and potential rivals, she constructed a very secure nest and there were three eggs, one of which was fertile; but she abandoned the nest approximately a week after it was discovered.

In 2006, the same female constructed her nest in a different location, again in the same mixed aviary shared with three other species of turaco and some additional White-cheeked Turacos. Also present in the flight were a female Red-billed Hornbill *Tockus erythrorhynchus* and some Erckel's Francolins *Francolinus erckelii*. Both nests were sheltered from the rain by a thick mat of ivy growing on the top of the aviary and extending about 0.5m (approx. 1ft 8in) above the nests; it is unknown whether or not this had any bearing on her choice of nest sites. The thickest clumps of ivy were growing on the west facing aviary wall, which was where she nested, although there was probably the potential for her to have nested on the east facing side. The nest consisted of approximately 87 items of nest material, ranging from large sticks to smaller twigs, rootlets and leaves.

It should be noted that the female was only two years old at the time of her first nesting attempt and it is possible that one of the eggs in her first nest was laid by another female in the aviary.

In her second nest, the chick was first observed on July 7th, when it was two or three days old. It began the fledging process on July 28th, but returned to the nest for several days thereafter. It would spend the majority of the day only 1m (3ft 3in) or so away from the next and returned to it at various times throughout the day and, almost always, returned to it for the night. About the fourth week, the chick left the nest and spent most of the fifth week in a Red Alder *Alnus rubra* some 4m (approx. 13ft) from the

Fig. 1. Length of individual pieces of nesting material.

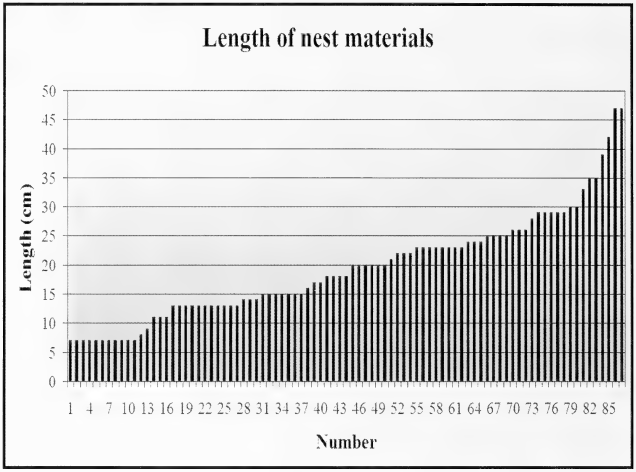
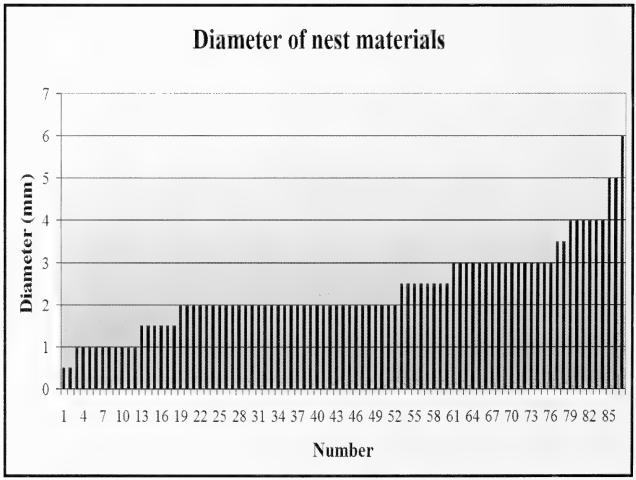


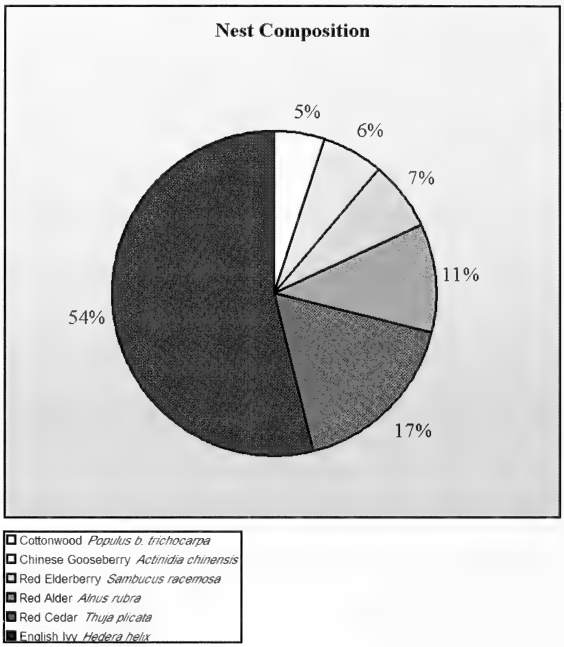
Fig. 2. Diameters of individual pieces of nesting material.



Nest with two eggs.

Female and well-grown nestling.

Fig. 3. Composition of materials used for nesting.



nest site. The branches were between 2.8m-3.6m (approx. 9ft-12ft) above the ground and the tree was quite mature, so provided heavy canopy cover and some protection from the elements. The young turaco rarely ventured outside of the tree and throughout the day was brought food by the female, although they were very discrete about such feedings. Rather surprisingly, it appeared not to be molested by other turacos in the aviary. No observations were made of helpers at the nest, although we suspect that this may have occurred.

By the sixth week, the young turaco was seen leaving the relative safety of its 'nursery tree' and was occasionally observed scurrying along the aviary floor. It was not often seen during the day and remained relatively inactive until it had gained almost its full flight capability: nor, until it had achieved full flight capability, did it show any attempt at kin socialisation.

On one occasion the young turaco was spooked when it was on a

Nest No. 1, 2005. Size: approx. 22cm long x 17cm wide (8¾in long x 6¾in wide). Location: 1.7m (approx. 5ft 6in) above the ground in a dense tangle of ivy growing up the vertical netting beside an aviary door. The nest faced westwards and would have received the majority of sunlight after 1.00pm-2.00pm. Description: composed entirely of dead, dry ivy twigs, most of which would have been broken off from the creeper, rather than collected from the ground. They were interwoven into a somewhat transparent, but nevertheless quite sturdy nest. Of the three eggs that were in the nest, one disappeared shortly after the nest was discovered, one was infertile and the chick in the other egg died during the latter stages of incubation.

Nest No.2, 2006. Size: 33cm long x 17.8cm wide x 2.5cm deep (approx. 1 ft long x 7in wide x 1in deep). Location: 2.2m (approx. 6ft 6in) above the ground, above the aviary door, again in a dense clump of ivy. The nest faced due west and was in sunlight from 1.00pm onwards. Description: almost exactly the same as the first nest, except for being slightly larger. Dry ivy twigs were again used for the majority of the nest despite the availability of other nest materials. Two clutches of eggs were successfully hatched in this nest

low perch and scuttled along the ground one and into a clump of grass. The male Erckel's Francolin ran towards the clump of grass and began a threatening posture towards the young turaco and, as it left the clump of grass, the francolin chased after it. Without the young turaco having made any vocalisations, a group of at least six adult turacos, seemingly led by the mother of the young turaco, engaged the male francolin as it pursued the young bird. The turacos dived at and bounced off the back of the male francolin and emitted their typical alarm screeches. This worked amazingly well and the francolin was immediately overwhelmed and left. The group of turacos dispersed, except for the mother of the young turaco, which then remained with it. The social support the turacos displayed further developed our suspicion that there may be some co-parental behaviour on the part of this species. We were unable to determine which bird was the father of the young turaco, as the female was the only bird observed incubating and caring for the chick. It may be important to mention that the majority of the adult birds in the aviary were siblings and as a result there may have been some

potential genetic reasoning for the aforementioned altruistic behaviour, which was shown only by the other White-cheeked Turacos in the aviary.

A second clutch was laid, of two eggs, but only one hatched. The chick remained in the same nest until it was two weeks of age, when all of the birds were moved indoors for the winter.

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BREEDING THE BLACK-AND-WHITE LAUGHINGTHRUSH
Garrulax bicolor

by Andrew Owen

Garrulax bicolor is endemic to the montane and hill forests of Sumatra from 750m-2,000m (approx. 2,500ft-6,560ft) above sea level.

It was previously considered to be a subspecies of the more familiar White-crested Laughingthrush *G. leucolophus*, but as a result of taxonomic changes was recently accorded full species status and given the English name Sumatran Laughingthrush, later changed to Black-and-white Laughingthrush (Collar, 2006).

There is considerable concern about the status of this species in the wild. Until recently it was considered to have been common and widespread in suitable habitat, but appears to have been trapped so extensively in its forest haunts, that in 2006 it was known at only a single site. Nigel Collar stated that some birds could still be found in bird markets in northern Sumatra, but they are now very rare and greatly outnumbered by the White-crested species, imported from continental Asia.

Following its apparent rapid decline, this species' status in the wild on the island of Sumatra, needs urgent re-evaluation.

This laughingthrush has apparently always been rare in western aviculture with very few birds in the UK and Europe. During a recent search of the ISIS database I could not find any listed in North American zoological collections. The assumption must be that the majority of birds trapped for the bird trade, remain in Indonesia and other parts of south-east Asia.

Description

It is a large laughingthrush approximately 30cm (11¾in) in length. It has a white head, throat, neck and breast. The black feathers at the base of the bill extend upwards onto the forehead and the black also extends from the bill, around and behind the eyes and forms a narrow 'teardrop' shape (see photo p.76 to see how different and unusual the markings are compared to the bold black face mask of the White-crested species). Except for a faint pale grey wash at the base of the nape, the remainder of the plumage is a uniform blackish-brown. The eyes are dark reddish-brown, the bill is black and the legs and feet are blackish-grey.

Table 1. Biometric measurements and weights of four adult males and one female.

Bill	Skull	Tarsus	Wing	Tail	Weight
31.5mm	57.9mm	49.1mm	137mm	132mm	120g
31.0mm	57.6mm	49.2mm	134mm	130mm	137g
30.7mm	56.9mm	48.9mm	134mm	129mm	132g
32.1mm	57.7mm	48.8mm	136mm	131mm	129g
28.6mm	54.2mm	49.0mm	122mm	127mm	110g

Acquisition and pairing of the birds

In 2001 my brother Neil purchased two of these laughingthrushes from bird importer Phil Cleeton. DNA sexing revealed that they were both males. After a lot of searching, Phil Cleeton managed to find another two, which my brother purchased, but these too turned out to be males. Unable to find any females, Neil decided in 2004 to sell the birds to us here at Waddesdon Manor aviaries.

Although the chances of us finding any females appeared slim, we felt that these loud, showy birds would make a wonderful exhibit and hoped that in time we might find one or two females. Within weeks of the four birds arriving here, Phil Cleeton managed to find another bird, this time in the collection of a private aviculturist. We purchased this bird, which was DNA sexed and found to be a female.

Following a 30 day quarantine period it was paired with one of the males in an on-show aviary. However, following constant calling between the pair and the remaining bachelor group housed nearby, it was decided to move the pair to an off-show aviary. This was 6m long x 4m wide x 2.5m high (approx. 20ft long x 13ft wide x 8ft 3in high) and planted with box bushes and a 2.5m (approx. 8ft 3in) high *leylandii* tree. The floor was covered with bark chips, mulch and leaf litter. The aviary was furnished with natural perches and mossy logs, that provided the birds with additional enrichment. Almost as soon as the logs were placed in the aviary, the birds stripped off the moss, as they searched for insects and other small invertebrates.

The laughingthrushes received an insectivorous mix consisting of a universal and low iron softbill food, to which was added grated carrot, finely diced apple, soaked raisins and, on alternative days, either grated hard-boiled egg or grated cheddar cheese. In addition, a variety of diced fruit was offered to them in the same dish, along with a daily ration of livefood in the form

of mealworms, crickets and waxmoth larvae. Every other day the food was dusted with Nutrobal multivitamin powder. For birds of their size, we find that they eat a relatively small amount of food.

Reproduction

The first sign of nesting activity was observed on March 28th 2005, when both birds were seen carrying nesting material. Within a few days, in a small wicker basket placed about 1.5m (5ft) above the ground in the aviary shelter, a nest was built exclusively of coconut fibres. One white egg was seen in the nest on April 19th, followed over the next two days by two more. Incubation started after the second egg was laid. Both birds shared

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Two chicks on day of hatching with third egg pipping.

incubation duties, alternating throughout the day. The eggs were seldom left unattended and these normally very vocal birds fell silent. After 13 days, they were offered increasing amounts of livefood, consisting of small, white-skinned mealworms, waxmoth larvae and crickets. The first two eggs hatched on May 4th, indicating a 15 day incubation period. The third egg hatched a day later. The pair was seen taking several white-skinned mealworms or waxmoth larvae at a time to the nest during this period, when we kept disturbance to a minimum. On May 8th the male was very quiet and subdued and, although he appeared unwell, it was decided to leave him in the aviary and place the birds on a course of antibiotics, given in their drinking water.

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Five days old.

Andrew Owen

Eight days old.

After seven days it was clear that all was not well. On first arriving at the aviary, the birds were unusually vocal and neither of them was brooding the young; furthermore, the livefood provided was eaten by them, rather than taken to the nest. A check revealed the three well-developed chicks were dead. All appeared to have abnormally swollen stomachs. Post mortem examinations revealed a possible unidentified bacterial infection. The male was removed from the aviary and placed in our hospital facility, where he made a full recovery.

After an introductory period in an adjoining aviary, a replacement male was introduced to the female on May 18th and both birds appeared very compatible. Although we were disheartened by the earlier loss of the chicks, the new pair soon showed signs of nesting and by May 28th was incubating a clutch of three eggs in the original nest in the aviary shelter. The incubation and nesting behaviour followed the same pattern as before, however, on this occasion the chicks were abandoned at about four or five days old. The weather was warmer and post mortem examinations were not possible, as the chicks' bodies had started to decompose. They did though, once again, all show signs of having very swollen stomachs.

We were concerned that perhaps indigestible food being fed to the chicks by the parents was becoming compacted in their stomachs. In the past I have found that the hard, almost plastic-like stomachs parts of large, commercially produced waxmoth larvae, can occasionally become compacted in the stomachs of small and often unhealthy chicks. We decided, therefore, that if the birds nested again, we would not offer them commercially produced waxmoth larvae, but only home-grown tiny larvae, along with other soft-bodied insects, to see if this resolved the problem.

With Waddesdon Manor having possibly the only female in the UK, we felt we could not afford to risk losing any more young, so also decided that should there be a third nesting attempt, we would remove the chicks and attempt to hand-rear them.

There was a third nesting attempt and, on June 19th, three more chicks had hatched.

Hand-rearing

On June 22nd the three chicks were taken from the nest and placed in a brooder set at 32°C (89.6°F). One chick weighed 14.1g, another 12.6g and the smaller chick, which was probably a day younger, weighed 9.6g.

The hand-rearing food consisted of a mixture of 50% pinkie mice and 50% papaya, with an added pinch of Nutrobal multivitamin powder, pureed to a runny consistency and fed using tweezers. It is a diet we have used with much success hand-rearing other passerine chicks, including those of other species of laughingthrush.

The chicks were fed at two hourly intervals. The two larger chicks fed well, but as the smaller chick was rather lethargic, the temperature was increased to 34°C (93.2°F). The chick's condition improved initially, but then deteriorated and it refused to feed over the next few hours and died the following day.

The remaining two chicks were strong and fed vigorously for the next two days, then the slightly smaller of the two began to regurgitate its food. It was given a slightly runnier mixture of 70% papaya and 30% pinkie mice. By mid-morning on June 24th, both chicks were refusing food and passing only very small droppings, rather than the large faecal sacs they usually produced, also both were developing very swollen abdomens.

Drastic measures were needed if the two chicks were to survive. Over the following 24 hours, they were fed only pureed papaya, mixed with a small quantity of olive oil and a dilution of Avipro-Plus probiotics, in an attempt to flush out any compacted food.

By June 25th, one of the chicks had died, but the other appeared to be thriving. It appeared to be very hungry and in an attempt to improve the nutritional value of the food, without causing further compaction, a few soaked Tl6 low iron softbill pellets were fed to the chick. These were very soft and spongy and appeared digestible, as the chick continued to produce large faeces.

The brooder temperature was reduced by 0.5°C a day and by day seven small blueberries and cricket abdomens were added to the diet. Although this diet was not ideal, the chick continued to develop well, with dark pin-feathers erupting on its back and white pin-feathers protruding on its head. As the chick grew, increasing amounts of insects in the form of more white-skinned mealworms, crickets and small waxmoth larvae, were added to the diet. The chick fledged from its nest pot at 15 days old. It was provided initially with some sticks to perch on and was heard for the first time making adult type chuckling calls. At 17 days old it was placed in a small fledging cage, in which it remained for the next five days.

After a few days in the fledging cage, the young laughingthrush was observed pecking at insects and bits of fruit. Following this it was moved to a larger cage measuring approximately 1m long x 0.5m wide x 0.5m high (3ft 3in long x 1ft 8in wide x 1ft 8in high). It was offered food from tweezers only twice at day, at 7.00am and 7.00pm (07.00hrs and 19.00hrs). The young laughingthrush was feeding itself by the time it was 25 days old. It was taking mostly insects and also eating fruit and T16 softbill pellets, therefore, we discontinued using tweezers to feed it. Once it was fully independent, we removed the dividing wall, thereby doubling the size of the cage.

After two months, it was moved to an outdoor off-show aviary, which it

Andrew Owen

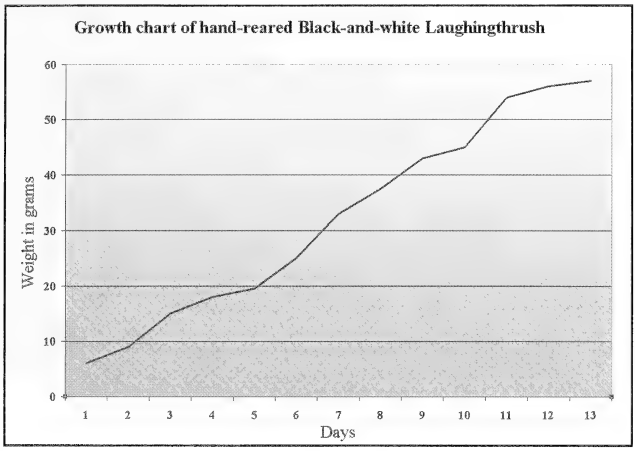
Adult Black-and-white Laughingthrush.

shared with a number of hand-reared young Pekin Robins *Leiothrix lutea* and Silver-eared Mesias *L. argentauris*. It settled down well with its new and smaller cage mates and showed no sign of aggression. Some feathers were removed and sent for DNA testing and revealed that it is another male.

Table 2. Measurements of six eggs.

Clutch 1 - laid 25.09.06-27.09.06		
28.7mm x 22.6mm	29.4mm x 22.6mm	29.0mm x 23.1mm
Clutch 2 - laid 17.10.06-19.10.06		
28.6mm x 22.8mm	28.7mm x 22.9mm	28.6mm x 22.9mm

During 2006 the breeding pair was moved to a different off-show aviary and took some time to settle down again. After several eggs were laid from perches and lost, the pair finally nested in August and three chicks were hand-reared from hatching. Again problems occurred when the chicks were three to four days old and the diet had to be modified. They were reared on papaya, soaked Tl6 pellets and small soft-bodied insects. One died shortly after fledging, but the remaining two survived and were DNA sexed and found to be females. The pair attempted to nest again late in the year (in October), but the eggs were abandoned before they were due to hatch.



Conclusion

While we were trying to set up our breeding birds at Waddesdon Manor, I searched for other collections keeping this species and discovered that the Paultons Park collection in Hampshire had two of these laughingthrushes. Curator Geoff Masson had them DNA sexed and luckily they turned out to be a pair. During 2006 Geoff moved the pair to a larger; quieter aviary, and succeeded in hand-rearing a single bird - a female. Like us, Geoff found that breeding this species is not without problems and, he too, lost chicks while they were being reared by the parents, before deciding to hand-rear the chick he was successful with.

Although, with only two breeding pairs the sample size is very small, it appears that this species' breeding requirements or rearing diet may be different to that of other laughingthrushes. There is a need for research into why parent-reared chicks are being lost at an early age and why chicks are proving so difficult to hand-rear, when those of other closely related species are straightforward to hand-rear. It is hoped that we can perfect the breeding requirements of this charismatic and rare species and, ideally, be able to produce parent-reared young in the future.

There has been an exchange of birds between our two collections and we are planning to establish additional pairs. We hope to be able to produce enough birds to set up a viable captive breeding population, involving other zoological collections.

Products mentioned in the text

Avipro-Plus soluble probiotic: Vetark Animal Health, PO. Box 60, Winchester, Hampshire SO23 9XN, UK.
Nutribird T16 low iron pellets: Versele-Laga NV, Kappellestraat 70, B-9800, Deinze, Belgium.
Nutrobal multivitamin powder: Vetark Animal Health, PO. Box 60, Winchester, Hampshire SO23 9XN, UK.

Reference

Collar, N. J. 2006. A partial revision of the Asian babblers (Timaliidae). *Forktail* 22:85-112.

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ENCOURAGING NEWS FROM CHINA

Following field work in Wuyuan during April-May 2008, Prof. He Fen-qi was for the first time able to announce the presence there of over 200 Blue-crowned Laughingthrushes *Dryonastes courtoisi*, some 60 or so of which were discovered at a previously unknown breeding site. He cannot say with certainty that it is an entirely new site. During the previous two years (2006 & 2007), two colonies of laughingthrushes vanished from their breeding sites. It seems quite possible that some of the birds had moved from an abandoned site to the newly discovered site and may have already been breeding there in 2006 and/or 2007, as one of the nests appeared to have been built earlier than the other nests in the colony.

The recently discovered breeding site is by a large river in a rather large village, with plenty of birds in and around it. There are small vegetable gardens and fruit trees here and there in the village and the laughinghrushes are often found feeding in gardens and in the fruit trees. It makes an interesting scene, with these rare laughingthrushes being no more than common garden birds and playing quite an active role in the local bird community.

Following further taxonomic changes the Blue-crowned Laughingthrush is now recognised as a separate monotypic species (i.e. a species with no subspecies) in the genus *Dryonastes* (rather than *Garrulax*), along with the Yellow-throated Laughingthrush *D. galbanus*, which is also recognised as a monotypic species in the genus *Dryonastes* (rather than *Garrulax*).

THE MADAGASCAR BUTTONQUAIL *Turnix nigricollis*

by Fred Barnicoat

In the distant past - aviculturally speaking – Madagascar provided several beautiful and unique species to grace the aviaries of bird enthusiasts in Europe and elsewhere. Two that immediately come to mind are the Grey-headed or Madagascar Lovebird *Agapornis cana*, so different from all the other members of the genus *Agapornis*, and the spectacular Madagascar Fody *Foudia madagascariensis*, a bird now firmly established in Australian aviaries, where aviculturists continue to refer to it as the Madagascar Weaver. Another unique and beautiful Madagascan species is the Madagascar Partridge *Margaroperdix madagascarensis*.

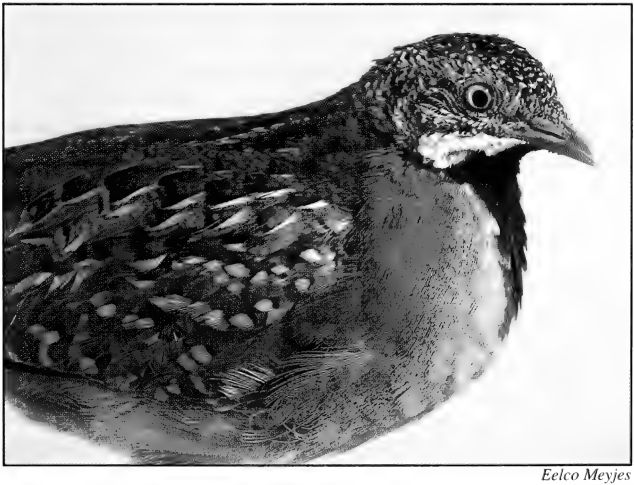
Because of Madagascar's relatively close proximity to us here in South Africa, I suppose that over the years a few more of its wonderful birds have been available to South African aviculturists than to those elsewhere in the world. Such importations have nevertheless been few and far between.

Of the 14 species of buttonquail or hemipodes, the Madagascar or Black-necked *Turnix nigricollis*, seems to be the most colourful. As well as having kept and bred the Little or Common Buttonquail *T. sylvatica*, which is by far the most widely distributed and has a subspecies *T. s. lepurana* which occurs widely in southern Africa, where it is usually referred to as the Kurrichane Buttonquail, I have seen several others of the genus *Turnix* in Australian aviaries. Only the coloration of the Black-breasted species *T. melanogaster* can rival that of the Madagascar Buttonquail. The accompanying photographs, especially that of the female Madagascar Buttonquail, which is, as in all buttonquail or hemipodes, larger than the male and has more spectacular coloration, give an idea of the striking beauty of this species.

The Madagascar Buttonquail has seldom figured in aviculture. I think one has to go back about a century in UK avicultural literature to find any record of it. A very detailed account can be found in the *Avicultural Magazine* for April 1905. Written by Dr A. G. Butler, it records not only its probable first arrival in England, but also provides an English translation of the writings of Dr Karl Russ on the far more extensive experience of keeping this species in Germany during the 1890s. In the *Avicultural Magazine* for December 1912 there is an account of the successful breeding of it in Yorkshire by W. H. St Quintin. St Quintin was particularly interested in gamebirds and highly successful at breeding an extraordinary diversity of this type of bird. He attributed his success to the use of the light of a large garden frame, as a way of keeping a piece of ground dry, where the male

Eelco Meyjes

Male Madagascar Buttonquail.



Eelco Meyjes

The female Madagascar Buttonquail is larger than the male and more boldly coloured.

could keep the chicks together.

As Madagascar became a French possession, I imagine this particularly striking buttonquail was probably first taken to France. Certainly sometime before 1890 small consignments began to reach German dealers and it continued to arrive in increasing numbers. By 1895, a consignment of no fewer than 40 pairs was reported in Cologne. It seems to have proved quite easy to breed, with success being attained by Hauth, Langheins, Behrens, Kemper, Krohm and others, as recorded by Dr Russ.

Dr Butler temporarily housed three for W. R. Ogilvie-Grant, his colleague at the British Museum (Natural History), who was lucky enough to obtain them from the well respected naturalist and importer of birds, Joseph Abrahams. Butler "became thoroughly enamoured of them and with the deepest regret had to restore them after some weeks to their owner on completion of their aviary."

The Madagascar Buttonquail did not figure in aviculture again for most of the remainder of the twentieth century. In 1991, as I gazed longingly at the superb coloured plate of this species in Paul A. Johnsgard's *Bustards, Hemipodes and Sandgrouse: Birds of Dry Places* (Oxford University Press, 1991), I never imagined I would ever see a living specimen, let alone possess and breed this species. However, amazing birds turn up sometimes in aviculture and, in September 1999, a small consignment reached South Africa and I was able to obtain a pair. A few months later a second pair became available.

I first succeeded in rearing young in March 2000. On that occasion three young were raised and I have subsequently bred another 18 in all. I have been able to swap or buy a few others and have managed to reach the third generation. Virtually everyone who obtained pairs from the two small importations has found the Madagascar Buttonquail quite willing to go to nest, with a good chance of the chicks being reared. They generally lay more clutches of eggs than they will successfully incubate, and in order to rear their chicks, need a regular supply of termites for at least the first week.

Being so rare in aviculture, the Madagascar Buttonquail would be an ideal species to build up aviary-bred stocks of, but because the genetic pool available in South Africa was so small from the start and the species is vulnerable to losses, I doubt this will happen without further importations of additional stock.

My own aviaries are far from ideal for breeding buttonquail. I think they would respond more positively in aviaries specially designed to suit their needs. Buttonquail or hemipodes are birds of dry places and probably flourish best in entirely covered aviaries in which the sandy floor is kept permanently dry. They need clumps of grass or even just a simple heap

of hay, into which they can retreat, and enjoy bare patches of dry sand in which they can make hollows and dust themselves. Their aviaries should be located in reasonably sheltered and warm sites, as chicks are never reared when the ground is cold. I have only succeeded in our warmer months, viz. December-March.

If their aviaries can be designed so that they can be fed from outside, for example from a covered passageway adjoining their shelter, thereby removing the necessity of having to enter their enclosure, so much the better. We have all found that they remain extremely nervous and flighty, even when aviary bred. They have the irritating habit of flying towards you, even into your face, whenever you enter their aviary, and I have even had them escape through the door as I was opening it. Their habit of flying straight towards the perceived point of threat is probably an inborn defensive mechanism in this group of birds, the opposite of escaping by retreating and hiding.

All the buttonquail or hemipodes are polyandrous, the larger and more brightly coloured female mating with a number of the more insignificant looking males and leaving each of them to incubate a clutch of eggs and raise the chicks single-handed. However, with the two species I have bred, the Common or Kurrichane and the Madagascar Buttonquail, I have always found them able to manage well enough in single pairs in relatively small aviaries, without having to remove the female.

My observations coincide with the reported observations of Hauth in 1905, that in effect, while the male is incubating, the female keeps guard over the nesting area. As a rule the male at first leads, warms and feeds the chicks entirely on his own, but I have the impression that quite soon the female starts sharing the responsibility of looking after the chicks to a greater extent with *T. nigricollis* than with *T. s. lepurana.*

Madagascar Buttonquail seem enthusiastic nest builders. Mine have always made fairly well-woven, over-arched nests, quite deep in a pile of hay and usually accessed through a short tunnel. There is always a neatly rounded saucer-shaped hollow for the eggs. Both birds participate in the nest building, with the female playing the greater role, I think. In my experience the clutch of eggs can number between three and five. However, unless the birds are fully satisfied with the conditions, they will not begin to incubate them.

The chicks cannot at first pick up food from the ground; the male needs to hold a termite or other morsel of food in his beak and call them to come and take it. Otherwise they just perish. I have found a supply of termites to be necessary for stimulating this process. The chicks, however, are precocious and quite soon begin to pick up some of their food for themselves. Their development is surprisingly rapid, especially the development of the wings.

I have found it fascinating to see them flying around like big bumblebees high in the aviary, when startled by me entering the aviary with food. They are fully capable of flight at about 10 days.

Feeding these birds is quite easy. They are perfectly capable of existing on only the usual small seeds, but it is advisable to also supply gamebird starter crumbs or something similar. I provide a dry insectile mixture and think that they also benefit from a small, daily supply of soaked and sprouted seeds, with a little slightly moistened rearing food of the type used for canary rearing. Breeding activity is certainly stimulated by a regular supply of livefood, but this is not essential throughout the year. Termites are particularly attractive to them, but mealworms and/or maggots could be used.

References

Butler, A. G. 1905. On breeding *Turnix nigricollis* in German bird-rooms. *Avicultural Magazine* (New Series) Vol.III, 6:195-203.

Johnsgard, P. A. 1991. *Bustards, Hemipodes, and Sandgrouse: birds of dry places.* Oxford University Press, Oxford, New York, Tokyo.

St Quintin, W. H. 1912. Breeding notes for 1912. *Avicultural Magazine* (Third Series) Vol. IV, 2:54-55.

Avicultural Society Vice President Fred Barnicoat lives in South Africa. He has an almost complete set of Avicultural Magazines and an encyclopedic knowledge of the history of the society.

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THIRTY-THIRD AGM AND UK CONVENTION

The 33rd World Pheasant Association AGM and UK Convention will be held from Friday, October 10th-Sunday, October 12th 2008 at St John the Evangelist Church, Hills Road, Cambridge CB2 8RN. The speakers will include Iain Grahame and Francois Bernar, who will talk about keeping and breeding the Blood Pheasant *Ithaginis cruentus* in the 1970s and 2000s and, John Sherlock, who will talk about Sudeley Castle's pheasants - past and present. There will be a visit to a new zoo being developed and due to open shortly at Cromer, Norfolk. It will be run by the owners of Thrigby Hall Wildlife Gardens and the Director will be Jim Irwin-Davis, formerly Curator at Harewood Bird Gardens in Yorkshire. There will also be a visit to Pensthorpe Nature Reserve and Gardens.

BREEDING THE BARE-FACED CURASSOW *Crax fasciolata* AT EXMOOR ZOO

by Derek Gibson

Exmoor Zoo has had its current pair of Bare-faced Curassows *Crax fasciolata* since 2003, when a female was acquired to pair with our male that had been obtained from Beale Park in 2002. Both birds saw out 2003 and the beginning of 2004 in harmony together in an aviary measuring 6m x 3m x 6m (approx. 20ft x 10ft x 20ft). On September 30th 2004 the first egg was laid on a pile of twigs and leaves, that could loosely be described as a nest. It was about 3m (10ft) above the ground in a wooden box measuring 1m x 1m (approx. 3ft 3in x 3ft 3in). The egg was incubated by the female and after a period of 32 days, a chick could be seen putting its head over the side of the box. Unfortunately, the following morning the chick was found dead on the floor. We are not sure what went wrong, but put it down to the parents' lack of experience and hoped that next time a more successful outcome would ensue. No further breeding activity was recorded during the remainder of 2004.

During the early months of 2005, there was a lot of activity: the male's low-pitched booming; food being passed from the male to the female; the choosing of titbits for food passing (in nearly all instances mealworms); and the female making a nest from willow twigs and straw. While nest building was in progress, the male perched close by, seemingly standing guard, but unwilling to help construct the nest. Both birds exhibited the head-flicking motion that all curassows seem to exhibit from an early age.

On June 12th 2005, the female was observed to be spending more and more time in and around the nesting area and, on June 6th 2005, was noted to be looking noticeably heavy. The male was spending a considerable amount of time following her every move. An egg was laid on June 28th 2005. The decision was taken to remove the egg and replace it with a dummy egg. No further egg was laid and the artificially incubated egg was found to be clear. A further egg was laid on July 24th 2005, that was removed and placed in an incubator. A dummy egg was left in the nest. A second egg was laid three days later. It was laid from a perch and hit the only hard piece of wood on the aviary floor. Again the first egg proved to be infertile. On July 29th 2005 it was noticed that the female was limping on her left leg. A closer inspection revealed no obvious injury, but it did seem to bring the 2005 season to an abrupt end.

Throughout the early months of 2006, booming and food passing again occurred and finally, on May 15th 2006, mating was observed. An egg was

Derek Gibson

Bare-faced Curassow chicks.

laid on May 27th 2006 and was transferred to an incubator. This egg proved to be fertile and the chick hatched from it was successfully hand-reared by the bird staff. A further egg was laid on August 17th 2006. It was removed for artificial incubation and the chick hatched from it was reared successfully.

On December 20th 2006 the birds were moved to another aviary so that we could accommodate a pair of Pied Crows *Corvus albus*. The aviary they were moved to is much larger, it measures 6m x 6m x 8m (approx. 20ft x 20ft x 26ft), and has a small stream with running water and *leylandii* conifers planted to provide cover. Half of the aviary is grassed and the other half is covered with bark chips. The grass is left to grow and set seed and the curassows seem to enjoy searching for whatever insects they can find. A nest basket is provided at floor level, hidden from view by a conifer, but they have made no attempt to use it.

The female was noted to look heavy on May 6th 2007 and an egg was laid on May 9th 2007. A further egg was laid on May 11th 2007. Both eggs

were removed and proved to be fertile. Both were hatched in an incubator and the chicks were successfully hand-reared.

Adult management

The adults are wormed with Panacur 10% solution twice a year on March 1st and October 1st. A faecal sample is taken in February. To date, no worms or eggs have been found in the samples. The female still tends to limp occasionally. The curassows seem to be relatively hardy and no heating is provided for them through our rather long winters. As long as they have a snug shelter, they seem more than capable of toughing out the most inclement weather.

Adult diet

Maintenance diet fed to adults November Ist-February 13th.

8.30am feed
- 50g Seasonal fruits (cut into 1cm cubes)
- 1 Slice of brown bread (crumbled)
- 4 2cm Balls of minced (ground) meat
- 100g Waterfowl maintenance pellets
- 20-30 Soaked Zoo A pellets
- 10g Insectivorous mix

4.00pm feed
- 15-20 Mealworms (scattered)

200g Oystershell grit is added to the food once a month

Breeding diet fed to adults February 14th-October 31st.

8.30am feed
- 50g Seasonal fruits (cut into 1cm cubes)
- 1 Slice of brown bread (crumbled)
- 6 2cm Balls of minced (ground) meat
- 100g Waterfowl maintenance pellets
- 20-30 Soaked Zoo A pellets
- 20g Insectivorous mix

4.00pm Feed
- 15-20 Mealworms (scattered)
- 2-4 Locusts
- 5-10 Waxmoth larvae

Egg management

The eggs were incubated in Brinsea Octagon Pro 20 incubators at a temperature of 37.4°C/37.6°C (99.3°F/99.7°F) with relative humidity of about 55%. Upon external pip the eggs are transferred to a hatcher, with greatly increased humidity to prevent the membranes from drying.

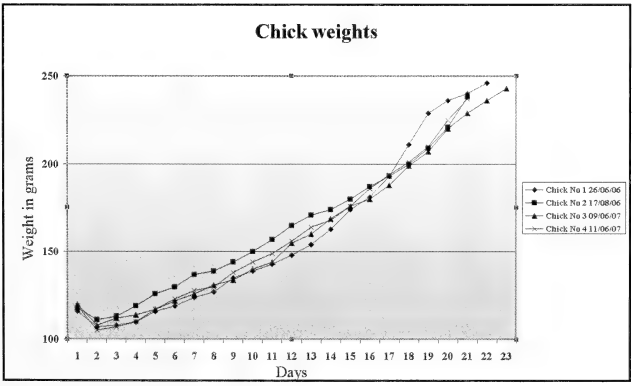
Chick management

Once the chick has hatched, it is first weighed, then transferred to a Brinsea Octagon TLC-4 brooder, in which it remains for 24 hours. No food is offered during this time in order to allow the yolk sac to be fully absorbed. Only water is available in a small dish with pebbles on the bottom to prevent drowning. The chick is later transferred to a rearing pen, heated from above at one end to a temperature of 31°C (87.8°F). The heat is decreased by 1°C each day until only background heat is available.

Chicks are fed the following diet:

Chick crumbs
Insectivorous food
Soaked Zoo A pellets
Fruit cut into 0.5cm cubes

Waxmoth larvae are offered, also crickets, locusts and mealworms, but although livefood is available at all times, it is very rarely taken. Food is offered from tweezers for the first two days. A dish of fresh water is always available. A perch is provided from day five and is used almost immediately.



Hand-rearing record - Chick No.1.

Date	Observations	Weight
26.06.06	Given silky bantam chick for company.	116g
27.06.06	Observed drinking.	107g
28.06.06		108g
29.06.06		110g
30.06.06	Eating food from food pot.	116g
01.07.06		119g
02.07.06		124g
03.07.06		127g
04.07.06	Perching.	135g
05.07.06		139g
06.07.06	Middle toe measures 26.61mm.	143g
07.07.06	Feeding from hand.	148g
08.07.06		154g
09.07.06	Bird very nervous.	163g
10.07.06		174g
11.07.06		181g
12.07.06		193g
13.07.06		211g
14.07.06	Silkie removed because of bullying by curassow.	229g
15.07.06		236g
16.07.06		240g
17.07.06		246g

Data collected at 8.00am.

Hand-rearing record - Chick No.2.

Date	Observations	Weight
17.08.06	Given guineafowl for company.	118g
18.08.06	Observed drinking,	111g
19.08.06		113g
20.08.06		119g
21.08.06		126g
22.08.06	Follows guineafowl everywhere.	130g
23.08.06	Perching.	137g
24.08.06		139g
25.08.06		144g
26.08.06		150g
27.08.06		157g
28.08.06		165g
29.08.06	Tarsus measures 29.77mm.	171g
30.08.06		174g
31.08.06		180g
01.09.06		187g
02.09.06		193g
03.09.06		200g
04.09.06		209g
05.09.06	Beak measures 21.12mm.	221g
06.09.06		238g

Data collected at 8.00am.

Hand-rearing record - Chick No.3.

Date	Observations	Weight
09.06.07	Placed in dryer (10.00am).	120g
10.06.07	Transferred to rearing pen.	108g
11.06.07	Fed six waxmoth larvae by hand.	112g
12.06.07	Joined by sibling. No problems.	114g
13.06.07	Head-flicking.	117g
14.06.07	Provided with a perch.	122g
15.06.07	Beak 17.26mm.	126g
16.06.07	Visually sexed as probable male.	131g
17.06.07	Tarsus 29.78mm.	134g
18.06.07		140g
19.06.07	Bird nervous.	144g
20.06.07		155g
21.06.07		160g
22.06.07		169g
23.06.07		176g
24.06.07	Turned away when offered food.	180g
25.06.07		188g
26.06.07		199g
27.06.07		207g
28.06.07	A small crest was observed.	220g
29.06.07		229g
30.06.07		236g
01.07.07		243g

Data collected 7.15am-8.00am unless otherwise stated.

Hand-rearing record - Chick No.4.

Date	Observations	Weight
11.06.07	Placed in brooder (8.45am).	119g
12.06.07	Placed in brooder with sibling.	105g
13.06.07		107g
14.06.07	Observed drinking and head-flicking.	110g
15.06.07		117g
16.06.07	Probably a female.	123g
17.06.07	Perching.	128g
18.06.07	Feeding from hand.	130g
19.06.07		138g
20.06.07		144g
21.06.07		149g
22.06.07		156g
23.06.07		164g
24.06.07		168g
25.06.07	Beak 15.94mm, tarsus 29.50mm.	176g
26.06.07		186g
27.06.07		194g
28.06.07		201g
29.06.07	Crest noticed.	210g
30.06.07		225g
01.07.07		237g

Data collected 7.30am-8.00am unless otherwise stated.

BOOK REVIEWS

INTERNATIONAL ZOO YEARBOOK VOLUME 41 & VOLUME 42

The *International Zoo Yearbook* Vol.41 (2007) & Vol.42 (2008) are rather low on avicultural content. The special subject or main theme of Vol.41 is animal health and conservation. The articles likely to be of greatest interest to aviculturists are those on West Nile virus and avian influenza H5N1, both of which can infect wild and captive birds (and humans). From 1999-2005, West Nile virus had been isolated from over 284 dead bird species. In areas of North America, mortality approached 100% in American Crows *Corvus brachyrhynchos* and Loggerhead Shrikes *Lanius ludovicianus migrans*. Raptors were also thought to be extremely susceptible. H5N1 had, at the time the paper was written, been reported in over 30 wild bird species and a similar number of captive bird species. The majority of those infected, both wild and captive, had been ducks, geese and swans. Others on the list of captive species infected (Table 2), include the Greater Flamingo *Phoenicopterus ruber*, Hill Mynah *Gracula religiosa*, Black-naped Oriole *Oriolus chinensis* and Red-billed Leiothrix or Pekin Robin *Leiothrix lutea* (though somewhat confusingly in the text the author refers to "Mesias *Leiothrix* sp.").

The second section of Vol.41, the zoo section, includes an account of the first three years of the Masoala Rainforest ecosystem at Zurich Zoo. Opened to the public in 2003, it is a 120m x 90m x 30m high (approx. 395ft x 295ft x 98ft high) greenhouse-type structure, featuring plants and animals of Madagascar's Masoala National Park. The exhibit aims to raise awareness of the threatened biodiversity in rainforests and, through visitor donations and a percentage of the takings of the shop and restaurant, generates more than US$100,000 or £50,000 per annum towards the costs of running the Masoala National Park which, in 2006, amounted to 25% of its annual budget. It also promotes tourism to this, so far, not widely known national park on the east coast of Madagascar.

In November 2006, when the account was written, the Masoala Rainforest ecosystem housed 478 plant, six mammal, 22 bird, seven reptile, two amphibian, three fish and more than 50 invertebrate species. The 22 species of birds included the Madagascar Partridge *Margaroperdix madagascarensis*, Madagascar Turtle Dove *Streptopelia picturata*, Lesser Vasa Parrot *Coracopsis nigra*, Crested Coua *Coua cristata*, Red-fronted Coua *C. reynaudii*, Madagascar Magpie Robin *Copsychus albospecularis* and Madagascar Fody *Foudia madagascariensis*. The first parent-reared Madagascar Crested Ibis *Lophotibis cristata* outside of Madagascar was

raised there in 2004 and the first captive breeding of the Pitta-like Ground-Roller *Atelornis pittoides* was recorded in 2006.

Vol.42 (2008) has even less avicultural content than Vol.41 (2007). The main theme is amphibian conservation and the first 19 articles (pp.1-171) are amphibian related. To find any avicultural content one has to turn to the reference section. Listed there are the officially endorsed international studbooks for species such as the Horned Guan *Oreophasis derbianus*, Vietnamese Pheasant *Lophura hatinhensis*, Spix's Macaw *Cyanopsitta spixii*, Blue-throated Macaw *Ara glaucogularis*, Maroon-fronted Parrot *Rhynchopsitta terrisi*, Lesser Bird of Paradise *Paradisaea minor* and Red Bird of Paradise *P. rubra*. Most data covers the period only up until the end of December 2006. The reader can learn, for example, that in 2006, 10 Spix's Macaws were hatched and brought the total in the studbook (which has a new keeper, Ryan Watson of Al Wabra) up to 74. There were 69.63.16 Blue -throated Macaws and 22.22.12 Maroon-fronted Parrots, the latter all in five institutions in Mexico.

The *International Zoo Yearbook* Vol.41 was published on behalf of the Zoological Society of London (ZSL) by Blackwell Publishing Ltd., Vol.42 is published on its behalf by Wiley-Blackwell Ltd., 9600 Garsington Road, Oxford 0X4 2DQ, UK. Visit:www.blackwellpublishing.com/izy for prices.

Malcolm Ellis

PARROTS OF AFRICA

The avicultural literature relating to African parrots includes a couple of publications (paperbacks) on the genus *Poicephalus* and, of course, many titles on the Grey Parrot. *The Parrots of Africa* (in English) by German author Dr Stefan Luft covers very different ground to the avicultural titles, thereby filling a gaping hole in the literature.

Its basis is science not birdkeeping. The first chapter is a general introduction covering phylogeny (including the lovebirds), the design of African parrots, flight silhouettes and language use, and a table that extends over six pages of lengths (overall, tail, tarsus, etc.) of all species and subspecies. This could be of assistance in identifying some subspecies. The second chapter covers research and conservation and such problems as how to translate conservation research into practical action. An interesting map shows the rate of deforestation in Africa per year. The damage caused by the capture of wild African parrots for the pet trade is discussed and the different stakeholders in the trade in Grey Parrots in Cameroon is explained in detail (government, licensed dealers, middlemen, trappers and local people who take part by, for example, transporting the parrots). There is a short and

largely theoretical discussion on captive breeding (studbooks, population management, software, etc.).

Chapter 3 describes the types of habitats in which African parrots are found and the following chapter focuses on non-breeding biology and behaviour, including feeding, communication and roosting. The chapter on feeding ecology includes information on diet and the following description of drinking: "African parrots ladle water with the tip of the tongue, which is then pressed into the palate to move the water back."

The chapter on breeding biology concludes the first part of the book which covers 105 pages, with the following 40 pages devoted to the species accounts, starting with the lovebirds. For each species there is a description of plumage, subspecies, voice, range, habitat and status, general habits and reproduction, plus a distribution map. This information is fairly brief, that for the Senegal Parrot, for example, covers one and a half pages, including a half-page map. Chapter 8 (13 pages) is about keeping and breeding African parrots. Twenty pages of small type, list the references cited. This section is of enormous value to the serious student of African and other parrots.

There are some helpful line drawings but no photographs. The book would perhaps have benefited from colour illustrations of the various species, apart from the three shown on the front cover and the one on the back cover. Nevertheless, overall the book contains a great deal of valuable information.

Parrots of Africa is available from Dr Stefan Luft, Pistoriusstrasse 85, 13086 Berlin, Germany. Price €17.00 or US$24.99. Postage is an extra €6.00, or, it can, apparently, be purchased post-free from Amazon.co.uk. Any other enquries should be addressed to:stefan_luft@yahoo.com

Rosemary Low

WHERE TO WATCH BIRDS IN WALES

When asked to review a book, my first thought is, "Where do I start?" "At the beginning" is not necessarily the right answer because you do not review a book in the same way as you read it.

With a reference book it can be quite difficult - and this one covers an entire country in a localised way. So, for instance, if you live in Glamorgan, you might not be too fussed about the best birdwatching places Denbighshire, but then, on the other hand, you might be going there on holiday and not want to waste precious holiday time on fruitless searches. This is exactly where this book kicks in - as a guide to key birdwatching haunts in Wales, it has stood the test of time (this is the fourth edition, fully revised and updated, with 40 new sites added) and is a masterful summation. That is not to say

it is faultless, to be able to say that with certainty you would need to know the whole of Wales intimately. Not having had that pleasure, I looked at the regions and birds I know best, then cross-referenced the two.

I was brought up in North Wales (Flintshire) and later did field work on the Chough in West Wales in Pembrokeshire and Ceredigion. So it was the Chough that I checked out first, then some of those species I used to see whilst Choughs decided to be somewhere different from where I thought they ought to be! The first snag I hit in the index is a common one. You look up an entry only to be confronted with a whole series of page numbers - or in this case site numbers - which convey no idea as to which are principal references and which are merely 'honorary' mentions. In the case of the Chough, which is not a common bird, there are 22 site references to follow up; some of these, but not all, are important for the species. To enable faster location of key sites, would it not have been simple to have put the more important ones in bold type?

You have to search through 47 sites if you want to find the best places to see a winter visiting Fieldfare, 51 for the Merlin and 28 for the Ring Ouzel. If commoner species were treated in the same way it would be ludicrous. There is an obvious weighting in favour of rarer birds. A process of selection has gone on which might have been handled better: perhaps excluding the 'everyday birds' from the main index while of course leaving their references, where appropriate, in the site descriptions. The index could then concentrate on the rarer or more 'distinctive species,' with their prime sites identified.

A general map in the prelims locates each site by number, making it easy to go quickly to a locality of choice. Each site description has a location map and a good description of the habitat with principal species noted. This includes taxa other than birds. Additional information on the best times to visit, access, parking, etc. is very useful. One map I particularly like is for site 51 - the Horseshoe Pass and World's End in Denbighshire, which actually marks on the map where Black Grouse lek and where you can see or hear Wood Warblers, Crossbills, Dippers and Ring Ouzels.

Numerous beautiful line drawings of noteworthy species decorate the pages of this altogether beautifully produced book.

Where to watch birds in Wales by David Saunders and Jon Green, 352 pages, paperback, with many maps by Brian Southern and line drawings by various artists, is published by Christopher Helm, an imprint of A&C Black (website:www.acblack.com). Price £16.99.

Dr Richard Meyer

NEWS & VIEWS

BARBETS BRED FOR THE FIRST TIME

Two Brown-breasted Barbets *Lybius melanopterus* have been bred at Waddesdon Manor aviaries, near Aylesbury, Bucks., here in the UK. The first young barbet left the nest on June 21st, followed the next day by the second. Both were well developed and only slightly smaller than their parents (which measure about 19cm (7½in) in length), with orange faces, rather than the bright red head of the adults.

It is believed to be the first time that this barbet, found on the eastern side of Africa, from southern Somalia southwards to Malawi and northern Mozambique, has been bred in the UK. Colin Scott, who recorded an incubation period of 16 days, unfortunately failed in his attempt to hand-rear a chick hatched by his pair of Brown-breasted Barbets.

* * *

HONEYEATERS RELEASED

Thanks to the efforts of seven Australian zoos which participate in the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) Captive Management Program for the threatened Regent Honeyeater *Xanthomyza phrygia*, 28 of these honeyeaters were bred for release into the wild earlier this year. Following quarantine at Taronga Zoo, during which the birds were housed in a flock and accustomed to feeding on native blossoms, they were transported to Victoria for release. Once common there in box-ironbark woodlands, their numbers suffered a serious decline due to widespread habitat loss and changes brought about by activities such as gold mining and agriculture.

* * *

AFRICAN PARROT STUDY

Meyer's or the Brown Parrot *Poicephalus meyeri* is the most widely distributed of the African parrots, being found from Sudan to South Africa. Despite this, it has never been studied and next to nothing is known about its habits in the wild, hence the need for the Meyer's Parrot Project.

In *Wingspan* Vol.18, No.2, pp.40-43, June 2008, Steve Boyes a PhD zoology student at the University of KwaZulu-Natal, South Africa, describes early findings of the study of this parrot in an area of pristine wilderness in the Okavango Delta in Botswana, southern Africa.

Of over 530 bird species that occur there, it is the only parrot. Ninety percent of breeding occurs during March-April. It waits for Burchell's Starling *Lamprotornis australis* to finish breeding before it commences nesting, thereby avoiding competition with this larger, aggressive, cavity-

nesting species. The parrot's breeding appears to be synchonised with the period when its main food sources - the Marula fruit *Sclerocarya birrea*, *Terminalia sericea* pods, Bushwillow pods *Combretum hereonse* and Mopane pods *Colophospermum mopane* - are heavily infested with insect larvae (grubs), that are thought to form a significant part of the diet during breeding.

A Large-spotted Genet *Genetta tigrina* managed to enter one pair's nest hole and ate the female and a chick, followed by two unhatched eggs. The parrots showed interest in only eight of the 105 nest boxes that were put up, and the boxes were eventually taken over by barbets, woodpeckers, tits and hornbills.

The Meyer's Parrot Project is supported by the School of Biological and Conservation Sciences, University of KwaZulu-Natal, British Ecological Society, Cape Parrot Working Group and the World Parrot Trust, whose magazine *Psittascene* (February 2008, pp.6-10) also included an account of the study and several photographs.

Volunteers are required for 2009 and donations are invited. Further information is available from Steve Boyes, Research Centre for African Parrot Conservation, University of KwaZulu-Natal, South Africa. E-mail: boyes@africaskyblue.org

* * *

OTHER LONG-LIVED STARLINGS

In a note about a visit to London Zoo in June 1943 (*Avicultural Magazine* Fifth Series, Vol.111, No.4, p.112 (July-August 1943)), Dr Emilius Hopkinson wrote that he looked up, as usual, the two Amethyst (or Violet-backed) Starlings *Cinnyricinclus leucogaster*, which he had brought to the zoo many years previously from The Gambia, West Africa. One, a female, had arrived at the zoo in 1922, the other, a male, had arrived in 1928, so they had lived there for 21 years and 15 years respectively in perfect health and plumage, though he added, perhaps the female was beginning to look a little "passé". In the following issue (No.5, p.129 (September-October 1943)), David Seth-Smith wrote that the female was believed to be the first of her kind to have arrived in the UK. Since the early days of the war, there had been no fruit available to feed the birds in the Bird House. The birds of paradise had succumbed, but the toucans, turacos and five species of hornbills had not only survived but were in "first rate condition" - presumably being fed mainly on boiled carrots and boiled potatoes. During the Blitz in 1941, part of the roof of the Bird House was demolished by an incendiary bomb. As a result of this, the last of the hummingbirds had escaped through a hole made in the aviary netting and the heating system had been put out of action for two weeks during cold weather.

HORNBILL CONFERENCE

The 5th International Hornbill Conference will take place from March 22nd-March 25th 2009 at Singapore Botanic Gardens. The theme of the conference, sponsored by the National Parks Board, Singapore and Hornbill Research Foundation, will be - Hornbills and the Challenges of the Future. There will be sessions on: Behaviour and Ecology; Research Techniques; Local, Regional and Global Threats to Hornbills; In Situ Conservation Strategies and Habitat Restoration; Outreach, Education and Community-based Conservation; and Ex Situ Conservation and the Future of Hornbills. Keynote speakers will be Prof. Dr Pilai Poonswad and Dr Alan Kemp. The conference will be followed by visits to the hornbill breeding research projects at Jurong Bird Park and the related wild site in Singapore, along with field trips to view wild hornbills in Borneo.

* * *

NEWS FROM LORO PARQUE

Earlier this year a Lear's Macaw *Anodorhynchus leari* was hand-reared. It developed magnificently and on day 41 weighed almost 718g. After a break of several years, three (Lichtenstein's Noble or) Red-shouldered Macaws *Diopsittaca nobilis cumanensis* had hatched and were being reared in the 'baby station.' A second clutch of eggs laid by the St Vincent Amazons *Amazona guildingii*, like the first, proved to be infertile. An egg from a pair of Orange-winged Amazons *A. amazonica* was added to the clutch and was hatched by the St Vincent Amazons, which reared the chick without difficulty.

A group of five young Chilean Burrowing Parrots *Cyanoliseus patagonus bloxami*, three males and two females, were placed in a communal aviary containing four nest holes. Both females were hand-reared at the Loro Parque Breeding Centre and the males were bred two years ago at another bird park. Already they had hatched three chicks that were growing well and about to become independent.

In May, Loro Parque Fundacíon biologist Rafael Zamora undertook an extensive search on Gran Canaria (one of the Canary Islands), in an attempt to establish whether the Blue Chaffinch *Fringilla teydea polatzeki* had survived last year's disasterous forest fires that had destroyed much of its habitat. He was able to report that a small population of this endemic subspecies appeared to have survived the disaster and, Rafael and his colleagues, managed to find some nests. It is hoped that the population will slowly build up again and help ensure the long-term survival of this subspecies.

CONTINENTAL INFLUENCE

Two possible UK first breedings, that of the American Goldfinch *Carduelis tristis* and the Grey-capped Social Weaver *Pseudonigrita arnaudi*, were reported in *Cage & Aviary Birds* July 31st 2008, p.3 & pp.14-15.

Stephen Abbott was unsuccessful in his attempts to breed the American Goldfinch until he visited Germany, where he found another two pairs and talked to aviculturists there who have successfully bred this species. Having observed their methods and copied them back here in the UK, he succeeded in breeding three young and is hopeful of further success.

John Robinson, who bred a total of five Grey-capped Social Weavers in 2007, put his eventual success down to the inclusion in the diet of the home-made eggfood mixture recommended by Belgian breeder Paul de Nil. Both sexes incubated the eggs, which hatched after 14 days. The young left the nest after about 20 days. John, who has also bred the Black-capped Social Weaver *P. cabanisi,* believes that rather than trying to breed them in a colony, it is best to keep just one pair per aviary, so that the breeding pair does not have to compete for livefood with the other birds in the colony.

In the absence of any previously published record of the American Goldfinch having been bred in the UK, it appeared to be the first UK breeding of the species. However, a few weeks later in the letters pages (August 14th 2008, p.7), Peter German wrote to say that several of these birds were bred by different breeders in the 1970s. Apparently, no account was published, hence no previous breeding record existed.

* * *

BREEDING INITIATIVE

Having recently obtained three pairs of Black Crakes *Amaurornis* (formerly *Limnocorax*) *flavirostris*, a species absent from the collection since the 1970s, Walsrode Birdpark in Germany has set up an initiative with Copenhagen Zoo and Antwerp Zoo, in an effort to establish several unrelated pairs and develop a long-term captive breeding plan for this attractive African crake.

* * *

SEED-EATING PIGEONS AND DOVES

Philip Schofield has volunteered to act as the contact for a Special Interest Group devoted to seed-eating pigeons and doves. He hopes shortly to have an operational e-mail address, but in the meantime can be contacted - Tel:01305 264361 - if you are interested in participating in this group. Rosemary Wiseman - e-mail:ro.wiseman@virgin.net - will continue to be the contact for fruit doves, ground doves and bleeding-hearts.

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