

BREEDING THE RED BIRD OF PARADISE AT CHESTER ZOO

by Roger Wilkinson, Wayne McLeod, Darren Langford
and Paul Morris

The Red Bird of Paradise *Paradisaea rubra* occurs only on the islands of Waigeo, Batanta, Saonek and may possibly also be found on Gemien off the north-west coast of Papua (the Indonesian governed western half of New Guinea; formerly Irian Jaya). The Red Bird of Paradise lives in lowland forest and is considered near-threatened in the wild because it has a very restricted distribution and is currently threatened by both habitat destruction and trapping (BirdLife International, 2000). Birds are trapped for their skins and from recent reports are also entering the illegal wild bird trade.

History of birds of paradise at Chester Zoo

Chester has a long history of working with birds of paradise. In May 1965 a consignment from Sir Edward Hallstrom of 29 birds of paradise of 10 different species was received at Chester Zoo. This consignment comprised of four Princess Stephanie's Astrapias *Astrapia stephaniae*, four Ribbon-tailed Astrapias *A. mayeri*, five Magnificent Birds of Paradise *Cicinnurus magnificus*, pairs of Superb Birds of Paradise *Lophorina superba*, Raggiana Birds of Paradise *P. raggiana* and Blue Birds of Paradise *P. rudolphi*, two male Carola's Parotias *Parotia carolae*, four male Lawes' Parotias *P. lawesii*, three Brown Sicklebills *Epimachus meyeri* and one Loria's Bird of Paradise *Cnemophilus loria*.

A further consignment of birds of paradise, also from Sir Edward Hallstrom, was received in December 1966. Birds then received were three Raggiana Birds of Paradise, two male Blue Birds of Paradise, pairs of Ribbon-tailed Astrapias, Lawes' Parotias, Superb Birds of Paradise and Brown Sicklebills, as well as five more Magnificent Birds of Paradise and one Carola's Parotia.

An avicultural highpoint in this period was the successful fledging of the Superb Bird of Paradise in June 1968 (Timmis, 1968, 1970). One of the female Brown Sicklebills built nests but no eggs were laid (Timmis, 1972). A male Lawes' Parotia was transferred in 1970 to Tierpark Berlin. In February 1971 four of the remaining 11 birds of the Hallstrom consignments were stolen, leaving Chester with three Lawes' Parotias and only single examples of four other species.

In 1972 Chester Zoo acquired a female Red Bird of Paradise and in 1973 received a second female Red Bird of Paradise and two Wilson's Birds of Paradise *C. respublica* from Rotterdam Zoo. One of the Wilson's Birds

of Paradise was returned to Rotterdam in 1975 in which year a male Red Bird of Paradise arrived at Chester from Rotterdam Zoo.

Whereas several of these birds had died shortly after arrival here a few survived longer. One Brown Sicklebill received in 1965 or 1966 remained in the collection until September 1973 when it was transferred to Rotterdam Zoo. By 1977 Chester Zoo no longer held any birds of paradise.

International zoo cooperation

Concerns over both the acquisition and husbandry of birds of paradise indicated that if Chester Zoo was to work again with birds of paradise then this must be as a partner with other collections in a coordinated breeding programme and that husbandry concerns first needed to be addressed.

Very few birds of paradise are kept in zoos and the *Red Bird of Paradise Studbook* and world centre for breeding this species are based at Bronx Zoo, New York. It has built a reputation for the successful and sustained propagation of several species of birds of paradise. This is because it has researched the husbandry needs in terms of diet (iron storage disease or *haemosiderosis* is known to be a problem with the Paradisaeidae), provides off-show breeding facilities dedicated to these birds and has invested in staff time and effort to work-up protocols for husbandry and rearing. It also concentrates on working with larger numbers of a few species and links this to on-site conservation support in New Guinea. It is a model to be emulated.

Preparations for receiving the Red Birds of Paradise

Preliminary discussions with Don Bruning, Chairman of Ornithology at the Bronx Zoo had established his willingness for Chester Zoo to receive captive-bred birds of paradise from New York. This was dependent on the continued successful breeding at the Bronx Zoo and on Chester Zoo's agreement to commit to work cooperatively with these birds and to provide purpose built on-show and off-show facilities.

A visit to New York in 1996 enabled Roger Wilkinson, then Curator of Birds at Chester Zoo, to see first hand the bird of paradise facilities at the Bronx Zoo. The planned demolition of Chester Zoo's old Bird House and replacement with the new Islands in Danger complex provided the opportunity to advance the possibility of featuring Red Birds of Paradise as a major exhibit in this new complex and developing the additional off-show back-up breeding area.

Discussions between Mark Pilgrim who was responsible for the new development at Chester and Kurt Hundgen who was responsible for the care of birds of paradise at the Bronx Zoo enabled the design of Chester's on-show and off-show facilities to benefit from the experience gained at the Bronx Zoo. The off-show area includes five interconnecting aviaries and



Roger Wilkinson

**Red Bird of Paradise male, September 2002, at five years of age,
still lacking red flank plumes.**



Roger Wilkinson

Female feeding one of the chicks ca. four weeks of age.



Roger Wilkinson

Chick ca. four weeks of age.



Roger Wilkinson

Two chicks together ca. four weeks of age.

has its own kitchen. The on-show facility in Islands in Danger was also designed as a breeding facility and has three adjoining areas providing the possibility of holding two males and a breeding female. Chester Zoo joined the Bird of Paradise Species Interest Committee (BOPSIC) with the intention of continuing international cooperation with other members.

Arrival of Red Birds of Paradise

In May 1999, Chester Zoo received its current pair of Red Birds of Paradise on breeding loan from the Bronx Zoo. Both birds were bred there, the male in February 1998 and the female in May 1998. Wayne McLeod and Darren Langford travelled to New York where they gained experience by working with the bird staff at the Bronx Zoo before accompanying the birds of paradise on their journey to Chester. Both birds settled in well in the off-show facilities and in April 2000 were transferred to their present aviaries in the Islands in Danger exhibit complex.

Husbandry and aviary accommodation

The Islands in Danger complex was built in 1999-2000 on what had been the site of the Temperate Bird House following the demolition of the latter. This indoor exhibit was specifically designed to hold birds and reptiles from tropical islands and to include interpretation materials explaining why many of these forms are now endangered.

The site includes large display and off-show areas for Komodo Dragons *Varanus komodoensis*, a series of large aviaries housing the Red Birds of Paradise and other birds from New Guinea and a large aviary holding St Lucia Parrots *Amazona versicolor*.

The New Guinea section includes three adjoining aviaries specifically designed to hold the Red Birds of Paradise and a fourth larger mixed species aviary that accommodates a range of birds including Victoria Crowned Pigeons *Goura victoria*, White-naped Pheasant Pigeons *Otidiphaps nobilis aruensis*, Golden-heart Pigeons *Gallicolumba rufigula*, Papuan Lorikeets *Charmosyna papou* and White-collared Kingfishers *Halcyon chloris*.

The building is maintained at a minimum temperature of 20°C (68°F). The temperature in this naturally well lit area may increase in the summer months and fans can be utilised to prevent it becoming overheated. The aviaries are well planted with a range of tropical species and misters ensure that humidity is maintained for plant growth. The three aviaries for the birds of paradise reach up to 4.4m (approx. 14ft) high and together occupy an area of ca. 100sq m (approx. 1,000sq ft). Although all three areas are available for the birds of paradise, during the breeding reported below only two of these areas were occupied by them. The birds of paradise are highly intelligent and most inquisitive and we soon learnt that our planting scheme

needed to accommodate this. The beautiful flowering orchids that initially graced these aviaries proved irresistible to their attentions and the flowers were soon individually demolished petal by petal.

The pair later shared its accommodation with a pair of Green-naped Pheasant Pigeons *O. nobilis* but this arrangement was changed after the birds of paradise were found to be responsible for destroying the eggs of the ground nesting pheasant pigeons.

The Red Birds Paradise at Chester Zoo are fed a diet of fruit (chopped apple, pear, banana and whole blueberries) dusted with Zeigler's low iron bird of paradise pellets. Because of concern that birds of paradise in captivity have a propensity for being affected by iron storage disease, foods such as oranges, tomatoes and sultanas that are rich in Vitamin C are not fed to them because of concern that these may result in increased iron uptake.

Breeding of Red Bird of Paradise

Birds of paradise take many years to attain full breeding plumage and the male at Chester Zoo, which at the time of breeding was just over five years of age, had only recently acquired tail streamers and otherwise remained in immature plumage. The male and female which up until then had been living together were separated at the beginning of March 2003, as it is known that males may interfere with breeding attempts by destroying nests built by females. The female was later observed nest building after which she was allowed short daily visits April 10th-April 14th to join the male in his quarters before returning afterwards to her own breeding aviary. The female initially placed twigs on the top of a horizontal log just under 1m (approx. 3ft) from the ground, before finally choosing a wall-mounted partially open-fronted box at a height of ca. 3m (approx. 9ft 9in) above the ground. The box measured ca. 20cm long x 18cm wide x 18cm high (approx. 8in long x 7in wide x 7in high) with the front open above the 7cm (2½in) high lip. The female filled this with dry palm leaves and stripped palm fibres.

Two eggs were laid, the first on April 15th and the second two days later. Notwithstanding his lack of breeding plumage our male proved his fertility when the first chick hatched May 1st and the second chick hatched one or two days later. The female reared the chicks on a diet of insects (mainly waxworms and locusts) and fruit, being especially partial to blueberries. Both chicks fledged May 18th. Although both continued to be fed and cared for by their mother one of the two chicks was found dead on June 7th when five weeks of age. Post mortem failed to reveal a cause of death. The second chick thrived and was still being fed by its mother on July 20th. On August 3rd the youngster was seen feeding itself on blueberries. Over the incubation, nestling and fledgling periods, although in visual contact, the female and chick(s), had remained physically isolated from the breeding

male. September 21st, the doors between the female's enclosure and the male's enclosure were opened for two hours to allow supervised interaction between the male, female and youngster. The male showed much excitement on being allowed access to the female's enclosure and although initially some quarrelling between the adults was observed there was no serious aggression. The male later returned to his own enclosure and free access was again permitted the following day. With no negative interaction between the male and juvenile and it being thought that because of its large size it might be a male, it was decided to house this bird with the breeding male, leaving the female on her own in preparation for a second breeding attempt.

Discussion

Birds of paradise take many years to attain full breeding plumage and the male at Chester, which at the time of first breeding was just over five years of age and had only recently acquired tail streamers and otherwise remained in an immature plumage. The male and female which up until prior to the breeding had been living together were separated at the beginning of March 2003, as it is known that males may interfere with breeding attempts by destroying nests built by females. The female was observed nest building and then allowed short daily visits April 10th-April 14th to join the male in his quarters and returned afterwards to her own breeding aviary. She laid two eggs, the first on April 15th and the second two days later. Notwithstanding his lack of breeding plumage our male proved his fertility when the first chick hatched on May 1st and the second chick hatched one or two days later. The female reared the chicks on a diet of insects (mainly waxworm larvae and locusts) and fruit, being especially partial to blueberries. Both chicks fledged May 18th and although soon able to fly both were fed and cared for by their mother for a protracted period.

This breeding was especially significant in that it is the first time that the Red Bird of Paradise has been bred in the UK. It is also unusual and very satisfying in that the female, with no previous experience of hatching and rearing chicks, successfully fledged two young on her first breeding attempt and that one of these was reared to independence. We of course hope that this was the first of many breedings of this important and most attractive species at Chester Zoo.

Acknowledgements

The breeding of the Red Bird of Paradise was the culmination of many years of planning by staff at Chester Zoo and the fulfillment of a personal dream to work with these most charismatic birds. Thanks are especially due to Don Bruning and Kurt Hundgen of the Bronx Zoo for agreeing to and facilitating Chester Zoo's participation in the international breeding

programmes for this bird of paradise. Special credit must be given to the bird keeping staff and curatorial team at Chester for planning and providing the conditions in which this successful breeding occurred.

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COLLATED DATA ON THE BROWN TWINSPOOT

Clytospiza monteiri

by Neville Brickell

The Brown Twinspot has the alternative name of Monteiro's Twinspot, though the latter name is rarely if ever used these days. Joachim João Monteiro (1833-1878) was a Portuguese mining engineer who collected natural history specimens in Angola from 1860-1875 (Beolens and Watkins, 2003).

Description

Length approximately 10cm-13cm (4in-5in). Adult male: head and sides of neck slate grey; nape, mantle, back and wings dark brown; rump and upper tail-coverts reddish orange; tail blackish brown. Chin and upper throat grey, with a triangular red spot in the centre of lower throat; breast, belly and remainder of underparts chestnut brown, spotted and barred with white. Eyes red-brown or dark red; eyelids pale blue. Bill black with blue base; legs and feet red-brown. Adult female: lacks red on the throat, instead the female has a whitish median stripe. Juvenile: similar to adult female but with greyish throat and warmer brown unspotted underparts; rump and upper tail-coverts pale red. Young males appear to have the grey of the head and the chestnut of the breast somewhat darker than young females according to Neff (1975), and apparently corroborated by differences in unsexed juveniles in British Museum collection. Nestling: three-day old nestlings have been recorded as having dark skin and quite profuse pale down. Their mouth markings consist of five black spots on a yellow palate, with a black band, narrowing centrally, across the flesh-coloured tongue and a black crescent inside the lower mandible. The swollen bilobed gape flanges were described as white by Neff (1975), who included good photographs of nestlings and a juvenile in his 1977 paper.

Distribution and status

South-eastern Nigeria, Cameroon, southern Chad, Central African Republic, south-west Sudan, Uganda and western Kenya, also northern and central Democratic Republic of Congo (Zaire), Congo, southern Gabon and north-west Angola. Generally uncommon but in some places locally common. In pairs or small family groups.

Habitat, feeding and general habits

Favours moist thickets, tall grass, undergrowth (lantana) and overgrown cultivation. Described as nervous and shy and therefore keeping close to



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