

Aviculture at Tulsa Zoo

PART II – EVOLVING TOWARDS A MODERN COLLECTION

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Part I – Presented in AFA Watchbird XL, Number 4



As of 1 October, 2014, there were 361 birds of 113 species (representing 50 families) at Tulsa Zoo.

The first inventory of the Tulsa Zoo bird collection I have been able to locate documents that on Christmas day, 1969, 281 birds of 67 forms (representing 20 families) were present (Tulsa Zoological Society, 1970). Sixty-three were domestic ducks and 27 were domestic geese. The anatid collection otherwise consisted of ten Mute Swans, one Black-bellied Whistling Duck, two Mandarin Ducks and eight Wood ducks. On the other hand, psittacines were comparatively well represented, with 62 specimens of nineteen taxa. Twenty-two of them were Budgies, but there were also fourteen amazons of seven taxa (including six Yellow-napes). There were twelve taxa of falconiform birds of prey, represented by 19 specimens.

While the only non-passeriform softbill on Christmas Day, 1969 was a Cuvier's Toucan (*Ramphastos tucanus cuvieri*) (then widespread in US zoos, in those days before Newcastle's quarantines and Ecuador's export restrictions), there were 22 passerines of nine taxa. As might be expected twelve were estrildid finches of four species, and the most well-represented taxon was the Hill Mynah, with six specimens. Almost every zoo and zoo-related collection had Hill Mynahs back then, and they could be seen in practically every pet shop. No concerted effort was made to breed them, however, and when commercial imports ended in 1997, following its listing on CITES Appendix II, this species soon reached its current level of scarcity in US zoos. (As of October, 2014, only four US zoos holding Hill Mynahs were listed by the ZIMS inventory system.)

On June 30, 1979, there were 69 taxa of birds, only three more than December 25, 1969, and with the transfer from the collection of the Budgies and domestic waterfowl, among others, the number of specimens had decreased to 230. The number of psittacine species had dropped from nineteen to six. However, the representation of families had grown from 20 to 35 (Tulsa Park and Recreation Department, 1979), including mousebirds, frogmouths, seriemas, tinamous, woodpeckers, lapwings, and other birds not exhibited before the late '70's at Tulsa Zoo. This very much reflects the trend across the US, as zoos responded to the challenge of the sudden restriction of foreign bird availability as a result of the 1972 Exotic Newcastle's Disease quarantine requirements, with an unprecedented effort to create populations of captive-bred birds that had hardly ever been propagated in American zoos before.

This male Summer Tanager continues Tulsa Zoo's long tradition of exhibiting North American Songbirds. In the collection since September, 2007, it was formerly displayed in the Eastern Forest building of what was then the North American Living Museum. Today it resides in the WildLIFE Trek's Life in the Desert building. Aaron Goodwin Photo

From my perusal of Tulsa Zoo's computerized records, I found the entire avian propagation for 1969 was two Ring-necked Doves (*Streptopelia capicola*) (which I suppose were Barbary Doves [*Streptopelia risoria*]). In 1970, eight doves were hatched. In 1971 two Ring-necked Doves, one white Barbary Dove and five ostriches hatched. In 1972, the year the Newcastle's import ban went into effect, the total was one white Barbary Dove.

From 1973 through 1978, no more than four species were hatched in a given year, and the total number of species hatched in that six year interval was eight. This figure did include three Victoria Crowned Pigeons (from a pair purchased from the legendary California aviculturist J.W. Steinbeck in 1973), eight Peach-faced Lovebirds, four Military Macaws, sixteen Barn Owls (seven released to the wild), and ten Gouldian Finches.

In 1979 nine species of birds were bred that year alone. That figure jumped to fourteen in 1980. In 1981, it reached seventeen, which has so far remained Tulsa Zoo's all time high for the number of species hatched here in one year (Table I).

Two of the species that stand out for numbers hatched in 1981 were inhabitants of the Southwestern Desert, one of the four buildings that made up the Robert J. LaFortune North American Living Museum (Zucconi, 1979, Zucconi & Nicholson, 1981). From its opening in 1978 until its remodeling and re-dedication as the Robert J. LaFortune WildLIFE Trek in 2013, this award-winning exhibit housed a remarkable collection of North American animals, and achieved an impressive record for propagating native birds.

The 31 Gambel's Quail hatched in 1981 made that Tulsa Zoo's second most prolific year for that bird. Thirty-two hatched in 1980. (There had been a single hatching in 1979, the first at the Zoo. Its parents were among eleven purchased from the late, great Bernie Roer in 1978). In all, 116 Gambel's Quail hatched in the Southwestern Desert, making this species the most prolific of the ninety taxa of birds hatched at Tulsa Zoo since systematic records-keeping commenced in 1969. The last Gambel's hatchings were in 2004.

It should surprise no one that the second and third most prolific species at Tulsa Zoo (since systematic breeding record-keeping commenced in 1969) were Blue Peafowl (72 hatched from 1973 through 2012) and domestic Helmeted Guineafowl (54 hatched from 1980 through 1993).

However, the 46 Roadrunners that hatched at Tulsa from 1979 through 1981 (which with four more hatched in 1993 put this species in fourth place, with 50) surprised everyone (Kawata, 1980). There were two breeding pairs, made up of a wild-caught male from the Phoenix Zoo, received in 1978, a wild-caught male from the Las Vegas Valley Zoo, which also arrived in 1978, and two females hatched at the Riverbanks Zoo in Columbia, South Carolina, in 1978, which came to Tulsa in 1979. Initially all four were placed in the lofty sun-filled atrium of the Southwestern Desert building, but the males immediately fought each other, so one pair was set up elsewhere in the zoo (Osten, 1980b). The pair remaining in the Desert promptly went to nest, producing all five chicks hatched in 1979. Between both pairs, 29 hatched in 1980. The Desert pair did an excellent job of raising one brood of chicks after another, but the other pair's needed to be hand-raised (Osten, 1980b). Everything came to an end in 1981 when the Desert male from Las Vegas was killed by a falling cactus, and the other male from Phoenix was euthanized for reasons not recorded in the computerized records, but not before twelve chicks hatched.

Of course, as one would imagine for a soft-billed bird, not all these Roadrunner chicks survived to independence, but out of the 46 birds hatched from 1979 to 1981, 33 were sent all over the country: Three to Akron, Ohio; one to the Ross Park Zoo, in Binghampton, New York; two to Zoo America, in Hershey, Pennsylvania; three to Kansas City, Missouri; two to Montgomery, Alabama; six to Audubon Zoo, New Orleans; one to Philadelphia; five to Pittsburgh Zoo, two to Sacramento, California, and eight to San Diego Zoo (from where, I believe, some were sent around the world).

Over the 34 years when what is now WildLIFE Trek existed as the North American Living Museum, remarkable species were show cased there. For most of its history, Pileated Woodpeckers were exhibited in the Museum's Eastern Forest building. The first two were collected from the nest along the Grand River in Oklahoma and hand-reared (Osten, 1980a). One lived ten



Forty-six Roadrunners hatched in three years shortly after the opening of the North American Living Museum's Southwestern Desert complex. TZMI Archives

years and the other nine. Two subsequent birds lived over five years. Other rarely displayed North American birds included American Anhinga, American Golden Plover, Yellow-billed Cuckoo, Eastern Wood Peewee, Great Crested Flycatcher, Purple Martin, Nashville Warbler, American Tree Sparrow, and Black-throated Sparrow.

None of the species listed in the previous paragraph bred. However, among the seventeen species of birds that were propagated in the North American Living Museum over those 34 years, several are of exceptional avicultural interest. In the Arctic Tundra Building, seven Snowy Owls hatched from 1994 through 1997, and three more were hatched there in 2003. Eleven Screech Owls hatched in a glass-fronted display in the Southwestern Desert from 1988 through 1992, followed by eleven Elf Owls (*Micrathene whitneyi*), from 1994 through 2003. Tulsa Zoo-bred Elf Owls went to the North Carolina Zoo, the Gulf Breeze Zoo, in Florida, and Kay McKeever's Owl Foundation in Ontario. "Buddha", hatched in 2003, was a popular outreach animal at Tulsa Zoo's Education Department until its death in 2013. A Cactus Wren hatched in the Desert in 1995 and was sent to the National Zoological Park in 1996. Of the Seventeen Curve-billed Thrashers hatched there from 2002 through 2004, two went to the North Carolina Zoo and one to the Brookfield Zoo. White-winged Doves also reproduced in the Desert, eleven hatching from 2002 through 2008.

Table 1. Birds hatched at Tulsa Zoo in 1981

Ostrich	<i>Struthio camelus</i>	2	Helmeted Guineafowl		Greater Roadrunner			
Fulvous Whistling Duck			<i>Numida meleagris</i>	20	<i>Geococcyx californianus</i>	12		
<i>Dendrocygna bicolor</i>		5	Gambel's Quail	<i>Callipepla gambelli</i>	31	Tawny Frogmouth		
Canada Goose	<i>Branta canadensis</i>	1	Blue Peafowl	<i>Pavo cristatus</i>	8	<i>Podargus strigoides</i>	2	
Lesser Snow Goose and Blue Goose			Crested Seriamia	<i>Cariama cristata</i>	1	Speckled Mousebird	<i>Colius striatus</i>	7
<i>Anser caerulescens caerulescens</i>		1	Victoria Crowned Pigeon			Superb Starling		
Mute Swan	<i>Cygnus olor</i>	2	<i>Goura victoria</i>		1	<i>Lamprotornis superbus</i>		13
Trumpeter Swan	<i>Cygnus buccinator</i>	1	Western Rosella	<i>Platycercus icterotis</i>	3	Orangequit	<i>Euneornis campestris</i>	24

In the Museum's Southern Lowlands Building, Fulvous Whistling Ducks hatched every year from 1979 through 1982. While this species has a tendency to proliferate in captivity (Lindholm, 1993b), it is significant that at least some of the 34 resulting ducklings were parent-raised in this building's large, entirely indoor, mixed species walk-through aviary (Anon. 1982). Fourteen Common Moorhens or Gallinules (*Gallinula chloropus cachinnans*) hatched there between 1982 and 1983, as well as five White Ibis, two in 1986 and three in 1989.

Unfortunately, the Zoo's computerized records do not document the Eastern Red-shouldered Hawk which hatched in an outdoor aviary outside the Museum's Eastern Forest Building in the spring of 1980 (Pam Osten Young, pers. com.). I did find a brief published mention (Anon. 1980). On the other hand, the records do document the hatchings of a variety of birds in the towering, open-fronted Forest Bird exhibit inside that building. Thirteen Eastern Bobwhites hatched from eggs laid there in 1979. Four Eastern Bluebirds hatched in 1986, followed by another eight from 1988 through 1990. From 1992 through 1996, fourteen American Robins hatched in the Forest. Three Northern Cardinals hatched in 1996. If not ecologically correct for an "Eastern Forest" exhibit, the last hatching to occur there before the building was remodeled was also the most remarkable. Three Scissor-tailed Flycatchers (*Tyrannus forficatus*), the State Bird of Oklahoma, were hatched in July, 2010. Two of them were parent-raised to independence, the first full successes for this species (which has otherwise only been propagated at the Oklahoma City Zoo) (Hickman, 2014). One of these offspring now lives at the National Aviary in Pittsburgh. Following the remodeling of the "Eastern Forest" building, and their transfer to a much smaller aviary in the Conservation Center bird wing, the pair nested twice in 2012, hatching a chick in each clutch.

On January 1, 2012, there were 67 species of birds at Tulsa Zoo. There were just four Asian species and six species from Africa and Madagascar. North America was represented by 34 species. Of the 113 bird species present October 1, 2014, nineteen were Asian, 28 were from Africa and Madagascar, and 28 were North American.

The decision to internationalize the exhibits in the Robert J. LaFortune North American Living Museum and reinterpret it as the Robert J. LaFortune WildLIFE Trek was arrived at in 2012. The Arctic Tundra, the Southwestern Desert, the Eastern Forest, and Southern Lowlands are now Life in the Cold, Life in the Desert, Life in the Forest, and Life in the Water. This has given Tulsa Zoo staff the opportunity to work with avicultural treasures never kept there before: African Pygmy Geese, Siberian Cranes, Madagascar Button Quail, Four-banded Sandgrouse, White-breasted Woodswallow, and Fawn-breasted Bowerbird, among others. As noted previously, seventeen species of birds were bred over the 34 years of the North American Living Museum. Less than two years after the unveiling of WildLIFE Trek in the spring of 2013, eight species have already been propagated: One Namaqua (or Cape) Dove, One White-eared Bulbul (*Pycnonotus leucotis*), seven Hwameis (or Melodius Laughing Thrushes) (*Garrulax canorus*), thirty Red-billed Firefinches (*Lagonsticta senegala*), one Blue-capped Cordon Bleu, nine White-rumped Parson Finches (*Poephila cincta cincta*), two Indian Silverbills (*Lonchura malabarica*), and three Gray Singing Finches.

North American birds have by no means disappeared from WildLIFE Trek. Five Bald Eagles, all received by the zoo with injuries that rendered them nonreleasable, exhibited together outside Life in the Forest, remain favorites with visitors. Trumpeter Swans (of which 24 hatched at Tulsa from 1981 through 1995) grace a lake viewed from the boardwalks connecting three of the



Elf Owls (*Microthene whitneyi*) have always been rarities in zoos. Tulsa Zoo hatched eleven in the Southwestern Desert section of the North American Living Museum, from 1994 through 2003. TZMI Archives

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Seventeen Curve-billed Thrashers hatched in Tulsa Zoo's Southwestern Desert from 2002 through 2004. TZMI Archives

four buildings. A Royal Tern, received from the Texas State Aquarium's rehabilitation center in November, 2012, stands out in Life in the Water. A male Summer Tanager, in the collection since 17 September, 2007, is a rival for redness with the eighteen male Red-billed Firefinches that create a spectacle in Life in the Desert. (There are also ten females, making a total of 28 firefinches in this aviary. All but five

hatched in it.) And in Life in the Cold, Snowy Owls occupy a large, glass-fronted indoor exhibit that has showcased their species since that building opened as the Arctic Tundra in 1978.

The male of the current pair of Snowy Owls hatched at San Francisco Zoo January 26, 1999 and came to Tulsa from the Bronx Zoo February 26, 2009. The female was imported on December 12, 2011, from the Ontario Specialized Species Centre, where it hatched January 23, 2011. They actually continue an unbroken tradition of exhibiting Snowy Owls at Tulsa, extending back to July 29, 1970, when two females arrived from the Brookfield Zoo in Chicago. They were joined by a male and female, both four months old, hatched at the Zurich Zoo (which had a very successful breeding program for years) on October 3, 1970. In those days before Newcastle's disease restrictions, CITES, and explicit shipping regulations, importing birds from Switzerland was a far less complicated procedure than it would be today. An exhibit especially designed for them in the 1957 Primate/Aviary Building (today's Dave Zucconi Conservation Center) presented the illusion of windblown snow, rocks, and a frozen-over stream in front of black walls, produced to give the impression of the darkness of an Arctic sky during the six-month night (Fearon, 1970). (I find it interesting to note that Tulsa Zoo's last seventeen Budgies [purchased with funds from a 1961 bond issue] had been sold to a local person on June 19, 1970).

The arrival of Snowy Owls, and the creation of a museum diorama-like exhibit for them was an early achievement of David Zucconi, who assumed his duties as Zoo Director in August 1, 1969, retiring in 1998. His previous work had been with the Milwaukee and Staten Island Zoos, both rather early pioneers in expanding the definitions of zoo animal collections. The North American Living Museum, with its startling range of creatures, from blind crayfish and lampreys, to Pallid Bats and Polar Bears, was very much a manifestation of his vision that zoos should convey biodiversity in the context of ecology, anthropology, evolutionary biology and

other sciences. The Tropical American Rainforest opened shortly before his retirement, also expressed this philosophy, presenting fishes, amphibians, reptiles, mammals, birds, and invertebrates in exuberant juxtapositions. The conversion of the Tulsa Zoo bird collection from one heavy with psittacines to one that far more strongly conveyed taxonomic diversity within the first decade of his tenure is also entirely in keeping with this goal. The showcasing of Snowy Owls less than a year after his arrival was an important first step, emphasized by the adaptation of this species as Tulsa Zoo's official emblem in October, 1970, coinciding with the arrival of the pair from Zurich (Kawata et al, 1978). For most of the 1970's, Tulsa Zoo's keeper's uniforms were distinguished by a patch featuring a spread-winged female Snowy Owl perched on the pages of an open book, "symbolic of modern zoo philosophy: The presentation of animals and exhibits for educational, as well as recreational value" (Anon, 1971).

David Zucconi was also firmly committed to zoos as conservation centers, propagating conservation-significant species and exploring the frontiers of captive breeding. Documentation was essential to this. The year of his arrival saw the establishment of the records system in use today, and the publication of an annual report containing the afore-mentioned inventory for Christmas, 1969.

Animal Management was further facilitated with the appointment of Tulsa Zoo's first General Curator on November 1, 1975. Having arrived from Japan in 1968, Ken Kawata had already worked at Topeka and Indianapolis, and following his departure from Tulsa in 1981, would serve as General Curator at Milwaukee, the Belle Isle Zoo in Detroit, and Staten Island, from where he retired in 2007. Ken remains an ardent and energetic zoo enthusiast. Upon his arrival in Tulsa, he described himself thusly: "Zoos form a small world in themselves, and I often feel I am a citizen of the zoo world. To me, writing a technical paper once a year is something like renewal of citizenship" (Anon, 1976).

Literally, just before the commencement of his duties at Tulsa, on October 31, 1975, Ken submitted a paper to the International Zoo Yearbook ("The Zoo Man's Bible", as Ken called it) on a



Hatched in 1977 in Mickey Olson's aviaries, "Ward", a Crested Seriemma, arrived at Tulsa Zoo in 1979 (not long before this picture was taken) and remains a popular member of the bird collection today. He sired eight chicks at Tulsa Zoo. TZMI Archives

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final accomplishment at Indianapolis: The parent-rearing of three Nanday Conures in an aviary that contained a mixed collection of small psittacines (Kawata, et al, 1977). Shortly after his arrival at Tulsa, Ken recognized a similar situation in the making, but on a larger and more formidable scale. Tulsa Zoo's psittacine collection was still sizable in late 1975: Thirty-two specimens of seventeen taxa. This included nine amazons of six taxa and ten macaws of three species (City of Tulsa, 1976). The latter included two Military Macaws from the "Shriner's Circus at Tulsa", donated in 1963. Ken tells me, "When I got to Tulsa the Military Macaws were in the large mixed species exhibit (inside cage) with other parrots... It was obvious that the two were bonded, but they couldn't have the privacy and isolation to be able to nest. The only option left for me was an outside cage, a bit too large but a secure environment for the pair." There were many misgivings on part of the keepers and administration as to how they would fare through the winter. Though Joseph Forshaw's Parrots of the World had only recently been published (and was only available in its sumptuous pre-TFH edition) Ken knew from its pages that Militaries are not really tropical birds, and was confident they'd be fine. He put up heat lamps to reassure people—the macaws never sat under them. And "of course no metal perches...that much I knew".


Each year from 1977 through 1979, when the female died late that year from hepatitis, that Military pair produced two chicks in their outdoor unit. The male was sent to Ohio, to the Cleveland Metroparks Zoo, where it sired at least seventeen chicks through 1991. There may have been more, as our records indicate those seventeen to be property of Tulsa Zoo. Those Cleveland-hatched chicks were sent out in exchange. Three of them, along with their father, were exchanged for a collection of exotic waterfowl from Arkansas in 1991. Another four were in partial exchange to the International Animal Exchange for Polar Bears from Moscow.

This pair of macaws took their place in a long tradition of macaw propagation at Tulsa Zoo, commencing with the hand-rearing of a Scarlet Macaw in 1948 (Kawata, et al, 1978, 28, Lindholm, 2013) and subsequent years (Blaine Davis, pers com), followed by the rearing of Scarlet and Hyacinth Macaws at the end of the 1990's, and continuing in recent years with the parent-raising of Red-fronted Macaws.

Ken Kawata's Curatorial duties covered the entire animal collection, and as the 1978 opening of the North American Living Museum approached, that exhibit demanded his attention. (Ken told me one of his hardest jobs was locating healthy Jack Rabbits that would thrive in a zoo environment.) Thus, and especially in light of Tulsa Zoo's current work with estrildid finches, I was most interested to see that the November, 1976 donation of Strawberry, Shaft-tailed, and Cut-throat Finches by Joe Bedwell, a Tulsa high school teacher and aviculturist, prompted plans to "breed these species in off-exhibit breeding units, and later exhibit their offspring in the finch exhibit of the main building" (Anon, 1977). As it happened, these birds did not produce offspring, but impressive achievements with passerine birds at Tulsa were not to be far off.

In November, 1978, David Zucconi and Ken Kawata further enhanced management of the zoo's bird collection by appointing a Bird Supervisor, a Curator of Birds for all practical purposes (and officially so by 1980). The results were immediate. As I had previously mentioned, 1979 was the first documented year when more than four species were propagated, and 1981 remains the year in which the most species were bred at Tulsa Zoo (Table 1). Ken Kawata (1981) observed: "Between August, 1980 and August, 1981, roughly 35 percent of the bird species in the collection reproduced, which is a remarkable achievement". That bird collection was by then profoundly different from the one in 1977.

Pam Osten (Young) had managed to work at two zoos at the same time before coming to Tulsa. She was a full time employee of the Lincoln Park Zoo in Downtown Chicago and held a part-time job at the Chicago Zoological Park at Brookfield. Both these zoos were already major roll-players in the revolution in bird propagation, transforming zoo aviculture across the country. Pam wasted no time before effecting transformation in the Tulsa bird collection. Little more than half a year after her arrival, Ken Kawata commented in a mid-year report: "An assortment of rather unusual new birds is on exhibit in the bird wing of the Main Building...all adding a new dimension to our collection" (Kawata 1979).



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An exhibit especially for Pileated Woodpeckers was a spectacular feature of the Eastern Forest section of the North American Living Museum." TZMI Archive Photo

One of her first acquisitions, arriving February 5, 1979, were two Crested Seriamas hatched at Micky Olson's (then still private) collection in Arizona. Along with Tulsa's only documented tinamous (six Brushland) they came in exchange for two Scarlet Macaws that Hugh Davis, Tulsa's Director from 1932 to 1966, had collected in Nicaragua in 1963. The tinamous never bred and were all gone by 1983. (Brushland Tinamous (*Nothoprocta cinerascens*) were the most common sort of tinamous in US zoos at the end of the 1970's but disappeared from US aviculture years ago.) The pair of Seriamas, on the other hand, produced eight chicks from 1980 through 1989. Four US collections received Tulsa offspring. "June", the female, died June 22, 2004. "Ward", the male, gives every indication of good health at the age of 37, having hatched in Arizona May 1, 1977.

While the ongoing propagation of Bali Mynahs at Tulsa Zoo commenced in 2011, the Zoo's first specimens, hatched at the Bronx Zoo, arrived Christmas Day, 1979. Bronx Zoo-bred Peking Robins, received in May, 1979, and paired with imported birds received from California the next month, likewise never bred, but a pair of Bronx-hatched Tawny Frogmouths that arrived (appropriately) just before Halloween, 1979 produced chicks in 1980 and 1981. Tawny Frogmouths have been maintained at Tulsa Zoo ever since. "Boomer", who hatched at Los Angeles Zoo September 28, 1979, came to Tulsa from Tacoma February 11, 1987, and died here August 2, 2014, was an especially popular member of the bird collection.

A pair of Western Rosellas (*Platycercus icterotis*), never common in US zoos, arrived from the Riverbanks Zoo in 1979 and hatched five chicks between 1981 and 1982, of which two each went to Tyler's Caldwell Zoo, and Busch Gardens, in Tampa. A pair of Spur-winged Plovers (*Vanellus spinosus*) that arrived on loan from Lincoln Park Zoo, a month ahead of Pam Osten, in October, 1978, hatched five chicks in 1980. Three went to the Fort Worth Zoo and two were sent to the International Animal Exchange, from which Tulsa zoo received its very first turacos, in 1980. They were Hartlaub's, a species widespread in US zoos in the early 1980's, but almost gone today. One hatched at Tulsa in 1983.

The Michigan-based International Animal Exchange, which has had a profound influence on the animal collections of America's zoos, is owned by the Hunt family. It was pointed out long ago "as either an interesting coincidence or a more deliberate affectation" (Livingston, 1974) that two of America's leading animal importers were named Hunt and Chase. The late Bill Chase, whose Charles P. Chase Company was based in Miami, was the source of Tulsa Zoo's first documented storks. These were three Marabous for the Zoo's African Savanna. As with the goblin-like Tawny Frogmouths, it is appropriate that these somewhat ghoulish carrion-eaters should have arrived several days before Halloween, 1979.

In contrast to the well-established firms of Hunt and Chase, Gail Worth's Aves International had only been in business a few years when she startled the American Zoo Community, starved for small softbills since the 1972 Newcastle's ban, by importing marvelous collections of hummingbirds and tanagers. Uniquely, for a brief time, the Government of Jamaica allowed her to export several species. Red-billed Streamertail Hummingbirds appeared suddenly at the Bronx, Philadelphia, Houston, and Brookfield Zoos. Another Jamaican endemic she imported put Tulsa Zoo on the avicultural map.

The Orangequit (*Euneornis campestris*) is the only member of its uniquely Jamaican genus, which, while recognized as belonging in the Tanager family, remained enigmatic as to exact relationship, but is now considered a fairly close relative of the Galapagos Finches, the Cuban Melodious Finch, and the Bananaquit. At any rate, the ones Gail imported in 1979 were, to my knowledge, the first anyone had seen in US aviculture. Tulsa zoo purchased six males and two females (at least one of the immature males "masquerading" as a female at arrival) which arrived at Tulsa January 31, 1980. Pam Osten (1982) published a richly detailed account of subsequent events. In summary, nest building was first observed May 30, eggs were discovered June 2, and a chick discovered June 18, 1980—A world first captive breeding. A second breeding pair shortly followed suit, and the first second generation hatching occurred in April, 1982, after a pair formed from a group of offspring from both wild-caught pairs placed in an aviary. By May, 1982, the two wild caught pairs had produced between them eleven clutches from which 32 chicks hatched

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(Osten, 1982). Through 1984, the last year Orangequits hatched at Tulsa, a total of 43 had hatched there: Five in 1980, 24 in 1981, ten in 1982, and four in 1984. Astoundingly, only two of these died at less than one month of age.

Tulsa Zoo-bred Orangequits were sent to six collections: One to Denver, two each to New Orleans and Topeka, three each to Lincoln Park and Toledo, and Six to the National Aviary at Pittsburgh, where one lived until 1989. Hatchings occurred at Denver in 1982, Pittsburgh in 1982 and 1983, and Toledo in 1984. Although Tulsa Zoo records indicate no birds sent to Dallas, I have reason to believe the sixteen hatched at Dallas Zoo from 1986 through 1988 hatched there also. Pam Osten became Curator of birds at Toledo Zoo in 1982. The Orangequits sent from Tulsa to Toledo went there in 1983. Some years later Pam became Curator of birds at Dallas. Dallas was already hatching Orangequits before her arrival there, but when I visited her there in 1989, there were several pairs set up. ISIS indicates at least one still at Dallas Zoo at the close of the 20th century.

I have written in much detail elsewhere about the sudden and enormous surge in soft-billed bird propagation that erupted in the 1970's and 80's (Lindholm, 2005a&b). Along with Tulsa's groundbreaking work with Roadrunners and Orangequits, Pam also plunged Tulsa Zoo into the thick of propagation of two species undergoing a phenomenal population explosion at the time: The Speckled Mousebird and the Superb Starling. From three St. Louis Zoo-hatched mousebirds (confusingly on loan from the Lincoln Park Zoo) which arrived in 1979, (Anon., 1979) 28 were hatched at Tulsa from 1980 through 1985. Also, from a Lincoln Park-hatched Superb Starling paired with one from the International Animal Exchange (so perhaps imported), 27 were hatched from 1980 through 1982. For both species this was simply a microcosm of their status in American zoo aviculture as a whole.

From the breeding records of the International Zoo Yearbook (Zoological Society of London, 1960–1998) one finds that in the period 1959 through 1976, the only US zoos breeding Speckled Mousebirds were the San Diego Zoo, which hatched at least ten from 1962 through 1966, and the

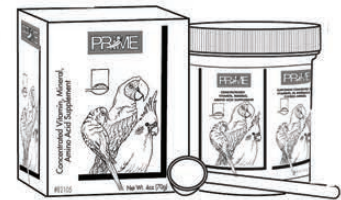
The Orangequit (*Euneornis campestris*) is a unique tanager found only in Jamaica. Tulsa Zoo achieved the first captive breeding in 1980, and hatched 43 through 1984.



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Chicago Zoological Park (Brookfield Zoo) with at least four hatched from 1963 through 1970. From 1977 through 1985, sixteen US zoos hatched 383. Denver alone hatched 115 from 1973 through 1985.

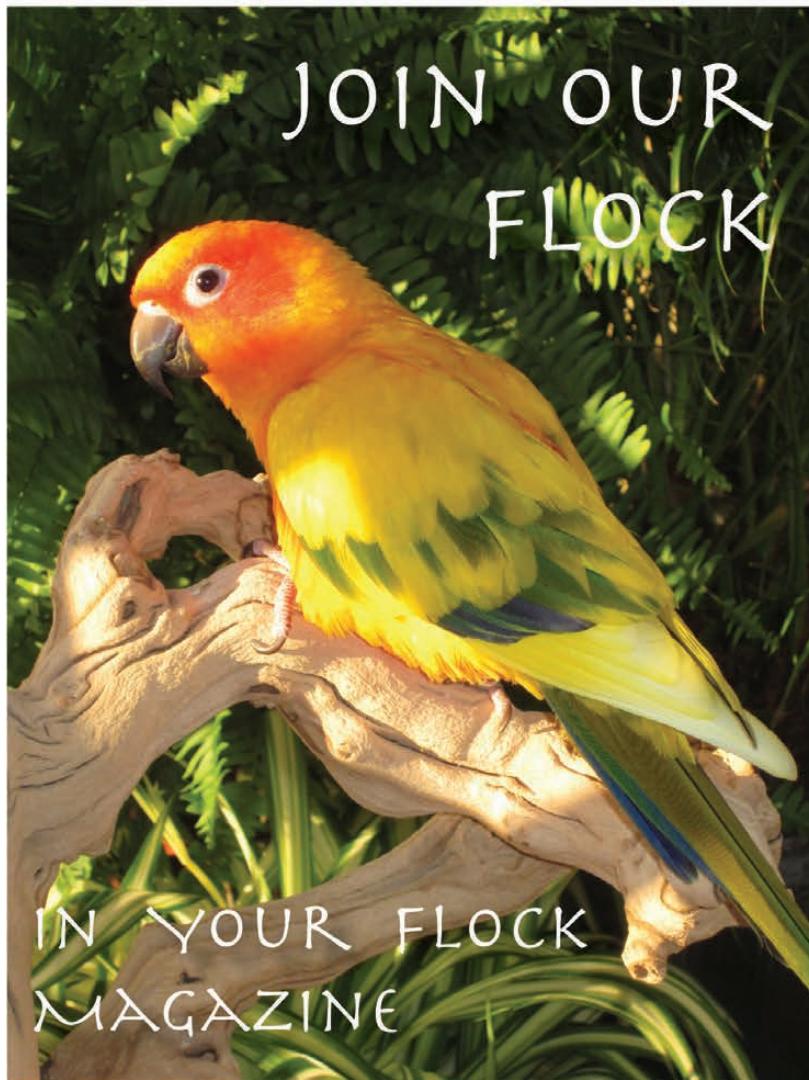
My IZY notes for the Superb Starling documents that for the period 1959 through 1971, four US zoos bred it: San Diego Zoo, which hatched two in 1966, the National Zoo, with two hatched in 1968 and three in 1970, the Lincoln Park Zoo, which hatched three in 1969, and Houston Zoo, with five hatched from 1969 through 1971. In 1974, five US zoos hatched nineteen (Lindholm, 2005a). In 1985 fourteen US zoos hatched 87 (Lindholm, 2005b).

I am glad to say both species are still in American Zoos today, and did not suffer the population crashes and extinction undergone by other species prolific in the '70's and '80's, such as the Red-and-White Crake (Natasha Shischakin, pers. Com) or the Levaillant's (or Crested) Barbet (Lindholm, 2005b). While the US Superb Starling population did decline from 173 in 45 US zoos in mid-1993 (Lindholm, 1993a) to 124 in 37 collections at the end of 2005, as of November 10, 2014, ZIMS documents 164 in 35 US collections. Speckled Mousebirds are not faring too badly either. ZIMS presents a November 10, 2014 statistic of 275 specimens among 29 US zoos. As of that date, Tulsa Zoo maintains one Superb Starling and five Speckled Mousebirds. However, our current starling, hatched November 21, 2013, at the Oklahoma City Zoo, which donated it to us March 19, 2014, is the first one here since March 15, 1983. On that date, the afore-mentioned breeding pair, which produced 27 offspring in the previous three years were sold to the International Animal Exchange (from which the female had come in the first place), along with a 1980 offspring and a bird that had come from the Jacksonville Zoo in 1979. The five mousebirds now at Tulsa, which arrived in 2012 as a donation from the Oregon Zoo, in Portland, where they hatched, are the first here since 1990, the last of the 28 hatchings occurring in 1985.

By the mid-1980's there was a new direction in collection policy. Ken Kawata had become General Curator at Milwaukee and Pam Osten became Curator of Birds at Toledo Zoo in 1982. Another chapter in the history of Tulsa Zoo's bird collection was being written, with its own accomplishments, excitements, and contributions which shaped the zoo we have today. I will present them in a following article...

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