

Opinion/Commentary

Hamilton Aviary

January 17, 2010

Barry Kent MacKay
BornFree USA

Zoocheck Canada Inc.
788 ½ O'Connor Drive
Toronto, Ontario
M4B 2S6, Canada
www.zoocheck.com

Biography - Barry Kent MacKay

Barry Kent MacKay began “hands-on” wildlife rehabilitation as a child, helping his mother, who was a federally licensed wildlife rehabilitator from the mid-1950s through into the 1980s, and was particularly active as a young adult in bird rescue and rehabilitation from the 1960s to the 1980s, pioneering procedures for rehabilitating small, avian insectivores.

MacKay was an early member and contributor to the National Wildlife Rehabilitators’ Association (early 1980s).

Former Member of Ontario Wildlife Rehabilitation Network; Member of Ontario Naturalists, Member and former Executive Director of the Toronto Ornithological Club, Member and on the current editorial board of the Ontario Field Ornithologists, Honourary Life Member of the Pickering Naturalists, Honourary Life Member of the Second Marsh Defense Association, former Director of the Canadian Federation of Humane Societies, former Director of the Toronto Humane Society, Director of the Animal Alliance of Canada, Director of Zoocheck Canada, a founding Director of the Species Survival Network where he currently serves on the Editorial Board and a founding Member of the Ontario Wildlife Coalition.

A lifetime naturalist, wildlife artist and writer, MacKay has been employed part or full time by the Ontario Ministry of Natural Resources, the Toronto Zoo, the Toronto Humane Society, the Toronto Star and CFTO TV. He has worked for over thirty-five years in various capacities, including Program Director (and currently Senior Program Advisor) for the Animal Protection Institute, now Born Free USA, headquartered in Sacramento California.

MacKay is the author of *Bird Sounds, How and Why Birds Sing, Call, Chatter and Screech, The Birdwatcher’s Companion* and *Eighty More Land Birds to Know*. He has illustrated numerous popular and academic books, and for 25 years he wrote a weekly column on nature and wildlife for *The Toronto Star*. He has freelanced dozens of articles and reviews for both print and online publication. Various aspects of his work has taken him to wilderness areas throughout much of North America, as well as Europe, Africa, Asia, Borneo, Central and South America, the West Indies and the Galapagos. He lives in Markham, Ontario, and remains active in varied issues pertaining to wildlife conservation and animal protection.

INTRODUCTION

The following commentary is based on a visit to the Hamilton Aviary on January 17, 2010, a review of the Friends of the Aviary website and related print materials. Some additional commentary was provided by Rob Laidlaw, Executive Director, Zoocheck Canada who visited the Hamilton Aviary in 2009 and again in 2010.

This commentary identifies several areas of concern which, in the opinion of the author, are problematic. They include:

- Potential heating/cooling problems;
- Lack of indoor flight space for many birds, particularly larger parrots;
- Pinioning of birds to prevent flight;
- Poor lighting;
- Problematic cage barriers;
- Minimal furnishings;
- Potential entanglement hazards;
- Potentially problematic substrates;
- Lack of bathing facilities;
- Lack of appropriate social environment for some birds.

Display/ Education/ Conservation

With its limited public access and basic conditions, the Hamilton Aviary is deficient as an educational public display facility.

The display of birds entirely removed from their natural ecological context, amateurish signage, rudimentary on-site commentary, limited public access and focus on private bird keeping and aviculture remove any potential for the Hamilton Aviary to make a substantive contribution to conservation education.

The current bird collection is comprised of species that are already in a surplus situation in captivity and that predominate in the pet trade. The facility has no function as a conservation breeding center for parrots or other birds. In fact, by actively encouraging birds to breed, the Hamilton Aviary may be contributing to an expansion of the bird trade. All breeding should stop immediately.

Recommendation

In the short term, the provision of larger, more complex, flexible spaces, cleaner conditions, modified management procedures, a moratorium on new acquisitions and breeding, and a reduction in the size of the live collection would improve conditions at the Hamilton Aviary. This process could be facilitated by a comprehensive on-site evaluation by two or more qualified bird welfare professionals (at arms length from the pet industry) who are familiar with shelter and aviary operations.

In the long-term, if the City of Hamilton is going to maintain an aviary, it should be appropriately designed, professionally operated and properly supported. The existing aviary does not satisfy those criteria and should be phased out.

The commentary that follows is divided into two major areas of concern: 1) animal husbandry issues and 2) the purpose of the aviary, with particular reference to its values regarding education and conservation.

ANIMAL HUSBANDRY

The aviary contains an admixture of species that seem to have little in common with each other beyond the fact that most, but not all, are commonly kept, and captive-bred, by and for the exotic pet industry; most are species that originate in warmer, often tropical, climates, although some will occur in temperate climates; none were aquatic or oceanic, and most were at least moderately granivorous (seed-eating). Only two species native to North America, only one species native to Canada and none native to Ontario were observed. It's possible I may have missed something as some of the aviaries have very dark corners and poor lighting. Clearly parrot and "finch" species commonly kept and bred in captivity were predominate.

Native habitats for the non-domestic species would include lowland tropical forests, temperate regions and semi-arid and arid regions. There was no evidence of any effort to replicate any aspects of such ecosystems. In fact, the aviary cages were a "cookie-cutter" design with one basic kind of cage being provided to a diversity of species with different needs.

The outdoor facility on the same property, some distance from the main facility, housed at least one pair of Indian Peafowl, and a number of fancy-breed domestic variety chickens. There were no visitors or staff-volunteers at the outdoor facility. Visibility from the outside was hampered by boarding and Christmas trees piled around the outside, presumably to help shelter the animals from wind.

The standards of care I observed were not optimal. In fact, they were reminiscent of typical pet store and roadside zoo conditions I have observed over the years. My concerns are presented in categories below.

Space

A key facet in the lives of most birds is flight. To all intents and purposes, their biology and behaviour is built around flight. This essential component of bird life is denied to many of the birds at the Hamilton Aviary. The smaller birds (e.g., finches, budgies, cockatiels) were provided with enough space to facilitate short bursts of flight, but the larger parrots were relegated to undersized, box-like spaces in which true flight could not be achieved. The birds could move about on their perches and/or other apparatus or climb the barriers of their cages, but were unable

to fly. Most parrots are excellent flyers who, in the wild, travel many kilometers each day as they engage in a complex array of behaviours, including foraging and socializing. Confining the larger parrots in spaces in which they cannot fly severely restricts, and, in some cases, entirely eliminates key aspects of their behaviour and almost certainly reduces their welfare. While the space provided at the Hamilton Aviary is presumably in line with pet industry norms, it is not acceptable from a bird welfare perspective and is inappropriate for a public display facility subsidized by municipal funds.

Some birds were pinioned by having key flight feathers cut, thereby preventing flight (discussed in detail in a later section). Presumably this is done for birds that are periodically taken out of their cages for handling and display to visitors. This practice restricts or eliminates a broad range of essential movements and behaviours, not the least of which is flight, and is unacceptable from a welfare and educational perspective.

Ambient climate and lighting

The main facility is a ramshackle assembly of several rooms, the first a small greenhouse on the south side, followed by adjoining walled rooms. Heating seemed to be by space-heaters. As it was a winter visit and I wore winter clothing I couldn't adequately judge changes in temperature from room to room, but my first concern would be that there would, under some conditions, be a very uneven heating or cooling of the facility, which could lead to drafts. Drafts are a major concern for birds as they tend to be susceptible to them. Greenhouses are particularly problematical in this regard as they can trap heat in summer, experience significant heat loss in the winter and thus lead to uneven heating.

I don't know if there were other heat sources than those easily visible. Nor could I tell if there was an independent back-up source of electricity in the event of power-failure, but if not, I have concerns that heat loss would be precipitous in cold weather as the structure did not look capable of retaining warmth.

Presumably greenhouse windows could be opened in summer, but I could not determine if there was adequate shade. Even tropical birds are susceptible to high heat temperatures, and open windows can present other problems. The makeshift appearance of the facility overall gave me concerns that adequate heating and cooling was problematical.

Birds not only benefit from, but actively seek, bare-part exposure to sunlight, which contains ultraviolet radiation not found in most artificial lighting, and largely filtered by glass, although not by plastic or mesh. Birds will go to considerable effort to expose unfeathered portions of their bodies, including mouth interiors, beaks, eyes, feet, any areas of bare skin that can be uncovered, including the underside of the wings, to sunlight, but most of the birds within the Hamilton Aviary had no such opportunity. Whatever health benefits exposure to sunlight may give, it seems also to act as a stimulant for feather replacement.

It is possible to use "full spectrum" artificial lighting that provides adequate ultraviolet light. This was present in some areas, but a number of the bulbs appeared dim (full spectrum bulbs lose their effectiveness as they age) or were not functioning. Lighting in some cages was poor.

Photoperiodism

Photoperiodism is the physiological response of an animal to the seasonal lengthening or shortening of daylight. For birds in higher latitudes the lengthening of daylight in spring automatically triggers hormonal changes which influences the enlargement of gonads and breeding behaviour and activity, and migratory behaviour and timing of molts. There are other physiological and behavioural changes, including molt, triggered by the shortening of daylight in the fall.

Since most species of birds kept by hobbyists are either tropical (coming from regions where photoperiod changes are minor) or domestic (meaning birds are far removed from their ancestral physiological connection to the natural environment), photoperiodism is typically ignored as being unimportant. But it does maintain better health in birds if they are subjected to a specific regime of photoperiodism, and whether or not this is done at Hamilton Aviary is unclear.

Cage Wire

The best cage wire for birds, depending on the species and their size and strength, consists of vertical, rounded wires (or dowels), evenly spaced close enough together to prevent escape, and possibly reinforced periodically by horizontal bars spaced as far apart as reasonably possible to provide sufficient structural support.

Among the worst cage wire for birds is square or rectangular mesh, whereby the vertical wires are intersected with horizontal or diagonal wires to form squares, rectangles or diamonds. Chicken wire, where thin wire intersects to form hexagons is also potentially bad for the plumage of birds (although not necessarily chickens or other domestic poultry as they rarely fly up against it and many breeds lack stiff wing and tail flight feathers). Generally speaking inflexible wire is worse than wire that has a bit of slack to it (as chicken wire usually does). Hardware cloth, too often used in caging, is also bad for the plumage of small birds, although it can serve some specialized needs. Insect screening is generally good for very small birds, although too fragile for outside use.

My concern about some of the wire at the Hamilton Aviary derives from the habit some birds have of clinging to the sides of cages, thus thrusting their tail feathers, and sometimes their outer primary wing feathers (see pinioning, below), through the wire. When the bars are vertical and parallel to each other, the stiff flight feathers of wing and tail simply protrude through the gaps. But on square mesh they encounter the horizontal mesh, which leads to the fraying and breaking of feathers.

The mature feather contains no nerve connections, thus fraying or breakage causes no pain, but the better maintained a bird's plumage is, the more comfortable and less stressed the bird. Birds spend significant portions of their energy budgets maintaining plumage in peak conditions. Molt (feather replacement involving loss and replacement of a significant portion, or, in some instances, all of a bird's plumage with new plumage in a process that is carefully timed to prevent too much feather loss at any one time) in wild-living wild birds is timed to prevent

feathers from being too worn, but in captivity (see Photoperiodism, above) molt can be delayed or uneven. Feather replacement also occurs when individual feathers are lost, that loss promoting a replacement feather to emerge, although unevenness in this process can occur in the wild (in August it is not unusual to see nearly bald blue jays or cardinals and other species, but that is also when temperatures are temperate and food most available, after the energy demands of raising young have ended, and before the energy demands of keeping warm or migrating occur). In captivity it is more likely, thus increasing the need to prevent feather damage.

Below is a photograph of the wire, taken outside by my colleague, Rob Laidlaw, who accompanied me on my visit.



During my visit, the hybrid macaw in the greenhouse section of the facility constantly clung to the wire fronting of its cage and not surprisingly has badly frayed tail feathers.

Parrots have “ceres”, areas of relatively soft skin surrounding the nostrils at the base of the harder beaks. When these birds thrust their beaks through the wire, they can cut them on the horizontal wires. The ceres of parrots are relatively small. While I did not observe cere damage in the parrots at the Hamilton Aviary, it still remains a concern. Small birds able to thrust their beaks through such wire also are at risk of damage to the skin of the forehead.

Enrichment (cage furniture and toys)

It is now widely acknowledged that the more intelligent animals (including birds and mammals) confined in zoos, aquaria and aviaries require “enrichment” for proper health. Enrichment can be defined as structural enhancements, materials, items or activities that relieve boredom and allow the confined animal to indulge in behaviours similar to what they, or their wild progenitors, would do in the wild under natural conditions. Enrichment may facilitate the expression of a wide variety of behaviours, including “play”, an activity that relieves boredom and provides stimulus increasingly seen as necessary for good overall health, while not serving any immediate or obvious material benefit to the player. Play is well documented in several bird species, most particularly including the Northern Raven, which has been seen to slide down slippery slopes of snow or ice, to all intents for the sheer pleasure of it – play as generally defined.

I was concerned by the lack of enrichment in the cages at the Hamilton Aviary. Structural enhancements were generally absent, furnishings minimal and other enrichment strategies poorly developed.

I was particularly concerned about some of the toys provided for the birds. They were essentially hanging clusters of rope-like material that the birds could chew. The first I saw was in the greenhouse in the cage of a sulphur-crested cockatoo. The hanging toy was badly frayed, presumably by chewing, with several long ends dangling, and these are potentially hazardous and pose a risk of entanglement. These concerns would be severe enough even if there were continued supervision of the birds, but as there appeared to be no living conditions for staff or caretakers at the facility (some rooms were out-of-bounds) I fear there may be many hours per day when such supervision would be absent.

I saw little else to provide more than minimal enrichment.

Some birds were without companions of their own or other species, while others were kept in pairs (presumably for breeding purposes). The smaller birds were kept in larger groups. Social context is extremely important, especially to gregarious species of birds like the parrots who experience rich social lives in the wild. The social environment provided for many of the birds at the Hamilton Aviary is arbitrary and unnatural.

Perches

Perches are part of the cage furniture. They can and should contribute to enrichment. But here I am treating them separately as they are so important to the health and well-being of the birds. Perches are simply defined as what birds perch upon, other than the floor or ground, feeders or toys, or clinging to the wire.

Doweling (evenly rounded, hard wooden) perches should be avoided. The reason is that they are hard on the feet of the birds in a way that natural branch perches are not. They do not “give”, or flex, when the bird alights upon them. Because they are the same diameter throughout their length (unlike natural branches whose diameter varies throughout most of their lengths) the

bird's feet are constantly held in the same pose, and this can contribute to arthritic or other problems over long periods of time.

The soles of perching birds' feet, including parrots', are not smooth, but contain rounded areas which, in time, flatten out if the bird is restricted to hard dowel perches. This can lead to cracks in the skin, particularly on the underside of the foot, which can open paths to infection.

I observed one cockatoo with a perch with, so far as I could tell, a sandpaper-like covering. This kind of product is sold by the pet industry, but it is quite harmful to birds. It is sold with the promise that it will help keep the claws (toe nails) from over-growing. The problem is that the sole of a bird's foot is not as tough as the outer surface of the claw, so it is more likely that the sole of the foot will be worn down before (if ever) there is any effect on the claw.

With or without sandpaper perches, overgrown claws are always a problem with cage birds as a function of the unnatural conditions they live in. These problems are eliminated by use of natural branch perches. Because of their greater variety in form and structure, natural branch perches also add to enrichment. While I saw many doweling perches, I was pleased to see many natural branch perches, and would recommend still more, with the elimination of both doweling and sandpaper perches.

Natural branches dry out, lose resiliency and buds, which provide nutriment and enrichment for some birds, are soon consumed or dry out. Dirt, including feces, may also accumulate on them. They must be changed frequently, to be most effective, although in cages and aviaries, including walk-in aviaries, the act of changing them may be disturbing to the birds, and has its own hazards. However, the benefit to the birds outweighs the risk.

Floors

As is true of perches, in small confinement such as seen at Hamilton Aviary, there is no truly bird-safe and satisfactory way to provide a substrate that is entirely safe and healthy. Because of the low light levels I was not sure what the covering of the aviary floors was but it appeared to be dark sand. This is extremely difficult to clean, and in the absence of an airy, sunlit environment, forms an ideal culture for disease organisms. Accumulations of bird excrement were everywhere, and are potentially very unhealthy for birds and people alike.

Keeping such facilities clean would be difficult. Birds are very susceptible to toxic fumes inherent to many cleaning fluids and disinfectants, and ventilation indoors in such cramped quarters is difficult to achieve while avoiding potentially dangerous drafts. Surfaces that are relatively easy to keep clean (such as stainless steel) are also singularly unnatural and still must be actually and physically kept clean. Floor covers, such as absorbent paper, that can be removed daily, are the best solution in an unfortunate circumstance, but there is also the necessity to clean other permanent parts of the cage structure. I saw little attempt at a sufficient level of cleanliness to maintain birds in good health. Concrete floors with drains (that are periodically cleaned and disinfected) are probably best for small indoor aviaries containing numbers of birds, especially if absorbent paper is placed on the floor and removed at least once a day.

Bathing

The bathing needs of both individual birds and different species varies. Some birds splash vigorously in shallow water, preferring that which is cold and clear. Birds that swim may splash vigorously in deeper water. Other birds prefer to bathe in the spray from falling water, or rain, and for them misting may be the most likely form of bathing they will practice in captivity. Other birds like to roll around in soaking vegetation or will bathe in falling rain. Still others, including many “finch” type birds and quail, may tend to avoid water bathing altogether, but will “dust” bathe in clean, dry sand. Many birds require a stimulus to bathe, and these can range from the simple provision of adequate means to do so, to the sight of running water, to seeing other birds bathe.

During my visit I saw only one type of bathing provided, misting (with a spray bottle), which was directed toward certain parrots. It’s possible water dishes might be used for bathing by some of the non-parrot species, but I did not observe this activity.

Security

One of the things that alarmed me the most was the lack of double-doors into the facility or the aviaries. Birds that escaped from indoor cages and could fly would then have potential access to the out-of-doors, which would ultimately prove fatal to them. Modern public aviaries have spaces between the outdoors, and where birds that are or may be free-flying, are located.

Many of the parrots are commercially valuable. Even in the presence of locks and alarm systems, assuming the latter are in place, it would be a relatively simple matter, given the isolation of the facility on one hand and the proximity of public roads on the other, to burglarize one or more birds that could be sold for drug or other money, not necessarily in the best interest of either the birds such taken, or the other birds that would be frightened, or perhaps even released.

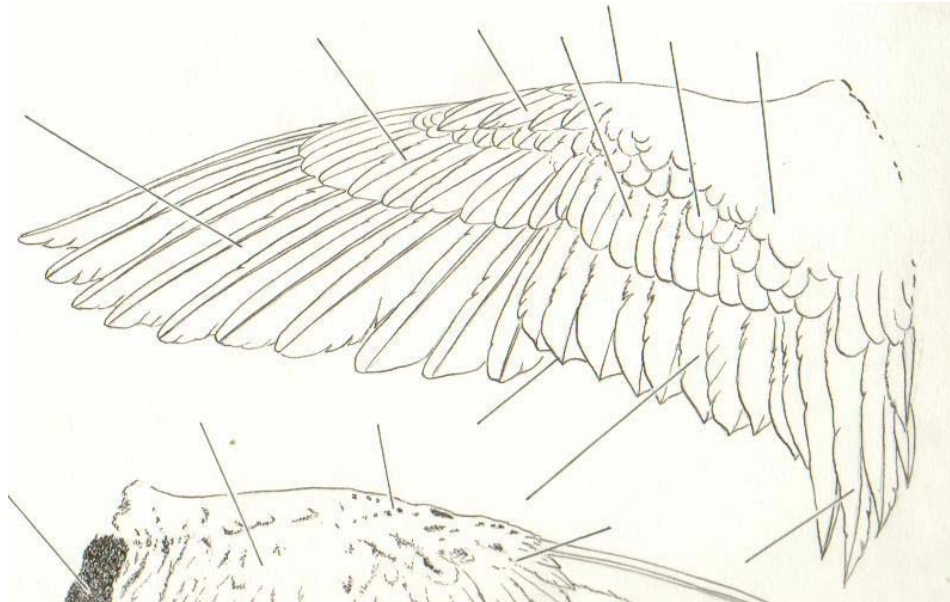
The structure has a rather permeable look, leading me to worry about small predators such as rats or weasels, or possibly raccoons, gaining entry. If the facility is unmanned during the night, predators such as owls, foxes and raccoons could, by attempting entry, especially into the greenhouse section, trigger panic (see Night Fright).

Pinioning

Pinioning is the name given to two forms of rendering birds flightless: 1) surgically removing part of their wing, 2) clipping their flight feathers. Some Hamilton Aviary birds are pinioned by the second method.

To understand how pinioning works, it is helpful to look at a bird’s wing anatomy. Below is a drawing of a duck’s wing spread out, as seen from above. The feathers consist of “tracts” of individual groups of similar feathers, and all flying birds have the same feather tracts, although the proportions vary depending on how the bird flies.

The tracts, on this schematic, are indicated by lines, not numbered in this illustration, however the two that most matter are the one to the far left of the drawing, a tract consisting of ten distinct feathers, and moving to the right, the next tract of feathers. The first tract, on the far left, are called primaries, or primary feathers or primary wing feathers. The second tract is called the secondaries, or the secondary feathers or the secondary wing feathers. Together they are often called the “flight feathers”.



Pinioning is done in one of two ways. One way is to surgically remove the outermost part of the wing when the bird is a newly hatched chick, so that the primary feathers never occur. This is permanent and birds pinioned in this fashion never fly. It is only necessary to do it with one wing because the bird requires primaries on both wings in order to fly. When most birds are molting, they molt one primary, the same one (they are numbered from the innermost one to the outermost) on each side, so that bilateral symmetry is maintained. Some species, including waterfowl, drop all the primary feathers almost simultaneously, from both wings, and are therefore flightless until new ones grow back.

The other form of pinioning, the one I saw at the Hamilton Aviary, constitutes simply cutting the primary (and often, although unnecessarily, some or all of the secondaries) near their bases on one or (again unnecessarily) both wings. This kind of pinioning requires the bird to be taken in hand, held firmly, and the feathers cut. It's stressful, and some birds will then try to fly with sad results, falling instead of flying. Even birds that are pinioned from a very young age will, when panicked, instinctively launch themselves into flight, only to fall to the floor.

There is, when not carefully monitored, a “risk” that if birds are pinioned by feather cutting, the feather stubs will fall out and the new feathers will grow in, unnoticed. When the wing is folded most of the primary feathers are hidden below the overlapping secondary feathers, and so this growth can go unnoticed, and the bird may fly when it is not expected. This is a commonplace cause of captive bird escapes.

Many of the parrots were pinioned, and this is unfortunate, and derives from a lack of respect for the birds' instinctive needs. Pinioning is imposed crippling, in my opinion, and if it is necessary to cripple an animal in order to keep it, it raises the question of why it is being kept, which I will address in the second part of this document.

Food

It appeared the Hamilton Aviary takes a minimalist approach to food, providing kinds of commercial foods that pet stores suggest, plus some greens, and maybe some fruit in the walk-in canary aviary. I saw no indication of higher protein foods, such as domestic insects, being provided.

Disease

The substrate of the cage floors seemed to be sand, which can retain moisture which can lead to moulds and fungal growths deleterious to the health of the birds and, possibly, some humans. Birds were, during my visit, misted with a fine spray, seemingly at random to show visitors, and the residue of such misting, in the many dark nooks, crannies, and amid the sand and excrement and fallen food on the cage floors, creates a risk of disease.

My first concern would be the risk of aspergillosis. It is common in birds and is caused by fungi of the genus, *Aspergillus*. *Aspergillus* spores are ubiquitous and omnipresent as microscopic, airborne elements in our environment. They grow on dead or decaying materials, including vegetation, grain and grain products (a major reason why it is not a good idea to feed bread to wild birds). Birds are particularly susceptible to this disease, which is fatal if not adequately treated in time. Symptoms are similar to those of many other illnesses, which makes diagnosis, thus appropriate treatment, difficult. Although mammals, including humans are not nearly as susceptible as birds to aspergillosis, it is considered a zoonotic disease – one that can be spread from animals to humans, where it may lead to either fungal pneumonia or a serious allergic reaction.

My other major concern, from a human health perspective, upon entering the premises and seeing the conditions prevailing was psittacosis, popularly known as parrot fever, and less well known, particularly when originating from non-parrot species, as ornithosis (bird disease) or, particularly in extreme form, Chlamydiosis.

It is, in humans, a very rare disease, but it is zoonotic and is believed to occur more in parrots (including budgerigars – budgies – cockatoos, cockatiels, parakeets, macaws, etc.) than in other species, although it has been found in a wide range of bird species. People handling or exposed to birds in confined situations are most at risk, and among sufferers, it is most serious among people who are elderly, immune-compromised or ill, very young, or pregnant. It derives from a bacterium, *Chlamydophila (Chlamydia) psittaci*. Fatalities in humans have been reported. Birds suffering from the disease can be asymptomatic (show no signs of it) and yet transmit the disease through droppings and nasal discharges (such as caused by sneezing). It is most likely to occur in stressed birds, and in unclean conditions.

General lack of cleanliness could also contribute to the presence of such rodents as voles, mice and possibly rats. While droppings and urine from rodents can cause disease concerns for birds and humans alike, there is also a risk to the birds from “night fright”. This occurs when birds, sleeping in near or total darkness, are suddenly frightened. They can fly up, blindly, and injure themselves by flying into each other or unseen objects. It can create a “domino effect” throughout the aviary. The following morning, there may be no indication of it, beyond dead or injured birds. Low level night lighting guards against night fright, but can interfere with photoperiodism. Rats can be predatory on birds. I could not determine whether rodents were problematic at the Hamilton Aviary.

I don’t wish to be alarmist about the disease potential, but high density animal facilities are often problematic for disease control. I am concerned not only about the immediate health of the birds involved, but the ramifications of the occurrence of the previously mentioned diseases. It is precisely because these diseases (and others, including the avian influenza and the West Nile Disease that so terrified so much of the world a few years ago) can be transmitted to humans and can be fatal are so very rare, that when they occur they tend to trigger immense over-reaction to the detriment of so many other birds. Birds have been subsequently died or been destroyed in very large numbers either as direct victims of the disease itself, or as victims of culling committed in reaction (or over-reaction) to a new, thus particularly fearful, human health or economic threat.

I did not have access to off-exhibit areas, but there seemed to be free movement by staff throughout all parts of the building. I did not observe any antibacterial footbaths, signage or similar items that would indicate separate, contained quarantine or medical areas or other disease prevention procedures.

EDUCATION AND CONSERVATION: WHAT PURPOSE DOES THE HAMILTON AVIARY SERVE?

The best zoos, aviaries, gardens, arboreta and art galleries around the world have one thing in common: adequate housing for what they contain. The Hamilton Aviary is contained within a structure that is, inherently, ill-suited to house birds. Because most of its birds can survive in less than optimal conditions, visitors to the Hamilton Aviary see birds that appear to be reasonably “healthy” (not injured or diseased) in conditions that are far from adequate to meet their full range of needs.

All animals in captivity must be kept in conditions that satisfy their species-specific needs and there must be some purpose beyond mere display for amusement purposes, especially in facilities that are open to the public and that receive government funding. The clear impression I had was that the Hamilton Aviary’s primary function is to provide hobbyists who like to keep cage birds with something of a clubhouse where they can further indulge in their hobby.

There is nothing inherently wrong with public funds being used to facilitate hobbyists’ varied interests or allowing them to use public property or facilities in a specialized way. This sort of service can range from something as simple as designating parts of parks for such things as golf, archery, kite flying, and so on, through providing modest infrastructure such as a storage place

for sports equipment, permanent chess boards, etc. But such activities do not compromise the welfare of sentient animals and they serve useful public functions that are widely available to the public. More importantly, they occupy either existing facilities that are well-suited to their respective needs, or they are facilities constructed to properly serve those needs.

Also such activities generally do not directly promote commercial interests. You may visit a municipal property that, for example, allows model airplane flyers to ply their hobby several hours a week, but it does not promote the commercial aspects of the hobby. As I will explain below, I believe the Hamilton Aviary promotes aviculture – the keeping of “exotic” birds in captivity.

The Hamilton Aviary is only open to the public for three hours per week. Does the facility serve a larger purpose, such as education or conservation (as claimed in some Hamilton Aviary printed material). As I shall explain below I think the answer is not only no, but that there is a negative contribution to both education and conservation. The sole “social” function of the Hamilton Aviary seemed to me, based on my visit, to promote interest in bird keeping.

Education

In my opinion there is nothing in the Hamilton Aviary that educates visitors about the natural biology, behaviour, lifestyles, ecology and conservation of the bird species that are on display. Both the signs provided, and the talk I overheard, was primarily directed at the keeping of birds in captivity.

Other tools by which the public could be educated about birds, both in captivity and in the wild, were absent. Many of the potential means by which people could be educated – such as various forms of visual aids including models, photographs, lectures, audio tapes illustrating features of bird song, videos, dioramas, and so forth, appear to be beyond the resources or knowledge of the Hamilton Aviary. At present, there seems to be little capacity to provide a proper educational experience for visitors.

Signage

One potentially inexpensive means of education is through the use of signs. But the signs at the Hamilton Aviary told very little about the birds, beyond what would interest a bird owner. I will provide a detailed critique of one sign here (and two more in Appendix I) to illustrate the kinds of information that could be provided, compared to what actually is. Information on the Hamilton Aviary’s existing signage is spotty, sometimes inaccurate or misleading, and at best only minimally informative.

Review of Green Singing Finch Graphic

One sign refers to the “Green Singing Finch”. There is a photograph of the bird, in captivity. There follows a designation “COMMON NAMES” in which we see, “YELLOW FRONTED

CANARY, GREEN SINGER, CROWN CANARY”. No scientific name is given. Scientific names resolve the ambiguity that derives from multiple use of names and tell us which genus the species belongs to, but none of that sort of thing is explained.

In fact, the proper English or common name for the species is “Yellow-fronted Canary” if “proper” is defined by most common and accepted usage in the popular and ornithological literature.

“Green Singing Finch” is an avicultural name, used in trade. It is not unusual for the exotic pet industry to use its own names for various exotic animals, usually to make them appear more attractive. “Green Singer” is a less often used avicultural name. In the pet industry it has also been called the “Yellow-eyed Canary”, but this is not mentioned. It not only is not called the “Crown Canary”, this name is confusingly similar to the name of a related but distinctly different species of bird called the “Yellow-crowned Canary”, a fact that illustrates the value of using scientific names.

There are, depending on taxonomic classification, some 37 species in the genus, *Serinus*, to which the Yellow-fronted Canary belongs, variously known as serins, canaries, siskins, citrils, and seedeaters, all native to the eastern hemisphere (Eurasia and Africa), and not to be confused with such species as the Pine Siskin, native to Ontario, or the seedeaters of Central and South America. I make this point only to underscore that accuracy is important if “education” is the goal.



Yellow-fronted Canary

Under “DISTRIBUTION” we read, “SCRUB & FOREST REGIONS OF CENTRAL AFRICA”. This is not accurate, and at the very least a range map might help to provide a more accurate sense of where this bird is found in the wild. In fact the species has one of the largest ranges of any member of its genus, from Africa south of the Sahara to the southern part of South Africa. There are some ten subspecies recognized, including one on Sao Tome Island in the Atlantic Ocean, on the equator, off the west coast. Additionally viable feral populations of the species are to be found in Hawaii, Puerto Rico, Mauritius Islands, Reunion and Assumption Islands.

In the wild it lives in savannah plateaus, or open plains where there are some trees, but not in dense thorn scrub. It can be found in the edges of woodlands, but is not a forest bird. It also occurs in reedbeds, on plantations and farms and in gardens, and often reaches elevations of 1,800 to 2,100 meters, although typically below 1,500 meters, virtually to sea level. It has been recorded in rainforest and arid desert, but rarely. It occurs in mangroves and among sand dunes. At the approach of breeding, males will sometimes perch in tops of trees to sing.

Under LIFE SPAN it states, “10 TO 20 YEARS”. This is a meaningless figure, of course, without knowing if it refers to wild birds or captive birds and how it is derived, and the margin of error provided is enormous. Does ten years refer to the average lifespan and twenty the maximum? It is not known. I am not trying to be picky, simply seeking to demonstrate the lack of accurate information provided.

Continuing with this sign, we read under “DIET” that the species eats “SEEDS, MILLET, GREENS, INSECTS AND LARVAE.” It is the seeds of the millet that are eaten, and millet is a domestic crop, as is sorghum, another seed commonly consumed. As is true with many such birds, it requires enhanced protein when feeding young, and that is when its diet significantly shifts to insects, including their larvae. Its diet also includes flowers (the petals and even nectar). Under “DESCRIPTION” it is stated, “SMALL BIRD (12 CM) WITH GREY-GREEN HEAD, BACK & WINGS. YELLOW CROWN, CHEEKS AND BREAST. MOTTLED GREY GREEN AND YELLOW WINGS.”

Usually the purpose of a description (somewhat redundant given the sign also features a colour photograph of an individual) is to allow the identification of the species described from other similar species. This description does no such thing, and is, in fact, not even accurate. It is not explained what the 12 cm refers to, or how the bird is measured, but when the bird is laid upon its back and slightly stretched, its length from tip of beak to tip of tail is 11 to 13 cm. Perched naturally, the distance from front to back is less. Length is a poor measure, to compare one species to another since a species with extra long tail feathers can appear to be significantly larger than a species the same size with short tail feathers, and that is why weight is also often used to designate size, and is, indeed, the better of the two measurements to do so. Wingspread is also sometimes given.

Many related species have heads, backs and wings that are, in part or mostly, grey-green, indeed, more so than the Yellow-fronted Canary. The crown is not yellow, but olive-grey with thin, dark streaks. The yellow is on the forehead, extending over the eye, and on the cheek, throat, breast and belly. The wings are not mottled, but patterned with dark grey centres and whitish or yellow edges and tips, forming, in some races, rather distinct wingbars (light tips to the greater and middle wing coverts). The green is more of an olive green.

Under “BREEDING” there is the information that the species, “LAYS BLUE-GREEN EGGS. 13 DAY INCUBATION PERIOD. BABIES FLEDGE IN 3 WEEKS. SEXUALLY MATURE IN 4 TO 6 WEEKS.” It is not mentioned that the eggs are typically speckled, whether one or both sexes incubate, what the nest looks like, what materials it is made of, and where the bird places it, and if it is colonial or a solitary nester, does it defend territory and if so, what size, what is the size and shape of the eggs, do both sexes or only one (and if so, which one) care for the young and so on. For species of birds not native to North America or Europe some of these things, as they pertain to free-living wild birds in their natural habitat, may not be known, but they are the sorts of things that can educate us about the species.

And, for that sign, picked essentially at random, there are no more data. We don't know, for example, if the species migrates, we don't know if it is rare or common; what it's greatest threat is (in fact, the bird trade is the greatest threat caused by humans, see section on conservation,

below) or its natural predators; its systematics (how is it related to other species); its general habits in the wild; its impact on humans and vice versa (apart from persecution for the exotic pet industry, is it persecuted for crop depredation or other reasons?); its breeding habits (does it have a breeding display, and if so, what does it look like? Does it breed more than once per year? Is it monogamous?); its vocalization (what does it sound like, when and how frequently does it sing?) and so on.

I emphasize that I am not suggesting that the Hamilton Aviary can or should provide such level of information, only that what it does offer is far less than what I would consider to constitute anything that could honestly be called educational. Indeed, I question the validity, as demonstrated on somewhat empirical data, that such facilities can serve an educational function.

I have provided analyses of additional signs in Appendix I.

Some of the species shown were not identified at all or had little or no information provided. For example, on the floor of one aviary, which mostly featured canaries and Estrilid finches, were four quail. It was dingy and not easy to get a good look at them, but three appeared to be California Quail, which range from southern British Columbia south through much of the western U.S. down through the deserts of Baja California. The other, huddled with them, was a Scaled Quail, which ranges from the arid deserts of the central western U.S. from Colorado south deep into Mexico. In nature their ranges do not overlap. These are birds who normally occur in small flocks, and who often run through scrub further than the length of the facility. Neither species is migratory and in the northern parts of their respective ranges, would encounter winter snow. The California Quail is found in a greater range of habitats than the Scaled, which is almost strictly confined to arid desert scrub and grassland. None of this was mentioned at all, and in fact, since the Scaled and California Quail were huddled together, an observer could be excused for thinking they were all colour variations of one species.

The conditions in which these beautiful birds were being kept were not conducive to their welfare, nor did it highlight their inherent attractiveness, begging the question of what was the purpose of them being there it all? Certainly their presence in no way contributed to either education or conservation.



The same aviary contained many Society Finches, also called “Bengalese” Finches. These small birds are fully domesticated, and have been for so long that, until relatively recently, their origin was not known, and it was guessed that they derived, centuries ago, from a hybrid between two

similar species. However, with access to modern analysis through DNA comparisons we now know that they are the domesticated form of the White-rumped Munia (*Lonchura striata*), an interesting and charming bird with a massive range through much of Asia, from western Asia east to Taiwan and south to Sumatra, with several distinctive subspecies, some of which have been given distinctive species status. None of this information is provided.



White-rumped Munia

Conservation

Perhaps the most egregious claim made by the Hamilton Aviary is that their keeping of captive birds in some way contributes to conservation. In fact, to the degree that the Aviary promotes bird keeping, arguably it does quite the contrary.

One of the most significant threats facing wild bird population in many parts of the world is the very thing that the Hamilton Aviary appears to be tacitly promoting: the keeping and breeding of exotic bird species in captivity.

According to BirdLife International (*Threatened Birds of the World*. Barcelona and Cambridge, Lynx Edicions and BirdLife International, 2000), “A total of 367 threatened birds are directly exploited, primarily through hunting and food (affecting 233 species) and trapping for the cage-bird trade (111 species).” It is the second highest cause of endangerment, following hunting for food, and followed, in descending order, persecution, sport hunting, killing for parts, egg-collecting, cultural use, not known and other.

Parrots, which are strongly featured at Hamilton Aviary, belong to the bird family that contains the largest number of species at risk.

According to *Parrots: A guide to the parrots of the world*, by Tony Juniper and Mike Parr, Pica Press, Sussex, 1998, “Data collected under the obligations of signatories to the Convention on International Trade in Endangered Species...and analysed by the IUCN’s Wildlife Trade Monitoring Unit, reveal the scale and breadth of the trade in parrots...Between 1980 and 1992, 247 species of parrot were reported in international trade, with 156 of them traded over that period in volumes of more than 1,000 birds annually. Some were traded in huge quantities. For instance, in that 12-year span, 278,000 Senegal Parrots, 657,000 Fischer’s Lovebirds, over 200,000 Ring-necked parakeets, 158,000 Mitred Conures, 406,000 Blue-fronted Amazons and 108,000 White Cockatoos passed quite legally through international borders. Further unknown quantities were undoubtedly moved illegally and therefore not reported in the official statistics. To the officially reported CITES figures and unknown illegal international trade must be added the unmeasured numbers of birds trapped and traded at the national level...Whatever the total

number of parrots trapped and traded, it is clearly vast and taking a toll on wild birds in ways that vary from the negligible to the extremely serious...”

It continues, “Some parrots, especially the larger and long-lived species, like the *Ara* macaws, produce a surviving youngster at most only every other year (and probably less often than that), so that collection of nestlings for trade may eventually lead to rapid population declines when the aged parent stock dies off, leaving nothing to replace it. The destruction of nests (cutting of trees) as a means of obtaining their contents is particularly damaging, as the ability of local populations to reproduce can be completely undermined by great shortages of nest-sites. Because of this biological constraint, trapping for trade had undoubtedly been a negative factor affecting the conservation status of several macaws, amazons and cockatoos, to the extent that several are in danger of extinction principally as a result of this pressure (for example, the Hyacinth Macaw, Yellow-headed Amazon, and Yellow-crested Cockatoo). Even for smaller and more prolific species, the impact of trade may be severe. Several species of lorikeet are at risk from trade...”

The trade is also cruel, with a mortality rate of wild birds captured for the exotic pet market being estimated at at least 40 percent, but much higher for some individual species (see: *The Bird Business: A Study of the Commercial Bird Trade*, by Greta Nilsson, Animal Welfare Institute, second edition 1981.)

Invariably aviculturists trying to justify keeping wild birds in captivity evoke two rationales. The first is that they are “captive breeding” and thus assuring that species won’t become extinct. None of the birds at Hamilton Aviary are listed as part of a Species Survival Plan and will not be released to the wild. Several are domestic, many are common, and all are quite capable of breeding on their own in the wild; what they need is protection against the major threats they face, and these are habitat destruction, various forms of hunting and persecution and the exotic pet trade.

None of this is addressed in signage, nor did I overhear anything about such threats discussed by the volunteer staff.

The other argument most often heard is that by breeding birds in captivity, the incentive is removed to take them from the wild. In fact, the risk is that people who start out owning captive bred birds, or domesticated species such as budgerigars, canaries and cockatiels, is that they eventually seek out ever less common birds, and that they subsequently seek wild stock to provide the level of genetic diversity necessary to sustain some non-domesticated captive stocks.

There is a third, more subtle impediment to real conservation that derives from the bird trade, and that is the false assurance that because a species is well represented and breeds easily in captivity, there are no conservation concerns. A classic example is the Java Finch (which has many other trade names). It is one of the most charming, and most commonly seen, of “cage bird” species sold in pet shops, but it is increasingly rare and endangered in the wild, in Java, where it originates. The two major causes of its plight are persecution against its appetite for farmed rice, and the bird trade.



Java Finch

A facility dedicated to the conservation of birds would be something I would wholeheartedly support, but the Hamilton Aviary's contribution ranges from nil to counterproductive. It has no conservation value.

Appendix I

Signage Review

The only two ways by which anyone could be educated about the birds at Hamilton Aviary is through chatting with the volunteer staff, who seemed amiable, but only interested birds from the perspective of keeping them as captive pets, or the signs. A few signs were photographed, and one of those, picked more or less randomly, is critiqued above. Less it be thought it was exceptional, I will here critique two more.

One sign is entitled INDIAN RINGNECK PARAKEETS. Under the heading, “COMMON NAME” it states: “INDIAN RINGNECK PARAKEET”. The correct name, again as established by maximum usage in English language literature about birds, would be either Ring-necked Parakeet or Rose-ringed Parakeet.

Under the heading, “SCIENTIFIC NAME” it states: “PSITTACULA KRAMMERI KRAMMERI”. The use of the trinomial is potentially confusing to lay viewers. It refers to one of several subspecies, each occupying its respective geographic range. An opportunity to discuss the use of scientific names, the difference between binomials and trinomials and the correct way to write them, is squandered.

And use of the trinomial lends to confusion because under the heading, “DISTRIBUTION” it states: “INDIA, PAKISTAN, NEPAL & SRI LANKA”. This is incorrect. The nominate subspecies, *Psittacula krameri krameri*, is, in fact, found only in Senegambia through West and Central Africa, east to the region of western Uganda and the western part of the Sudan.

Another subspecies, *P. k. parvirostris*) is found in more southern and eastern parts of central Africa. The Ring-necked Parakeet presents a classic example of what biologists call a “disjunct range”. That is a natural range that has a large gap in it. The species is missing (or was, before feral birds were introduced), as a native species, from the Arabian peninsula, but another subspecies, *P. k. borealis*, occurs through northern India to parts of Nepal and Bangladesh and Burma, while south of that there is the final subspecies, *P. k. manillensis*) which is the one that is found in the peninsular southern part of India and the only subspecies found in Sri Lanka.

It is also possible to see this species living in the wild in many parts of the world, where feral populations are soundly established, including parts of North America and Europe, and, now, the Arabian Peninsula, southern Africa, and other parts of Asia. They nested outside my hotel balcony, in Lisbon, Portugal, and might be seen by visitors to Florida, or Hong Kong.

If the trinomial is to be used without explanation, at least the distribution should be accurate if it is supposed to be educational.

Under the heading, LIFE SPAN, it is stated “16 TO 25 YEARS” without any explanation of what that means. In fact, these life spans refer to captive birds, often artificially raised, but that is not indicated.

Under the heading, “DIET” it states: “SEED, FRUIT, GREENS.” This tells us virtually nothing other than the fact that it eats plant material. In the wild the bird consumes a variety of seeds and grains, plus many kinds of fruit, plus nuts and flowers, including nectar of a variety of native and farmed plant species that have been identified. Because of the wide range of the species, diet varies considerably in terms of species of native or cultivated vegetation eaten. There is nothing more about the habits of this species, such as the fact that it often forms large and raucous flocks, in the wild, sometimes in the company of other species, such as crows.

Under the heading, “DESCRIPTION” it states: “ABOUT 17 INCHES LONG. GREEN BIRD. MALE HAS BLACK, RED & BLUE COLLAR. RED BEAK & LEGS. LUTINO MUTATION YELLOW WITH LIGHT RED COLLAR.”

At best, this will allow visitors to identify (if not too correctly) the bird in the cage being referred to. Usually descriptions of birds, to be of any real use or educational value, should be accurate enough to allow one to separate the bird from similar-looking species. The exact same description, for example, applies to the Mauritius Parakeet, except on average it might be a few inches longer (but not if central tail feathers are not developed) and neither species has red legs.

In the main body of the text I explain why length measurement alone is a poor way to give the size of the bird; nearly half the length is made up of tail feathers in these species. The Mauritius Parakeet also has a black collar, with an area of pink below it, and blue above, a red beak. The same description also applies to some subspecies of the Alexandrine Parakeet, although it has both the upper and lower mandible of the beak red, and has a maroon patch on the upper wing. The description does not apply to the female, which lacks the collar.

Under the heading, “BREEDING” it simply states: “LAYS 4 TO 5 EGGS WHICH HATCH IN 25 DAYS. BABIES WEANED IN 10 WEEKS.” There is no indication of what time of year it breeds (of course with captive birds that information is irrelevant) nor in what kind of nest it utilizes, how high off the ground, whether or not it is colonial or the colour and shape of the eggs. In the wild incubation is actually 22 days, and the nestling period is 7 weeks.

It is not that these data are all that important in better understanding the nature of the species, but if information is provided, it should be accurate and properly explained as to meaning if it is to have even a modicum of “educational” merit.

As I have only commented on very brief signs, I’ll add comments on a much longer sign. It is entitled “HARVEY & MINDY”. These are presumably the given or pet names of the individual parrots contained within the cage to which the sign is affixed.

Under the heading, “Common name” it is stated: “Amazon – Yellow Crowned”. While consistency in signage is not a requisite to the provision of information, it is a little confusing that naming has changed, with the last name placed first, followed by a hyphen, and then the first part of the English name. In fact, it is also slightly inaccurate, the correct name, as established by usage, particularly in serious literature, being “Yellow-crowned Amazon”.

Under the heading, “Other Common Names” it is stated: “Yellow Crowned Amazon, Yellow Fronted Amazon, Yellow-crowned Amazon, Yellow-headed Amazon”. A visitor could be forgiven for thinking that “Amazon – Yellow Crowned” is the actual name of preference. The name “Yellow-headed Amazon” actually refers to a different species, although one that has been considered conspecific. But if that is what is meant, a discussion of what conspecific means would surely be of educational value. Thus, in the absence of an explanation of that fact, this name simply lends to confusion for anyone seriously interested in learning, presumably what “educational” is all about. I don’t recall what species was actually in the cage to which this sign was affixed.

Under the heading, “Scientific Name” it is stated: “*Amazona ochrocephala ochrocephala*”. Unlike the other signs discussed, this is the correct way to write the scientific name (first letter of generic name upper case, species and subspecific names in lower, with all of it in italics) but for some reason the generic name, *Amazona*, is in a different coloured print (blue, the rest of the text being in black). No explanation is provided.

Again the use of the trinomial is not explained.

Below the scientific name, the sign states: “The Yellow Crowned Amazon originates in south America. As well, it may commonly be seen in Trinidad, Colombia, French Guyana (*sic*), Guyana, Surinam, Northern Brazil and Venezuela”. Pity the poor child trying to learn geography from that list of names. First of all, there is no “as well” about it...all these countries are, in fact, found in South America. Trinidad and Tobago is an island nation, but both geopolitically and ecologically, it is part of the South American continent.

There is no such country as “French Guyana”. The correct name is French Guiana, and that is important, as the incorrect spelling used by Hamilton Aviary could easily be confused with French Guinea, which is a country in western Africa.

The range given is essentially correct for the subspecies indicated by the trinomial. But it would be incorrect for the species overall, as the range of the Yellow-crowned Amazon is much larger, from Mexico south to northern Bolivia. There are also feral populations well established in California, Florida and Puerto Rico.

Under the heading, “Average Lifespan” it states: “70 years”. This is absurdly incorrect, akin to saying that 110 is the average lifespan of a human. If any member of the species lived that long, it would be exceptional. One often hears exaggerated claims for ages reached by parrots, but usually they are anecdotal; among documented records this would represent an extreme, not an average by a huge factor.

There follows a description that is more detailed than usual for other signs, but the problem is that terms are not defined. For example, it states, “The wings are indeed spectacular, as the primaries exhibit a lovely violet-blue, with secondaries also possessing this striking violet-blue at the tips and outer webs” but nowhere does it define “primaries” or “secondaries”. The genus contains many similar species, several of which essentially fit the same description.

There then follows the concluding paragraph, which refers solely to the breeding of the species in captivity, again with no real information about how the nest is constructed, where the nest is placed, which sex or sexes incubate, the colour and shape of the eggs, which sex or sexes care for the young and other rather basic information.

There is no information on food, natural lifestyles, habitat preferences, or flocking behaviour in the wild.