

<http://galah.galahs.com.au>

# ARTICLES 041 – 050

## **The Australia Galah**

10 Referenced Articles

Full Text

Updated: March 2005

All Copyrights belong to various owners.  
Strictly for educational use only.

## ARTICLE 041

### THIRD REVISED EDITION PARROTS OF THE WORLD

Pages 19 - 20

#### INTRODUCTION

There are approximately eight thousand seven hundred species of birds living today, though Austin (1961) has pointed out that there is evidence to suggest that the Pleistocene bird fauna of the world may have numbered about eleven thousand five hundred species, so birds as a class possibly reached a peak some quarter to half a million years ago and have declined gradually ever since.

Bird species constitute the class Aves among vertebrates and are grouped into categories according to their similarities and differences. Thus the class Aves contains several major orders, each comprising related families, genera and species. It is the order Psittaciformes – the parrots – that we shall be looking at in this book. Probably the most conspicuous feature making any parrot easily recognisable to even the casual viewer or zoo visitor is the short, blunt, rounded bill with the curved upper mandible fitting neatly over the lower. The foot is zygodactyl, that is, two toes point forward and two are turned backwards. There are other less obvious characteristics – the head is large and broad, the neck is short, the tongue is thick and prehensile, the nostrils are set in a bare or feathered, fleshy cere at the base of the upper mandible, and there are powder downs scattered throughout the plumage.

It will be evident from even a cursory glance at the illustrations in this book that parrots come in 'all shapes and sizes'. However, despite this superficial variation they are a really homogenous group and, as we shall see later, this presents problems to systematists. They vary in size from the pygmy parrots of New Guinea, which are less than 9 cm in length, to the giant macaws of South America; the Hyacinth Macaw *Andorhynchus hyacinthinus*, with a total length of approximately 100 cm, is the largest of all parrots. Plumage colouration is also variable; most parrots are brilliantly coloured with green, red, and yellow predominating, but there are dull coloured species like the Vasa Parrot *Coracopsis vasa* from Madagascar. Tails may be long and pointed, as in the Long-tailed Parakeet *Psittacula longicauda* and the Princess Parrot *Polytelis alexandrae*; short and squarish, as in the Short-tailed Parrot *Graydidascalus brachyurus* and some parrotlets (*Touit* spp.), or there may be ornate feathers, as in the Papuan Lory *Charmosyna papou* and the racket-tailed parrots (*Prioniturus* spp.). Wings can be narrow and pointed, as in the Swift Parrot *Lathamus discolor* and the Cockatiel *Nymphicus hollandicus*, or broad and rounded as in the amazons (*Amazona* spp.). Some parrots have head crests, while others have elongated feathers on their hindnecks.

## ARTICLE 042

### THIRD REVISED EDITION PARROTS OF THE WORLD

Pages 19 - 20

#### FOSSIL HISTORY

In 1861, near the Bavarian town of Pappenheim, a worker in a lithographic limestone quarry found a fossil feather on a slab and its impression on the counter slab. Later in the same year the incomplete skeleton of a feathered animal was found in the quarry. This skeleton of the oldest known bird was the first of three to be unearthed, and it provided palaeontologists with tangible evidence of the reptilian origins of birds. This bird, *Archaeopteryx lithographica*, was about the size of a crow and lived in the cycad forests of the late Jurassic period, that is, about one hundred and forty million years ago. It seems to have survived unchanged for quite some time and may have been one of the earliest of birds, judging by the number of purely reptilian features absent in all later birds. Its feathers were identical in structure to those of modern birds.

Bird bones are fragile and many are hollow, and thus easily broken and fragmented. Few land birds die where their remains can be buried in waterlaid sediments, the richest source of fossils, and it may also be assumed that many ancient birds, like those of the present, were preyed upon by carnivorous animals. Therefore, birds are poorly represented in fossil deposits and our knowledge of their evolutionary history is not as good as for reptiles and mammals. Indeed, Brodkorb has estimated that, between the time of *Archaeopteryx* and the present, up to two million species of birds probably existed, yet we have specimen evidence for the existence of less than ten thousand species, that is about half of one per cent (in Austin, 1961). However, from what we do have we are able to reconstruct sketch pictures of the early histories of most present-day groups of birds.

The Eocene epoch commenced about sixty million years ago and spanned approximately twenty million years, and from this epoch onward bird fossils became increasingly plentiful. Forms closely resembling those living today had replaced the toothed birds of Mesozoic. So many fossil birds from the early Tertiary period are assignable to living groups that most, possibly all, living orders have arisen by, or evolved during Eocene. Of course, there were also characteristic forms which became extinct then or later (e.g. the terrestrial diatrymids).

Several authors have expressed clearly the doubts about conclusions reached by comparing fossil material with existing birds. It is widely accepted that forms related to birds living today existed as far back as the Eocene, but there have been unjustified identifications made from inadequate material. For example, Holyoak (1971b) points out that an upper mandible, fragment of a skull, and two palatines of a parrot collected in Pleistocene deposits near Buenos Aires, Argentina, were assigned by Lydekker to the genus *Conurus* (= *Aratinga*), but from the few characters it shows the specimen could represent a member of any one of fourteen living South American genera.

The earliest fossil parrot is *Archaeopsittacus verreauxi* from the upper Oligocene or lower Miocene, that is, about thirty million years ago; it was described by Milne-Edwards from a complete tarsometatarsus found near Allier, France. Olson points out that there can be no doubt that *Archaeopsittacus* is correctly referred to the Psittaciformes, and it seems to have been a rather small parrot (in litt., 1977). The oldest representative of a modern genus is *Conuropsis fratercula* from the upper Miocene, that is, approximately twenty million years ago; it was described from a left humerus found in Nebraska, United States of America. *Cyanoliseus ensenadensis* and *Aratinga roosevelti*, from Argentina and Ecuador respectively, date from the Pleistocene, that is, less than one million years ago, and are representatives of two extant South American genera.

## PARROTS AND OTHER BIRDS

Dorst (1964) says, 'Almost no other large group of birds is more sharply set apart from all others than the parrots, which form an exclusive order by themselves.' Stresemann (1927 – 34) came to the conclusion that the parrots are a distinctive ancient group, well warranting their ordinal rank. In a *A Classification for the Birds of the World* (1960), Wetmore places Psittaciformes after Columbiformes (the pigeons) and before Cuculiformes (the cuckoos and touracos). Mayr and Amadon (1951) point out that that the parrots are a strongly differentiated group; resemblance to Falconiformes must be distant. After carrying out a comparative study of the egg-white proteins, Sibley and Ahlquist (1972) came to the conclusion that the parrots are a distinctive group of birds, but their nearest allies seem to be the pigeons; a single superorder comprising the Psittaciformes and Columbiformes was proposed. Burton (1974) also favours the view that Columbiformes are the order most closely related to the Psittaciformes, pointing out that several features seen in the Tooth-billed Pigeon *Didunculus strigirostris* show a significant trend towards conditions in parrots.

I agree that there seem to be no obvious close relationship between parrots and other groups of birds, but pigeons may be nearest. While watching fruit pigeons (*Ptilinopus* spp.) feeding with fig parrots and lorikeets in large forest trees I have often noticed similarities in their actions and general behaviour. Pigeons also have fleshy ceres at the base of their bills and the plumage patterns of some species, particularly the fruit pigeons, are like those of parrots. Of course, superficial similarities can be found in other groups of birds. For example, hawks and owls have bills somewhat resembling those of parrots. Zygodactylous feet are possessed by woodpecklers, jacamars, barbets, and toucans, all members of Piciformes; by cuckoos and touracos, both of which belong to Cuculiformes, and by the Trogoniformes, which have the inner or second instead of the outer or fourth toe turned backwards. Powder downs, which are well developed in parrots, are also present in herons-members of Ciconiformes, toucans-members of Piciformes, and in bowerbirds-members of Passeriformes.

## ARTICLE 043

### THIRD REVISED EDITION PARROTS OF THE WORLD

Pages 20 – 23

#### CLASSIFICATION OF THE PARROTS

Within an order such as the Psittaciformes further categories are used by systematists to classify members of that order according to the suspected relationships and evolutionary patterns.

FAMILY (name ending in ‘-idea’) is a primary taxonomic category and subdivision of the order; parrots usually are placed in a single family, and this also reflects their homogeneity.

SUBFAMILY (name ending in ‘-inae’) is a secondary category interpolated between family and genus to differentiate broad groupings of apparently related genera.

TRIBE (name ending in ‘-ini’) also is a secondary category used to identify subgroupings of more closely allied genera.

GENUS (plural genera) is a primary category representing a group of species. Mayr (1942) defines it as ‘a systematic unit including one species or a group of species of presumably common phylogenetic origin, separated by a decided gap from other similar groups’. It is obligatory that every species be placed in a genus and the name of the genus (always written in italics and with a capital letter) constitutes the first word of the scientific name of a species. If there is only one species in a genus, the latter is monotypic, but if there are two or more species these are said to be congeneric and the genus polytypic.

SPECIES is the category on which present-day classification is based. It is regarded as a natural entity, whereas classification in all other categories, lower and higher, is subjective. Mayr (1940) defines species as ‘groups of actually or potentially interbreeding natural populations, which are reproductively isolated from other such groups’. Amado (1970) has rephrased the definition as follows: ‘A species is a freely interbreeding population whose members do not interbreed with those of other populations’. In other words if a population of birds is breeding in a certain area in the company of another population and the members of each mate only with their own kind, then the two populations belong to separate species. For example, suppose that somewhere in Guatemala Green Conures *Aratinga holochlora* are commencing nesting activities, and that in the same area Orange-fronted Conures *Aratinga canicularis* are also breeding. The two kinds of parrots always pair within their own groups and not with other members of the other group. They are separate species. However, there are obvious similarities between them so both are placed in the same genus. Species which are found breeding in the same area are said to be sympatric, while those which occur in different regions are not found together are allopatric. As we shall see later the taxonomic treatment of allopatric populations is often subjective.

SUSPECIES OR RACE is a category which has received much attention in recent years and its importance as an indicator of evolutionary change is now widely accepted. Mayr (1963) defines a subspecies as 'an aggregate of local populations of a species inhabiting a geographic subdivision of the range of the species and differing taxonomically from other populations of the species'. It is a stage in the development of a species. Subspecies may be found within a continuous distribution or they may be separated by geographical or biological barriers.

- (i) Subspecies occurring within a continuous distribution are illustrated by the Blue-Bonnet parrot. The Blue-Bonnet parrot has a yellow vent, but in the north this is red. There is no sharp geographical line of distinction but there is a narrow intermediate zone where birds have yellow vents with variable red markings.
- (ii) Subspecies separated by a barrier are illustrated by the Eclectus Parrot. *Eclectus roratus*, a large parrot occurring in the Australasian area. In the southern Moluccas the female of the nominate subspecies (the first described) is red with mauve-blue breast and collar. On Sumba, in the Lesser Sunda Islands, the female is entirely red without any mauve—blue markings. The population on Sumba Island is called an isolated subspecies, or isolate, of *Eclectus roratus* and is given a different subspecific name. The nominate subspecies then becomes *Eclectus roratus roratus* and the Sumba Island population *Eclectus roratus cornelia*.

Some doubt always exists concerning the status of isolates because one can never be certain that they would interbreed if brought together; it is a matter for taxonomic judgement. However, the prevailing practice is to emphasize affinities, and isolates are generally treated as subspecies or races of a single species. In cases where the taxonomic differences are so great as to suggest that the isolate would not interbreed with other isolates if the separating barriers were removed, the isolated populations can be treated as species within a single subspecies.

Classification is an attempt to subject living, ever-changing organisms to a static, 'pigeon-hole' type arrangement, so it is inevitable that there will be shortcomings. Differences of opinion from various taxonomists and inconsistencies in systematic lists are to be expected and should not be interpreted as evidence of failure of the system. In this book I have drawn attention to different arrangements, usually whether a certain form should be a subspecies or a species whether a species belongs to one genus or to another. It must be remembered that although agreement on such matters is desirable it is not essential – more importantly is knowledge of the biological facts.

As already mentioned, Psittaciformes is a very homogeneous assemblage of forms, so differences available for separation into lower categories are minor. Systematists have always had difficulties classifying parrots and most arrangements proposed have been largely artificial, though convenient. Summing up the results from his comparative examinations of cranial osteology, Thompson (1900) remarked, 'To discover anatomical characters such as might yield or help to yield a natural classification of the Parrots has been the desire of many ornithologists, but the search has availed little'. Berlioz (1941) has expressed similar sentiments: 'Aucun caractere osteologique nom saurait etre envisage comme critere absolu pour un essai de groupement des Perroquets et la definition de leurs affinities respectives' (it has not been possible to

envisage any osteological character as an absolute criterion for attempting to group the Parrots and to define their respective affinities).

Salvadori (1891) used a classification based entirely on external features, and it comprised seven families, one which, Psittacidae, was divided into six subfamilies. Thompson followed Salvadori's classification when carrying out his osteological examinations, and although he demonstrated minor differences no major alterations were proposed. The work of these two pioneers is often criticized because emphasis was placed on what are now regarded as relatively unimportant, adaptive characters, but their classification still forms the basis for taxonomy of the Psittaciformes. Reichenow (1913) proposed a new arrangement comprising eight families and one of these, Psittacidae, was divided into three subfamilies; this was not radically different from that of Salvadori. Peres (1937) also relied strongly on Salvadori's arrangement when compiling his Check-list, but he used only one family separated into six subfamilies.

Verheyen (1956) analysed anatomical and ecological data, both published and original, on a number of species and proposed an arrangement comprising five families, three of which were divided into three or more subfamilies. Glenn (1957) looked at patterns in the carotid artery arrangement and recognized only one family, but this he divided into nine subfamilies. A radical arrangement was proposed by Brereton (1963) who, after considering both anatomical and ethological characters, set up two superfamilies. Inconclusive results were obtained by Gysels (1964) when he subjected extracts from eye lens and muscle to electrophoresis, but there was an indication that the one family of Peters comprised a number of separate subfamilies.

A major essay on systematics of parrots was presented by Smith (1975), and for most part I concur with his findings. Smith groups the genera into a number of tribes, a proposal that I find acceptable, though I differ in the composition of those tribes and am not convinced that his grouping of tribes into four subfamilies is an accurate reflection of phylogenetic relationships. I do not claim to be a taxonomist, and I do not have ready access to large collections of specimens or anatomical material from various parts of the world, so in this book there are no taxonomic discussions on the major groupings. In some instances I have stated my opinions; for example, about whether *Nymphicus* is a cockatoo, and about the relationships of *Lathamus*, but these opinions generally are confined to species I know well in the field. The end result is that in this edition I have adopted an arrangement modified from that of Smith (see fig. 2). There is only a single family – Psittacidae, with three subfamilies – Loriinae, Cacatuinae and Psittacinae, and a number of tribes are identified within Cacatuinae and Psittacinae.

I shall now look at a particular parrot, list the taxonomic categories to which it belongs, and explain the derivation of its scientific name. The parrot is the very common Rose-ringed Parakeet from southern India, and it is classified as follows:

Class: Aves  
Order: Psittaciformes  
Family: Psittacidae  
Subfamily: Psittacinae  
Tribe: Psittaculini  
Genus: *Psittacula*  
Species: *krameri*  
Subspecies: *manillensis*

The scientific name is formed by writing the names of the last three categories followed by the name of the person who described and named it, in this case Bechstein. To signify that this parrot was placed in a different genus when originally described, the author's name is put in parentheses. Therefore, the scientific name of the Rose-ringed Parakeet from southern India is: *Psittacula krameri manillensis* (Bechstein).

Before ending this section on classification mention must be made of the Mallophaga, ectoparasitic lice that live amongst feathers of birds. The present distribution of the Mallophaga suggests that they become parasitic on the class Aves at an early stage in the evolution of that class and that they evolved with their hosts (Clay, 1964). This means that, generally speaking, the Mallophaga of related hosts are themselves related. Different species of birds do not normally come into contact with each other so there is little chance of interchange of lice populations, and this isolation has led to host restriction, so that in many cases a species of Mallophaga is found on only one host species or on a group of closely related host species. Each order of birds is parasitized by one or more mallophagan genera that are often peculiar to it, and the relationship between species of these genera generally reflects the relationship between host and parasite, so that information about the occurrence of Mallophaga cannot be used as an infallible guide to relationships between the hosts.

Dr L. R. Guimaraes, formerly of the Museu de Zoologia da Universidade de Sao Paulo, Brazil, examined the Mallophaga from many species of parrots, with the notable exception of Micropsittini. He provided me with an outline of patterns of the relationships found in Ischnoceran Mallophaga, and some very interesting aspects are present. Mallophagan genera and their hosts are listed in Table 1, and the geographical distribution of mallophagan genera recorded from species of Psittacinae is given in Table 2.

Parrots from the New World are parasitized only by the genus *Paragoniocolletes*, and it has been found on no other group of birds. This is further evidence of the Arini being well set apart from other parrots in Psittacinae, a pattern emphasised by Smith (1975) when suggesting that New World parrots may be sufficiently differentiated to warrant subfamily status. The Loriinae is parasitized only by *Psittaconirmus*, and this genus has not been found on any other group of parrots. Three mallophagan genera have been recorded from Cacaetinae, and one of these, *Psittoecus*, has not been found on any other group of parrots. There are five genera recorded from Psittacinae; two occur

also on Cacatuinae, one is confined to parrots from the New World, and the recently described *Theresiella* has been found only on *Psittacella* from New Guinea. The geographical distribution of mallophagan genera from Psittacine is interesting; two are widely spread throughout Africa, Madagascar, continental Asia and the Australasian region, two have been recorded only from the Australasian region, and one is restricted entirely to Central and South America.

Summing up, we find that each of the three subfamilies – Loriinae, Cacatuinae and Psittacinae – has at least one mallophagan genus restricted to it. In this case of Loriinae, there is only one genus and this has not been found on any other group of parrots. Two of the three genera found on Cacatuinae have been recorded also from Psittacinae there is a genus confined to parrots from Central and South America, one not recorded from the other subfamilies, another known only from *Psittacella* from new Guinea, and two that have been found also on Cacatuinae.

## ARTICLE 044

### THIRD REVISED EDITION PARROTS OF THE WORLD

Pages 23 – 28

#### PHYSICAL ATTRIBUTES OF PARROTS

Some conspicuous external features of parrots have already been mentioned, but in this section these are less obvious characteristics will be described in more detail. Figures 3, 4, and 5 are an integral part of this section and are intended to replace wordy definitions and descriptions of technical terms such as nape, lower mandible, metatarsus, crop, etc. They are also designed as explanatory figures for plumage descriptions and anatomical features referred to in the main text.

#### PLUMAGE

The plumage is the most important element in the external appearance of a bird. It plays a major role in intra-specific recognition, and parts are often specially adapted for use in display. The unit of plumage is the feather and there are about six types, of which the main two are contour feathers and down feathers. Contour feathers constitute the ordinarily visible plumage and include flight feathers, tail feathers, ear-coverts, tail-coverts and feathers on other parts of the body. Down feathers form an undercoat in most birds and are generally not visible. In parrots and some other birds there is another peculiar type of feather called a powder-down. A powder-down feather is a modified down feather which grows throughout the life of the bird, the barbs continually disintegrating into a fine powder; this powder is used by the birds for cleaning the feathers and gives the plumage a characteristic bloom.

In most birds contour feathers grow only from definite tracts of skin called pterylae, while the intervening areas, or apteria, are bare or with down but are covered by the overlapping of the contour feathers. Except in the 'ratite' birds, the penguins, and the toucans, there is a definite distribution of feather tracts and the study of the different patterns is known as pterylography or pterylosis. Pterylography is sometimes useful as a taxonomic character.

The plumage of parrots is sparse. This means that the pterylae are sparsely distributed and the apteria very prominent. Down feathers grow profusely from all parts of the skin, except on the neck where in many species the apteria are bare.

#### COLOUR

The brilliant colours of many species of parrots demonstrate dramatically the processes of plumage colouration. In birds there are two types of colours: (i) structural colours and (ii) pigmentary colours. The structures responsible for structural colours are present in the barbs and barbules of the feathers. The structures responsible for structural colours are present in the barbs and barbules of the feathers. Dyck (1971) examined feathers from the Peach-faced Lovebird *Agapornis roseicollis* and came to the conclusion that in that species, and probably most other birds, blue and blue-green colours are due principally to back-scattering of light from the numerous hollow, randomly oriented keratin cylinders which make up the spongy structure of the barbs.

The range of colours which may be produced by the spongy structure probably is not limited to blue and bluish-green; it is possible that other barb colours are produced by varying the dimensions of the spongy structure. He further points out that green barbs differ from the blue barbs in having a yellow-pigmented cortex and a denser spongy structure with wider keratin rods and correspondingly narrower air-filled channels. Vevers (1964) says that iridescent colours result from barbules being flattened for parts of their length and twisted at right angles. Pigmentary colours, as the name suggests, are due to pigments, of which the commonest is called melanin. The exact chemical composition of melanin is not known, but despite the name it is not always black and may be brown, red-brown, or even yellow. Other pigments include turacin and the carotenoids.

In parrots there are two types of pigments of unknown composition. In one type the pigment is pale yellow in visible light and fluorescent yellow-gold, sulphur-yellow or green in ultra-violet light. Volker (1937) points out that these pigments are not present in the Loriinae or in the genus *Ecluctus*, have been found in two South American species (*Bolborhynchus lineola* and *Pionites leucogaster*), but are common in Australasian parrots and cockatoos; crest feathers of some *Cacatua* spp. are coloured by one of these pigments. The second type consists of non-fluorescent red or yellow pigments found in some parrots, including the Budgerigar *Melopsittacus undulates* and the Cuban Amazon *Amazona leucocephala*.

Many colours are due to a combination of two or more pigmentary colours or to a combination of pigmentary and structural colours. For example, purple on the head of the Plum-headed Parakeet *Psittacula cyanocephala* is the result of the barbules of the feathers containing red pigment and the structure of the barbs producing blue (Vevers, 1964) Dyck notes that dark green back feathers of the Peach-faced Lovebird *Agapornis roseicollis* reflect approximately half as much light throughout the visible spectrum as do the paler green abdominal feathers, the difference being due to variations in yellow and black pigmentation of the barbules.

#### BILL AND TONGUE

The bill of a parrot is characteristic and comprises a down-curved upper mandible fitting neatly over a broad, up-curved lower mandible. The upper mandible is attached to the skull by a 'hinge-like' arrangement thus allowing extensive movement of both mandibles. Kinesis, that is movement of the upper mandible in relation to the skull, is present in most birds, but is especially marked in the parrots and the resulting increase in leverage enables parrots to crush the seeds and nuts that constitute the diet of so many species. There are some minor modifications in bill shape for different feeding habits, but in all species the basic structure is identical. For example, the upper mandible of the Slender-billed *Corrella* *Cacatua tenuirostris* is elongated and less curved and is used to dig up roots and corms; the upper mandibles of the *spurius* are also elongated and less curved and seem to be identical for extracting certain seeds, while those species which feed extensively on pollen and nectar have narrow, protruding bills (e.g. the Loriinae and *Loriculus* spp., *Touit* spp. and *Brotogeris* spp.).

Parrots have a thick, fleshy tongue, generally with a thick and horny epithelium towards the tip. In the Loriinae and *Lathamus* discolour it is tipped with 'brush-like' papillae used for gathering pollen (see fig. 7).

## DIGESTIVE TRACT

The digestive tract of a bird is basically the same as that common to all vertebrates, and consists essentially of a coiled tube or gut leading from the mouth to the anus. In common with other grain-eating birds parrots have well-developed crops and gizzards, and these deserve special mention here. The crop is a thin walled, distensible elaboration of the oesophagus, where food is stored for subsequent digestion of feeding of the young by regurgitation. The proventriculus and gizzard (ventriculus) together correspond to the stomach in mammals. The gizzard is weak and not muscular in the Loriinae, particularly in species that feed almost exclusively on pollen and nectar, but in other parrots it is highly developed with thick walls and massive muscles. Digestive juices are secreted by the glandular walls of the proventriculus.

A protein secretion similar to that originating from cells lining the crop in a pigeon and known as 'pigeon milk' has recently been described from the Budgerigar *Melopsittacus undulates*, though in that species it may be proventricular in origin.

## ARTICLE 045

### THIRD REVISED EDITION PARROTS OF THE WORLD

Pages 28 – 39

#### NATURAL HISTORY OF PARROTS

As a rule parrots are difficult to observe in the wild state. Most are predominately green and live in the canopy of rainforest. Often the only view one gets is a momentary glimpse when a screeching flock flashes overhead. While feeding in the treetops they can escape detection because of their protective colouration, and an observer may be unaware of their presence until they suddenly burst out from the foliage and fly off screeching loudly. Species which inhabit open country or are plentiful in the vicinity of habitation are conspicuous and there is more information on their habits. For example, we have fairly good information on the habits of such species as the Eastern Rosella *Playcerus eximius*, the Alexandrine Parakeet *Psittaculus eupatria*, Meyer's Parrot *Poicephalus meyeri* and the Monk Parakeet *Myiopsitta monachus*, but virtually nothing is known of the habits of many forest-dwelling species like Salvadori's Fig Parrot *Psittaculirostris salvadorii*, the Black-collared Lovebird *Agapornis swinderniana*, the Golden-plumed Conure *Leptosittaca branickii* and the Spot-winged Parrotlet *Touit stictoptera*.

In contrast to what is known about the nesting habits of most other groups of birds, information on the breeding behaviour of parrots is poor and very generalised. This is probably because nearly all species nest in hollows in trees or holes in termitaria, sites which do not facilitate observations on incubation, parental care, development of chicks, etc. Most of what is known about nesting comes from birds in captivity and there are striking individual variations in behaviour, some of which must be due to the artificial conditions.

#### LONGEVITY AND MORTALITY

The longevity of parrots in captivity is well known. There are records of some of the larger species living in captivity for between thirty and fifty, and even up to eighty years. I know of a Bare-eyed Corella *Cacatua pastinator* taken from nest in central Australia in 1904, and it was still in good health in 1975 when I lost contact with the owners. There is very little data on the length of life in the wild state, because only in Australia have parrots been ringed in any numbers. The scant information we do have from wild birds suggests that parrots are long-lived, particularly the larger species. In Table 3, I have listed some longevity records obtained from ringing returns submitted to the Australian Bird-Branding Scheme. These records are of birds, ringed as adults, so the birds already had lived for an unknown number of years, and at the time of recovery they were still alive or had died from unnatural causes. In other words, the length of time between initial branding and recovery is only an unknown portion of the potential lifespan of the bird.

Table 3 – Longevity records from Australian branding reports.

LITTLE CORELLA

Band NO:	110-02323
Branded as adult	16 FEB 1901
Killed by Car	12 JAN 1972

SULPHUR-CRESTED COCKATOO

Band NO:	120-11317
Branded as adult:	19 SEP 1960
Caught in Rabbit Trap	20 SEP 1968

EASTERN ROSELLA

BAND NO:	060-1992
Branded as adult	2 JUL 1961
Trapped and Released	2 OCT 1970

RED-RUMPED PARROT

BAND NO:	060-01609
Branded as adult	15 SEP 1956
Trapped and Released	27 JUN 1964

Although there is no evidence to suggest that mortality is highest in young birds before they reach sexual maturity, I suspect that this is as true for parrots as for many other birds. Nowadays the most prevalent cause of death is probably man and his activities: parrots are shot and poisoned because of damage they do to crops, they are shot, trapped, and taken from nests for the pet trade, they are hit by cars, and they are preyed upon by feral cats and other introduced predators. I suppose that natural causes of death would include disease, predation by birds of prey, and starvation brought about by unfavourable climatic conditions such as drought.

Burnet (1939) reports that outbreaks of fatal ornithosis in wild parrots have been observed amongst King Parrots in Victoria and Eastern Rosellas in Tasmania, and in south-eastern parts of South Australia there was a highly fatal epizootic in parrots, probably Red-rumped Parrots. In January 1939, near Adelaide, South Australia, numbers of Adelaide Rosellas were seen dropping dead from trees and at the time it was attributed to exceptionally hot weather and no investigations were made, but in view of the widespread epizootics of ornithosis it would seem more likely that this was another epizootic focus of the disease (Miles 1959). During the years 1887-88, in the Adelaide Hills, South Australia, Red-rumped Parrots were found suffering from a disease or infection which prevented feathers being renewed after moulting: naked but otherwise healthy looking-looking birds were seen running on the ground where they were easy prey to all predators (Ashby, 1907). Johnson (1967) reports that in recent years Newcastle disease has been responsible for a decline in the numbers of Slender-billed Concures in Chile, though not on the same scale as in the case of the Chilean

Pigeon, which was almost exterminated by the virus. Veterinary researches have turned their attention to what has been termed 'beak and feather disease', and which is a highly contagious, apparently viral infection affecting bill and feather development. The significance of this unusual fatal disease was highlighted when it was detected in Orange-bellied Parrots brought into captivity as part of a recovery programme for this seriously endangered Australian species; the evidence is that this disease could be a factor in the decline of wild populations.

It seems that even large parrots are attacked by birds of prey. I have seen a Wedge-tailed Eagle take a Sulphur-crested Cockatoo, though at the time I suspected that the cockatoo was probably an old, weak bird. On a few occasions I have observed Peregrine Falcons take Galahs, and there are records of these cockatoos being killed by Little Eagles.

## DISTRIBUTION

The more than three hundred and thirty extant species of parrots are distributed mainly in the Southern Hemisphere and are most prevalent in tropical regions. Following the extinction of the Carolina Parakeet, the Slaty-headed Parakeet, which inhabits the Safed Koh area in eastern Afghanistan, is the species with the northernmost distribution. Tierra del Fuego inhabited by the Austral Conure, is the southern limit of distribution of parrots now that the Red-fronted Parakeet no longer occurs on Macquarie Island. The order is most strongly represented in Australasia and South America, though in South America there is a marked uniformity of types. There are parrots in Asia, mainly on the Indian sub-continent, and in Africa, but representation in these parts of the world is much less than might have been expected. The following list of numbers of species occurring in selected countries illustrates the pattern of distribution within the order.

Australia	52 species
New Guinea	46 species
Philippines	11 species
Central Africa	14 species
Southern Africa	10 species
India	10 species
Brazil	71 species
Colombia	49 species
Venezuela	48 species
Argentina	25 species
Mexico	18 species

Glenny (1954) considers that the present distribution of parrots, especially the concentrations in Australia and South America, is contributory evidence for the theory that Antarctica was a centre of origin of birds; movement away from Antarctica could have been by way of South America and Australia. Cracraft (1973) points out that the considerable amount of evolution that has taken place in the Old World and dispersal was facilitated by the interconnections of the southern continents in the Cretaceous

and early Tertiary, that is, about seventy to ninety million years ago. Dispersal across the North Atlantic and/or Bering land-bridges was probably minimal. Though it is easy to appreciate that dispersal would certainly have been facilitated by the interconnecting southern continents, making up the concept of Gondwanaland as we now know it, I am not convinced that the parrots could not have originated in virtually any region of the world and ancestral forms spread to Australia, Africa and South America. In other words, the former close proximity of the southern land-masses to each other, as outlined by Dietz and Holden (1970), provides only probable dispersal paths and not proof of the centre of origin of the Psittaciformes.

Some parrots are widely distributed, while others have very restricted ranges. The most widely distributed species is the Rose-ringed Parakeet, which occurs in Asia and northern Africa and has been introduced to parts of the Middle East and South-East Asia. Other widespread species include the Blue-headed Parrot from Central and South America and the Port Lincoln Parrot from southern and western Australia. Most of the species with restricted ranges are confined to islands which are quite small. The Antipodes Islands, with a total area of approximately 21 sq. km, are inhabited by two closely related parrots, one of which, the Antipodes Green Parakeet, is endemic. Another small island on which an endemic species occurs is Henderson Island, a tiny coral atoll in the Pacific Ocean that is inhabited by Stephen's Lory *Vini stepheni*. There are species which occur in only small areas on large land-masses, for example the Rufous-fronted Parakeet and the Tepui Parrotlet, but such are not common.

## HABITATS

Lowland, tropical rainforest is the habitat in which parrots are particularly plentiful, and here they may be seen climbing amongst the foliage of trees bearing flowers or fruit. In New Guinea, and in northern Australia and Guyana I have noticed that they seem to be more common along the edges of forest where it borders a watercourse or swamp, or meets a track, clearing or some similar interruption, and are not plentiful deep in the forest itself; of course, this could simply be due to the difficulty of seeing them in dense forest.

Species which inhabit open country also show a strong attachment to trees, particularly those lining watercourses, and are seldom seen far from such cover. They frequently come into botanical gardens and parklands, which are often situated well within urban boundaries. In parts of Australia Galahs and Red-rumped parrots are commonly seen perching on telegraph wires above city streets. In India Rose-ringed Parakeets often come down to drink from a community well in a very busy marketplace. In the Praca do Republica, a small park set amidst the towering buildings of central Sao Paulo, Brazil's largest city, I have observed small flocks of Plain Parakeets.

Generally speaking, parrots are less common at higher altitudes, and those species that do occur there are absent from or rare in neighbouring lowlands. There are some distinctive highland forms, such as the Papuan Lory and the Whiskered Lorikeet from New Guinea. Johnstone's Lorikeet from Mindanao in the Philippines, the Derbyan Parakeet from Tibet, the Yellow-faced Parrot from Ethiopia, and the Sierra Parakeet and Tepui Parrotlet from South America. Possibly the most interesting of all highland

forms is the Kea *Nestor notabilis* from the Southern Alps of New Zealand; it is a species that has been much maligned in the literature because of its alleged sheep-killing habits. I suppose that it is somewhat incongruous to think of parrots, an essentially tropical group of birds, occurring amidst snow-covered surroundings, but the Kea even rolls about in the snow and gets well covered in the process. In the Southern Alps of Australia I have often seen Gang-gang Cockatoos wheeling about above the forest canopy while snow is falling, and Crimson Rosellas on snow-covered ground searching for exposed seed-heads.

There are a few species that occur in very specialized habitats. One of the best examples is the completely terrestrial Ground Parrot, which is found only in coastal and contiguous mountain heathlands in southern Australia, a very restricted habitat that is rapidly disappearing. The Rock Parrot occurs along the southern sea-board of Australia and nests in crevices under overhanging slabs of rock above high-water level. There are other species which do not show such specific habitat requirements, but their habitats are dominated by a particular plant or vegetation community that seems to be indispensable to the birds, usually as a source of food or nesting sites. Examples of parrot species found in close association with particular plant species are: the Glossy Cockatoo and *Casuarina*; the Red-capped Parrot and *Eucalyptus calophylla*; the Thick-billed Parrot and *Pinus*; the Red-spectacled Amazon and *Araucaria*; and the Tucuman Amazon and *Alnus*. Sometimes the association is obvious but the reasons obscure; for example, in the case of the Black-cheeked Lovebird, which is confined mainly to *Colophospermum* woodland.

## FEEDING

The diet of the majority of parrots comprises seeds and fruits of various kinds and these are procured in the treetops or on the ground. Lories and lorikeets are strictly arboreal and feed on pollen, nectar, and soft fruits. There are few published results from analyses of crop and stomach contents, but where this work has been done, mainly in Australia and Brazil, one interesting fact has been brought to light and that is the proportion of insect material in the contents. Insect remains have been listed in the contents from any species, even those that normally feed on grass seeds. Some of these insects could have been ingested accidentally, but I believe that parrots as a group are far more insectivorous than is generally suspected. The 'black cockatoos' from Australia feed extensively on insect larvae and for one species, the Yellow-tailed Cockatoo, these make up the staple diet.

When feeding, a parrot makes full use of both its hooked bill and zygodactylous feet. While climbing amongst the foliage of a tree in search of fruits or flowers, it often uses its bill to grasp a branch and then steps up or across from its previous position. When walking along a stout limb, it may simply press the tip of its bill against the limb thus stabilising its balance and presumably allowing more rapid progress. Many species use one of their feet as a 'hand' to hold food up to the bill. Smith (1971a) has surveyed what he terms 'prehensile-footed' feeding and concludes that it is present in most, if not all, members of *Loriinae*, in all cockatoos except *Nymphicus*, and in the majority of the *Psittacine*, exceptions in that subfamily being mainly those species which are essentially ground-feeding birds.

Friedmann and Davis (1938) record observations on twenty captive parrots belonging to seven genera and sixteen species, the majority being neotropical. They noted for each individual the number of times it used its right or left foot to bring food to its beak. A little over 72% of the individual birds showed a tendency to use the left foot to hold the food. The Orange-chinned Parakeet, represented by three individuals, was never seen to use the right foot, while the Great-billed Parrot used its right foot in 95% of its feedings. Of the genus *Amazona*, seven species showed a 67% use of the left foot while there was a 70.5% use of the left foot in the ten individuals involved. One Orange-winged Amazon used the left foot in 75% of its feedings. McNeil et al. (1971) report that of fifty-six captive Brown-throated Conures twenty-eight consistently used the left foot to hold food and twenty-eight used the right. These birds were killed and the hindlimb segments (femur, tibiotarsus, and tarsometatarsus) were separated and measured. It was found that in the twenty-eight birds that consistently used the right foot there was a positive bilateral difference between homologue legs, the right leg being slightly longer than the left, while in the birds that used the left foot there was a less pronounced tendency for left limb segments (except the femur) to be longer.

As anyone who has watched a caged parrot shelling seeds well knows, parrots are very adept at extracting the kernel and discarding the husk. To do this the bird uses its thick tongue to steady the seed against the broad, ridged underside of its upper mandible and with the front cutting-edge of the lower mandible peels away the seed-coat.

## FLIGHT

The flight for most parrots, especially the smaller ones, is swift and direct. Some have a characteristically undulating flight which is produced by each series of wingbeats being followed by a period of gliding or by a brief pause with the wings withdrawn in against the body. In the larger birds it is variable; macaws are fairly fast fliers, but the buoyant flight of 'black cockatoos' is conspicuously slow and laboured. It is often stated that parrots are not capable of sustained flight, but I doubt that such a generalized statement can be applied. When watching evening flights of Sulphur-crested Cockatoos, Eclectus Parrots, and various amazons returning to the roosting trees, I have been impressed by the birds' mastery of the air; they first appear as specks on the horizon and then pass high overhead giving the impression that they have come considerable distances.

Parrots found on the oceanic islands sometimes fly from one island to another, but the distances usually involved are not great. The Blue-winged Parrot and the Swift Parrot from south-eastern Australia migrate across Bass Strait, which has an average width of approximately 200 km and contains a number of islands, though many of these are treeless and would not provide suitable resting places for the arboreal Swift Parrot.

## CALL-NOTES

The distinctly metallic call-notes of most parrots are harsh and unmelodic. Generally they are based on a simple syllable or a combination of simple syllables, and variation comes primarily from the timing of repetition. In general, the larger the species have lower pitched calls. Members of the Australian platycercine genera have pleasant, whistle-like calls and one species, the Red-rumped parrot, often emits a prolonged trill-like whistle, almost a song.

The mimicry of captive parrots is well known, so it is very surprising to find that there are no convincing reports of wild birds imitating other species. Nottebohm and Nottebohm (1969) sought evidence of this in Nariva Swamp, Trinidad, but found that neither the Orange-winged Amazon or the Red-bellied Macaw, the two common species in the locality, imitated other birds. However, it was noticed that in various parts of Trinidad calls of Orange-winged Amazons varied locally, thus suggesting that individuals may have to learn the dialect of the local population.

## NESTING HABITS

As stated previously, our knowledge of the nesting habits of parrots is poor and what information we do have comes largely from birds in captivity.

## SEXUAL DIMORPHISM

Sexual dimorphism in parrots is confined mainly to differences in plumage colouration. Females of some species in *Psittacula* have shorter central tail-features than have the males, and in the racket-tailed parrots (*Prioniturus* spp.) there is a slight sex difference in the length of the central rackets. Sex differences in plumage colouration, including colours of soft parts, are common in parrots from Australasia and Asia, but very uncommon in African and South American species. Females of sexually dimorphic species are generally duller than males and lack some of the prominent markings, but there are two notable exceptions to this rule:

- (i) the sexes of the Eclectus Parrot are so different that for nearly a century they were considered a separate species; the male is rich green with red flanks and under wing-coverts, the female is bright red with or without blue on the underparts;
- (ii) the female Ruppell's Parrot is more brightly coloured than the male.

## SEXUAL MATURITY

The age at which parrots reach sexual maturity varies, but in general it is three or four years in the larger species and one to two years in small birds. Vane (1957) reports that a captive pair of Red-lored Amazons started laying when they were about three years old. Licht (1968) notes that a female Festive Amazon, obtained as a pet when six months old, exhibited soliciting behaviour for the first time when three years old. Most *Psittacula* parrots, some rosellas and related groups, some conures, parrotlets and lovebirds will breed within the first year. There are records of Australian King Parrots and Crimson Rosellas breeding while in immature plumage. Marshall and Seventy (1958) quote data showing that young male Budgerigars may produce spermatozoa within sixty days of leaving the nest; this rapid sexual development is a

physiological adaptation to an arid environment and enables very young birds to reproduce quickly when conditions are propitious.

#### PAIR BONDS

As far as can be ascertained from observations, most species are monogamous and the majority remain paired for long periods, perhaps for life. Notable exceptions are the Kea, which is polygamous, and the Kakapo, a lek-display species, with males almost certainly taking no part in incubation or care of the young. Pairs and family groups are readily discernible within the large flocks of gregarious parrots, such as amazons and some cockatoos. When watching flocks of Red-rumped Parrots resting in trees, I invariably see males sidling along branches towards their mates; individuals in each pair then chatter to each other and indulge in mutual preening. Hardy (1965) studied flocks of Orange-fronted Conures, in the wild and in captivity, and found that birds in a flock were in pairs and showed evidence of peck order; in captivity, pair bonds were maintained throughout the year and were often essential to the social success and social mobility of individuals. Power (1967) reports that in captive flocks of Orange-chinned Parakeets there was a tendency for birds to roost and feed in pairs and this resulted in the formation of flock mates, a union that presumably would lead to the formation of breeding pairs during the breeding season; pair bonds were maintained by close and relatively continual association, and by acts of mutual preening and courtship feeding.

#### COURTSHIP DISPLAY

Courtship display of few species parrots have been described and most of these come from observations on captive birds. From available information, I think it may be assumed that courtship displays of parrots are, as a rule, simple; even the most elaborate consists of a series of simple actions such as bowing, wing-drooping, wing-flicking, tail-wagging, foot-raising, dilation of the pupils etc. The Kakapo is unique in being the only parrot known to have a lek display. Prominently coloured parts of the plumage of males generally feature strongly in their displays; for example, the Sulphur-crested Cockatoo and Major Mitchell's raise their crests, the Australian King Parrot flicks its wings to highlight the pale-green scapulars, and the Black-capped Lory opens its wings to expose the brilliant yellow undersides. Prior to copulation, there is considerable bodily contact in the form of bill-rubbing, mutual preening and courtship feeding. During courtship feeding, the male feeds regurgitated food to the female in the same manner as the female feeds the chicks.

#### NEST SITES

Nests are usually in hollows in trees or holes in arboreal and terrestrial termitaria, occasionally in holes in banks or in crevices among rocks. If in termitaria the tunnel and nesting chamber are excavated by the birds themselves. Natural hollows in trees and or old nesting holes of other birds, such as woodpeckers and barbets, are frequently enlarged and altered to suitable dimensions, but few parrots are known to excavate fresh hollows in trees. Puget (1970) points out that in eastern Afghanistan the Slaty-headed parakeet nearly always nests in old nesting holes of the Scaly-bellied Woodpecker. There is concern for the status of the Thick-billed Parrot from northern Mexico because of its alleged dependence on nesting holes of the very rare Imperial Woodpecker. Double-eyed Fig Parrots, Red-cheeked Parrots and Red-breasted Pygmy Parrots are species which do excavate fresh hollows in tree-trunks, and almost certainly there are others. Crevices in walls or under the eaves of buildings are also

used as nesting sites by some parrots, especially the Rose-ringed Parakeet in India. Keas and Kakapos from New Zealand, and Patagonian Conures from South America nest in crevices in rocks, and a few Australian species nest on the ground under or in grass tussocks. Monk Parrots gather twigs and dead branches to build a huge communal nest in a tree; each pair of birds has its own breeding chamber; the species is thus unique among parrots.

Most parrots do not bring lining material to the nest cavity; the eggs are simply laid on decayed wood dust or crumbled earth that accumulates on the bottom. The African lovebirds and the hanging parrots line their nests with grass, twigs, and leaves carried there by the birds in their bills or thrust among the body feathers, particularly those of the rump.

#### EGG-LAYING

Eggs are usually laid every other day, but there is some deviation from this rule. Marchant (1960) found that in south-western Ecuador laying by the Pacific Parrotlet may have been irregular and varied from intervals of thirty-six to forty-eight hours. Lamba (1966) reports that for the Rose-ringed Parakeet intervals between eggs vary from twenty-four to forty-eight-hours. I have a record of a captive Bourke's Parrot laying a clutch of four eggs with an interval of thirty-two hours between each egg. In the genus *Calyptorhynchus* there is one species that invariably lays only one egg (*C. lathami*), but the other two species sometimes lay two, the second being several days after the first, generally fails to hatch, but if it does the chick is neglected and soon dies.

Clutch size varies from species to species, but is generally within the range of from two to four or five, sometimes up to eight for small species. The eggs are relatively small and are pure white.

#### INCUBATION AND PARENTAL CARE

It is difficult to ascertain when incubation commences and there is some indication that this may vary individually. As a rule it commences with or immediately after the laying of the second egg, but there are reports of captive females commencing to sit after the last egg has been laid, particularly when the clutch is larger than average. Lamba (1966) says that the female Rose-ringed Parakeet starts sitting from the very day the first egg is laid. Hardy (1963) reports that with the Orange-fronted Conure incubation begins with the first egg. Generally the female alone incubates and while she sits is fed by the male, but there are a number of species in which males share incubation. In the Loriinae males spend considerable time in the nest with the females, but it is doubtful that they participate in incubation. Duration of incubation varies roughly in proportion to the size of the bird; for small parrots it is from seventeen to twenty-three days, but for the large macaws it can be up to five weeks.

The newly hatched young are nidicolous and psilopaedic, that is blind and naked or with sparse dorsal down, which is white in most species. The down of *Calyptorhynchus*, *Callocephalon* and *Nymphicus* nestlings is yellow, of *Eolophus* nestlings pink, and of *Pezoporus* nestlings dark sooty grey, almost black. The eyes open seven to fourteen days after hatching. In most species the original white down is soon replaced by, or supplemented with, dense grey down, and this gradually gives way to feathers. Newly hatched nestlings are closely brooded and fed by the female,

who in turn is fed by the male, but when they are about five to ten days old the male assists by feeding them directly.

The young birds develop slowly and remain in the nest for three to four weeks in the case of small parrots, such as *Forpus* and *Melopsittacus*, up to three or four months for the large macaws. In proportion to their size lorries and lorikeets have long nestling period. After leaving the nest young birds are fed by their parents for a brief time while learning to fend for themselves; young black cockatoos are fed by their parents for up to four months after leaving the nest. Young birds usually remain with their parents until the next breeding season thus forming the family parties often observed.

Vane(1957) records the successful rearing in captivity of a young Red-lored Amazon by a female Grey Parrot, and all aspects of incubation and parental care were closely observed. Three eggs were placed under the brooding foster-parent and one hatched after an incubation period of twenty-five to twenty-six days. The incubating bird sat very closely and came off to feed every morning. The egg was examined the day before it hatched and definite movement was noticed inside. The next morning there was a chip in the egg and the chick could be heard squeaking inside the shell. Shortly before midday the chick emerged from the egg; it was assisted by the foster-parent who very carefully pecked the top out in a small circle, so that the chick wriggled out through the hole leaving the shell in two pieces. The foster-parent brooded the chick very closely and made no attempt to feed it, although she repeatedly cleaned it. She moved it about by lifting it bodily by the head. The first feed was given on the second day. The chick was first lifted bodily by the head, and the point of the parent's upper mandible was then gently inserted into the small opening between the chick's mandibles right at the rear. She then trickled liquid down her tongue into the opposite side of the chicks mandibles. Once the young bird commenced to take food readily the forceful procedure was abandoned and as soon as the parent clucked the chick would raise its head and would gape ready to accept food. Taking the tips of the chick's mandibles in her bill the parent applied the normal pumping action of regurgitation and one could actually watch the chick's crop fill out. At this stage feeding was carried out every two hours and the consistency of the crop milk was similar to that of ordinary milk. For much of the first two weeks the foster-parent brooded the chick continuously, but thereafter she left the nest for periods which gradually become longer as the young bird progressed. Intervals between feeds were slowly increased to three hours and when six weeks had past the feeds were increased in frequency but decreased in bulk. During this time the consistency of the food was thickened. At about ten days after the chick had hatched its eyes commenced to open and quills began to appear. The young bird grew rapidly and at seven weeks its plumage was complete, except that the tail and flight feathers were not fully developed.

Lamba (1966) estimated that the nesting success, that is ratio of fledglings leaving the nest to number of eggs laid, for twenty-four nests of the Rose-ringed Parakeet was approximately 71.7%. Marchant (1960) studied eight nests of the Celestial Parrotlet and reported that five failed; of the three successes, two produced seven young from twelve eggs and the third probably three from five.

## JUVENILE PLUMAGE

Juvenile generally resemble females or are duller than either adult sex. There are species which have a distinct juvenile plumage, for example the Crimson Rosella and some *Psittacula* species. Juveniles have shorter tails than do adults; this is especially so in the Papuan Lory and some species of *Psittacula*, adults of which have elongated central feathers, and in the racket-tailed parrots where juveniles of the Vulturine Parrot from Amazonia, Brazil – in adults the bare head is sparsely covered with inconspicuous ‘bristles’, but in juveniles the head is well – covered with pale – green feathers.

There are general rules for differences in the colours of soft parts. Where adults have dark bills those of juveniles are usually pale, but when adults have pale bills those of juveniles are generally dark or have dark markings at the base of one or both mandibles. If the irides of adults are pale coloured, such as orange, yellow or white, those of juveniles are generally dark.

The time taken for juveniles to attain adult plumage varies greatly from one species to another. It may be within months of leaving the nest, or it may be up to three or four years. Some species acquire adult colours rapidly with the first complete moult, while for others it is a slow, almost imperceptible process. With certain species that have a distinct juvenile plumage young males acquire the plumage of adult females and then that of adult males; for example the red-cheeked Parrot and the Plum-headed Parakeet.

## MOULT

Moult is a process by which birds periodically renew their plumage or feather covering. It actually involves two separate processes, namely the loss of old feathers and the growth of new ones. Almost all birds moult at least once a year, many species twice, and a few three times. The main function of the post-nuptial moult in the renewal of worn and faded plumage so it is general and nearly always complete. The pre-nuptial moult, if present, is generally partial and intensifies secondary sexual characters by acquisition of brighter colours on certain parts of the body or by adding plumes or other adornments. In parrots pre-nuptial moult has not been found. Moult periods are closely synchronized with the reproductive cycle, so collection of specimens in moult gives some indication of the time of the year during which that species normally breeds. Keast (1968) reports parrots from an area in Australian dry country the time of moult is variable, but commonly it would seem to begin in October and be largely complete by February; the species he examined normally breed in that area during the months August to December.

## ARTICLES 041 – 045

Forshaw, Joseph M. (1989)  
*Parrots of the World - Third Revised Edition*  
Lansdowne Editions  
ISBN 0 7018 2800 5

## ARTICLE 046

Rose-breasted Cockatoo  
(Galah)

Raucas calls are heard when you look up to see the "sky" suddenly turning grey, moving smoothly, then turning to pink and back to grey. The sky suddenly drops and quickly turns back up. What could it be? A large flock of wild galahs in Australia, flying in perfect unison. The Galahs are truly a wonderful sight to see for visitors to Australia. Always a memorable sight, whether flying in flocks of hundreds or playfully doing comical acrobatics on power lines. If you have ever witnessed a flock of flying pigeons or starlings, imagine it in grey and pink.

Welcome to the Galah cockatoo page, also known as the Rose-breasted cockatoo, Rosie, Roseate, and on the internet an RB2. The hope of this page is to inform you about these wonderful birds and for those of you interested in adopting a companion Galah, to hopefully help you decide, if a Galah is the bird for you.

Galahs are unique in the parrot world being grey and pink coloured birds. Their plumage is very soft, and feels silky to the touch. Their plumage is also thick and luxurious as you pull your fingers through, giving a galah a wanted head scratch. The grey colouring goes from light to darker grey making a beautiful contrast to their rosie pink plumage. Galahs sport a white to pale pink crest, depending upon the species.

They are a very happy bird, loving every minute of life and making the most of it. They can be very entertaining as a companion bird, or in the wild. They are very adept at performing acrobatics and just simply clowning around. If a galah has intrigued you, please explore this site further.

<http://www.pacifier.com/~birdart>  
Accessed: March 2005



## ARTICLE 047

### DESCRIPTION OF GALAH:

**Species name-** *Eolophus roseicapillus*

There are two recognized races, the nominate subspecies is *Eolophus roseicapillus roseicapillus*, which is mainly distinguished by its dark pink to red eye ring. The eye ring can vary in colour from light to dark pink, perhaps depending on which region it is from. This subspecies is found in eastern, north-eastern, southern and central Australia and also Tasmania. It can also be identified from the other subspecies by its white crest and a definite break in the feather formation of the crest when it is raised.

The subspecies found in western Australia are *Eolophus roseicapillus assimilis*. This bird has a greyish white eye ring and a longer, fuller, pinker crest than *E.r. roseicapillus*. The crest also has no division of feather formation when it is raised. This subspecies tends to be longer and slightly broader than the *r. roseicapillus* and its body is also a paler coloration. The head of the *E.r. assimilis* is bigger and appears flatter and more square than the *E. r. roseicapillus*.

There is very likely a third subspecies, although not formally recognized yet, *Eolophus roseicapillus kuhli*. These Galahs are about 2 3/8" smaller than the other species, with a smaller head and very high rounded crown. In these birds, the males tend to have a deep reddish pink eye ring, where as the females eye ring is a dull pink, eye rings are deeper in colour than in *E.r. roseicapillus*. These birds are considerably lighter in colour than the other subspecies. Found in the northern regions of the northern territory of Australia and Western Australia.

**Average length-**13 1/2 " with males usually being slightly larger than females, but the ranges of measurements can overlap considerably.

**Weight-** the average weight is 330 grams. Birds weighed were 255-430 g, males typically weighing more than females. Wild Galahs in Western Australia weights, ranged from 275-430 g. for the males and 255-400 g for the females. Weights of flighted aviary birds at a US facility ranged from 285-390 g for the males, making the average male weight 338 g and females weighed in at 281-335 g, average weight being 307 g.

**Eye colour-**Young birds have a dark brown iris, similar to the males mature eye colour. Adult eye colour is attained at about 2-3 years of age although female galahs irises start to lighten up as young as 6 months of age. The iris is dark brown to black in most males, pinkish red to reddish-brown in females. Note: eye colour is usually correct in galahs for determining sex. Mature males in rare cases can have reddish-brown irises.

**Sexual dimorphism-** Galahs are said to be sexually dimorphic and easily sexed by eye colour, once they have reached 12 months of age, although there have been a few very rare exceptions to this with male birds. Males usually have a larger head and mandible than the females. The shape of the males head is rounder than the females.

Males will \*sometimes\* develop larger more crusty periophthalmic carunculations than the female galahs.

**Feathering-** Very dense feathering on the forehead and crest. The crest is not apparent if not erected. Crest colour is white, with pink at the base in the E.r. roseicapillus. Crest is pale pink in the E.r.assimilis. Upper body is soft grey, paler on the rump area, underwing coverts, undertail coverts and around the vent. Tail is darker grey. The lower parts of the head, nape, breast and underwing coverts are pink to reddish pink.

**Voice-** a shrill chi'-chi'

**Lifespan-** Can live up to 50 years in captivity but likely has a shorter lifespan in the wild.

## **HISTORY:**

It is believed that cockatoos first evolved in Australia, later spreading to the South Pacific Islands. This would make the Galah, one of the oldest of the cockatoo species. The Galah was the most imported cockatoo from the time it first appeared in a London zoo in 1843 until 1960 when their exportation by Australia was ceased. For many years it was so numerous in the trade that its monetary value was quite low.

The galah was bred in several countries, although there were few successes until the 1920's, perhaps because this species was so inexpensive. Its first breeding in the US was in 1929.

This is one of the few species of parrots to have benefited by man's settlement. Due to the clearing of land in Australia, to grow crops, the Galah has had an abundance of food to thrive on. Since man's settlement, they had been released from their previous ecological restraints. Galahs were usually found in the arid regions but as a result of abundant food sources, water troughs for cattle and other man made water sources giving Galahs a larger food and water supply, they have expanded their territory, colonizing almost the entire continent. There are presently so many Galahs in Australia that they are now considered pests, (along with the Major Mitchell's, Long-billed Corella, Bare-eyed and Greater Sulphur Crested cockatoos) by grain producing Australian farmers and some others. Large flocks of Galahs will attack the farmers grain fields, devouring crops. Cockatoos in general have also been known to enter through an open window or unattended door, while the house is empty and trash the house. Although sometimes forgotten, there is a beneficial side of Galahs for farmers in that they devour certain noxious weeds.

Outside Australia, they are one of the most sought after and expensive cockatoos available, although recently they have become less expensive and more commonly kept as pets.

The Galah or rose-breasted cockatoo is very abundant in its native land. It is not an uncommon site to see a flock of galahs in flight, twisting and turning in unison,

looking like a massive grey cloud, moving this way and that, just above the ground, then soaring into the treetops, only to dive again. They are very good at aerial gymnastics, shrieking with excitement as they fly, diving, taking swoops, spiralling down, twisting and turning this way and that. They are often one of the most memorable sights for tourists that visit Australia.

The Duke of Bedford kept and wrote about Galahs in the 1920's. He told a few stories, such as one Galah who seemed to develop a fondness for car riding. The galah would land on the back of a car, ride for a mile or two, then fly back home, later catching a ride on another car. Another galah enjoyed riding local railway engines. The smoke from the engine would blacken her plumage. The Duke of Bedford referred to these instances as "an odd fondness for mechanical travel".

### **NATURAL HABITS:**

These lovely birds can be found in open country, such as grasslands and fields, woodlands or open scrublands. Woodlands are areas where eucalyptuses are most often the dominant tree, the ground cover is grassy or shrubby and the distance between tree crowns are 1-20 meters (39 inches-65.5 feet). They can also be found in parks and gardens. Galahs can be seen in small groups or in large flocks of 200-1000 birds, not being an uncommon site.

It used to be that galahs were only found in the interior regions of Australia, but as land has been cleared for crops, and permanent watering holes have been established by man, an increase in the galah population has taken place. They are now seen in almost all of Australia, including the coastline regions. They prefer nesting areas with nearby water access.

Galahs living in arid regions, (such as northern Australia) where food supplies are inconsistent, are nomadic, especially during drought years. They have been known to vacate large areas, flying in large flocks. The furthest recorded movement of these flocks is 300 miles. In wetter regions where food is more plentiful, galahs tend to be sedentary. During breeding and nesting seasons, they are also sedentary. After breeding season is over, juvenile flocks sometimes consisting of thousands are nomadic, moving to different food sources.

In the wild, each day starts soon after first light, before sunrise. The first vocalization each day is a "chet". As more light is available, they start to move around the canopy, moving to more exposed branches to quietly sit in the rising sun for a short time. Then they move to bare ground and appear to forage, although the ground is mostly barren of food. After 15-30 minutes they fly into the trees again to sit and preen, then start to call "Lik-Lik", stretching wings and flying off to find food. When flying to a foraging area, if it is more than 1 kilometre away, the birds will pause in a large tree, and sometimes pick up other groups of galahs, then continue their journey.

The foraging area is usually an open paddock that might be a mixed pasture, harvested stubble or a growing crop. Foraging may last 30 minutes to five hours depending on the birds current needs and food availability. When their crops are full, they fly to a nearby tree to preen and rest while they digest their food. At midday most

birds are quietly perched in trees. Later, foraging resumes and later on they will fly to a watering hole. After drinking, breeders will pair up and fly off to their usual roosts. Or neighbouring pairs will form a small flock and return to their roosting area. Non-breeders will roost in the nearest patch of woodland to the foraging site.

They are able to tolerate the temperature variations found in parts of Australia, such as those who live in the hot arid deserts where the temperature can drop 30 degrees or more at night.

Even though Galahs are extremely sociable birds they usually keep their own space away from their nearest neighbour. If one galah moves towards another one its motivation is usually friendly or agonistic. If the move is friendly, the galah will move while making a close contact call or invite the other bird to preen. If the move is agonistic the intruding bird will be met with a jab of the bill, or a bite on the foot but the victim usually perceives the intent and moves away, maintaining its individual distance and space.

A competition for perch space has been witnessed on many occasions. This can result in bill jabbing and foot biting. There is a hierarchy that often develops in which the most recently arrived larger males dominate the perch. As time passes he may leave, letting another male take his place.

Galahs are granivores that feed on a variety of seeds from native plants. Seeds are quickly eaten before competitors such as insects or other birds eat them. To maximize the effort the seeds are foraged by flocks, rather than individual birds. This is a strategy used by granivores, giving many eyes to find the resources and many individual birds to take the harvest before it disappears.

The wild eastern and western Galahs do not appear to have any significant differences in behaviour. These two races also readily mate in the wild, many of them around Perth Australia and they have readily mated in aviaries.

Nest:

Galah nests are hollows or cavities, preferably carved out in eucalyptus trees, although Galahs have also been known to nest in rock crevices, cliff tunnels or vertical concrete pipes. Rotted, insect ridden trees are preferred by Galahs for carving their nest holes. The nest hollows are anywhere from 2 meters-20 meters (6.5 feet-65.5 feet) above the ground. Nesting holes are usually at least 10 meters apart. Unfortunately there is now a decline of available nest hollows and this could threaten most species, even the common galah, as new pairs search for hollows. There are only so many natural hollows caused by action of fungi or termites, available for birds to use as natural shelter, roosting or nesting sites. Also, there are at least 94 Australian bird species that use nest hollows. Competition for hollows, not only exists among bird species but also includes reptiles, insects and mammals. Galahs only use nesting hollows for nesting and as soon as the babies leave the nest, the hollow is vacant for temporary occupation to take place by some other creature.

Galaha are resident occupants while nesting so they soon become aware of any possible take over attempts by another creature. These cockatoos will defend their site and are agile strong opponents, armed with powerful bills and claws. Due to this, only about 5% of galaha lose their nesting hollows to other species.

Young Galaha pairs have been observed at times spending many hours chewing on a tree, inspecting it, or playing and sleeping in that tree, making an observer think this is where they plan to nest. When it is actually time to nest, they will switch to a tree next to the one they were so involved with and make their nest there. Galaha prefer existing tree hollows if available, and most often use the same hollow year after year. The Rose breasted carries its chewing activity to the exterior of the nesting cavity as well, which is unique to the rose-breasted. They will chew away bark and rotted wood surrounding the entrance, then they will give it a smooth finish by rubbing their beaks on the entrances and will also rub the side of their face, leaving powder in the grain and at times even rub it with macerated gum leaves. After several seasons the nest entrance becomes as smooth as glass. The feather dust on the entrance makes the wood very slippery. This smooth entrance is thought to prevent snakes and lizards from reaching the inside of the nest hole. Galaha line the nest hollows with long narrow shaped green eucalyptus or gum leaves, before and during incubation, preferring the long narrow leafed eucalyptus over the rounded leaves. The amount of leaves can help to raise and lower humidity. Eucalyptus also acts as a natural pest repellent.

The hollows can have an inside diameter as small as 6 inches, yet they will raise from 3-5 chicks in these tight quarters. The inside of the nest hole, being well insulated, stays at a more even temperature, than temperatures outside, the nest hole being cooler in hot weather and warmer in cool weather and easily warmed by a brooding adult. Both the male and female will incubate the eggs for 23-25 days. Naked babies begin to get feathers at about two weeks old and start to open their eyes at fifteen days. At three weeks old they are covered with feathers and no longer need to be brooded.

Galaha will defend their territory, which is about a 3 metre area around the nest entrance. The nesting season for Galaha can vary, as it is dependant on rainfall. Galaha in different areas of Australia can go to nest at slightly different times. Nesting can take place as early as the last week of July and as late as mid November. A few clutches might be started the end of September. These are replacement clutches, for clutches that were lost .

Nest hollows are often very close together, even having more than one in the same tree, but are no closer together than 10 meters on average. Galaha are one of the first parrots to nest in the springtime. Once the babies leave the nest and go to the crèche, these nest holes are often taken over by rosellas or parakeets ready to nest.

Roosting trees are bare, being completely stripped of any foliage. The nectar found in blossoms, fresh gum leaves and gumnuts are possibly found to taste good and fun to chew and shred, so quickly disappear. At approximately 7 weeks of age, after a fledgling has learned to fly, they are taken from the nest by their parents to a creche, where the parents will continue to feed them for another 2 to 3 weeks, while still feeding any babies that may still be in the nest.

## **NURTURING:**

In the wild galahs grow up quickly. Babies are able to recognize their individual parents in the fifth week. By the time babies are 40 days old, they call to and answer their parents. By fledging, recognition of their parents is perfected. Its difficult for baby fledglings to exercise their wings before their first flight, since they are in a tree hollow. Fledging can take several days, sticking one wing out of a nest hole and flapping, then the other. The first flight is usually at the parents urging and is quite remarkable. Usually both parents are present during the first flight and fly on either side of the baby. In no time at all the fledgling looks as competent at flying as its parents. A long first flight is ended with a crash landing. Turning and landings take more time to master.

After babies fledge they are taken to a crèche (a protected group of trees that becomes a communal galah nursery consisting of many juvenile galahs the same age, easily identified by the constant begging cries for food coming from the babies) guided in flight to the crèche by their parents. Perhaps living in a crèche is seen by the parents as being more safety in numbers. Once in the crèche they are fed by their parents as well as by Galahs without mates and older adolescent birds. The parents must divide their time between the crèche and any babies that are still in the nest. The young crèche birds will fly around in peculiar flocks and respond to various alarms, independent of parental influence. These noisy inexperienced juvenile flocks however, attract predators such as Peregrine Falcons and Wedgetailed Eagles. When the parents return with food, they call out while they are approaching, the young recognize their parents call and meet them in a particular tree to be fed. Babies and parents recognize each other through calls, despite the confusion of the crèche. Once all nestlings have fledged and the family is reunited the family leaves the crèche and moves nearer to food supplies that has trees for resting. After two to three weeks juveniles begin to accompany their parents to the ground where the parents feed them and within a month they are eating food on their own. Babies are weaned within two months of leaving the nest.

Growing up with several birds in a crèche, being a large community, might explain some of the Galahs independent nature, since they must be more forceful or "pushy" to compete with one another, unlike some other cockatoos that are raised with only one sibling or as an only chick. These nursery Galahs form bonds with others of their own age in the crèche, and once they are weaned at approximately 3 months of age, they form flocks of their own.

Survival:

A study of wild galahs had a mortality rate of 19% during the time the fledglings left the nest and were deserted by their parents at 100 days old. 22% of those surviving birds died during the next two months and only 49% of the original fledglings lived to reach 6 months of age. After that it is thought that 19.5% of those fledglings lived to be two years old and only 9% reached three years of age. Deadly problems that a wild Galah faces everyday are being shot, collision with motor vehicles (young and inexperienced birds being the largest victims, this most often happens when grain is

spilled on the roadways, and while eating the spilled grain, young galahs are slow to get out of the way of moving vehicles), cats (usually inexperienced juveniles), Wedgetailed Eagles, Peregrine Falcons.....rare problems are slipping into watering troughs and drowning, electrocution while doing acrobatics on power lines, causing a short circuit.

When aerial predators are spotted Galahs often form compact noisy flocks, consisting of most of that local population, sometimes reaching numbers of 500 or more, that will circle and climb to more than one hundred meters. This is a defensive action which makes one galah part of an avian group, appearing like a storm of galahs.. discouraging predators.

If a predator is seen on the ground, Galahs will often hover by circling the predator, calling loudly, with their crests erect, using short abrupt wing beats and sometimes will pursue it or land nearby.

Companion bird personality:

Cockatoos in general are very active parrots, galahs being perhaps, one of the most active. Galahs are a bird that love life and all that it has to offer, seemingly getting much pleasure from life's everyday activities and occurrences. They are an independently natured bird, which is extremely energetic and always busy with this and that. They have a short attention span, so will move from object to object, requiring that they have lots of different activities/toys to keep them busy. As a rule, there does not seem to be much difference in personality between the males and females, although if there are differences then generally speaking, the males tend to have a more relaxed personality and the females might exhibit slightly more dominance or assertiveness and sometimes even be a little more active over the age of 2 years old.

Galahs are often known as beaky birds, meaning that they touch everything with their beaks, checking out every nook and cranny. Being "beaky" comes naturally to Galah's as they use their beaks a great deal in the wild, and in captivity to explore, dig, chew, preen, etc. Although most parrots, especially cockatoos, use their beaks for these purposes, those who spend a good bit of time on the ground foraging for food, such as rose-breasted, seem to utilize this practice more consistently. This is because they are essentially ground feeding birds.

Galahs are very sociable birds and often accept all family members as well as friends who may drop by. As with any larger parrot, caution should be exercised around small children.

Because they are a cockatoo, they are sometimes mistakenly assumed to be a cuddly bird. This is a wrong assumption. Although you might receive an occasional cuddle, of 10 minutes or so duration, they are not a cuddly cockatoo and should not be classified as such...they are much too busy and independent to sit and be cuddled. They do however welcome a good head scratch. They will lower their head, wanting you to gently rub the top and entire feather tiara. If you are looking for a cuddly cockatoo, a galah would not be a good choice. It is important that they be accepted for the independent and lively creatures that they are.

## **BASIC BEHAVIOUR**

### **BODY CARE:**

**Preening:** Preening is done on a regular basis. Feathers are grasped with the bill and pulled with a nibbling motion to reattach disconnected barbules and to remove dirt and debris.

**Nibbling:** Nibbling of feet and legs regularly to remove dirt, debris and any loose skin.

**Scratching:** Generally directed at the head and neck area. This is to preen areas that cannot be reached by the bill.

**Chewing:** Chewing a variety of inedible objects is important to keep the mandibles in good condition. It prevents overgrowing and deforming if they are not regularly used.

**Grinding:** Beak grinding takes place when relaxed and produces an audible noise. The purpose is to maintain the surface of the maxilla and the cutting edge of the mandible.

**Stretching:** After resting, stretching will often occur before going on to another activity. Stretching will be in the form of yawning, arching both wings over the back or fully spreading one wing and leg of the same side, downwards...which is usually done on both sides.

**Bathing:** Galahs are very cautious of the water and seldom take baths in the wild unless it rains. When it rains, they can become very excited, hanging upside down from perches in what looks similar to acrobatics, flapping wings, ruffling feathers for about five minutes. After that time they seek shelter as not to become completely soaked which could keep them from flying and be a dangerous situation, since they are prey creatures.

**Drinking:** In the wild Galahs only drink once a day on average, towards evening. In aviaries they will drink five or six times a day. Wild Galahs are very cautious drinkers, due to possible predators watching. They will usually stand on an object to drink water such as overhanging branches or fences. They have also been seen taking a drink in flight, scooping up a bill full and flying away. When getting water from a lake or such, they have been seen raising wings straight up, as if someone has told them to put their wings up in the air.

## **LOCOMOTION:**

**Walking:** Galahs walk on the ground or level tree branches by moving one foot after the other in a rolling gait. Galahs will tend to avoid vegetation on the ground as they do not seem to like their plumage wet. Walking is slow so flight is used for escape.

**Sidling:** This is when a Galah moves sideways, one leg after the other to approach an individual with either aggressive or sexual motivation.

**Tripoding:** This is when a bird is in a tree, and other branches are close to it. It will use its beak as a third leg...grabbing branches while moving their foot onto it.

**Promenading:** This is a behaviour only seen in captive situations. The Galah will repeatedly walk across a perch, when at the end will abruptly turn its head, then turn the rest of its body and resume walking.

**Flight:** Galahs are strong fliers and have been timed by moving vehicles at 70 kilometres per hour. Flocks flying at this speed are still agile and manoeuvre easily between trees and can maintain this rate of speed for several minutes. Galahs do not intersperse normal wing beats with spells of gliding like some other cockatoos. Galahs only glide when they are about to land.

**Hover flight:** This is when the bird uses slow wing beats, usually hovering over an intruding predator.

## **SLEEP:**

**Awake:** A resting Galah usually has its feathers sleeked back while perching on a branch. Under very hot conditions feathers may be fluffed up and wings held slightly out from the body for cooling.

**Freeze:** Juveniles will remain motionless in tree branches while waiting for their parents return. Their patchy pink and grey plumage makes them hard to see.

**Sleep:** In short episodes the knee will be lowered, so that the body will touch the branch, with relaxed neck and head that sinks into the shoulders. In longer sleep periods Galahs often turn their heads around 180° and tuck their bills into feathers on their backs. Sleeping birds feathers are usually relaxed and not sleeked.

**Natural Vocalizations:** It has been said that Galahs have 8 or 9 and possibly up to eleven distinctive calls. The number of calls seems to be related to location and social group. There appears to be a difference between the number of calls used between the nomadic galahs that frequently travel in large flocks, appearing to need fewer calls than sedentary galahs. The main purpose of Galah vocalizations are for coordination of activities such as feeding, mobbing or flight. Calls are also important for maintaining pair bonds and synchronizing activities. They appear to play little part in sexual behaviour. Some calls are listed below.

**Chet:** This is the basic Galah utterance. It is brief and consists of two parts. This is a call that Galahs recognize each other with. This call is used in flight or rest and serves as a contact call. "Chet" is also used with more intensity, intervals between "chets" shortening if a predator is approaching. The closer danger approaches, the shorter the intervals will be. Staccato type "chets" are only given by a bird in flight.

**Lik-lik:** This double, occasionally triple call is given when the bird is about to fly off, most often after preening or resting. This call is often followed by a leisurely wing, tail or leg stretch before taking flight. In the wild, several birds will repeat the call and this results in several birds taking off together.

**Cheat:** This is longer than the "chet" call and often repeated two to four times. This is when a mated galah is returning to its hollow. It seems to advertise territorial ownership and is sometimes followed by a display.

**Titew:** This call clearly has two parts and will often alternate with a "cheat". This call is used in long flights.

**Chet-it:** This is similar to "Titew" but is heard when birds are perched and is used as a contact call to birds that are a good distance away.

**Begging:** This is done by a hungry nestling or dependent fledgling. The beak is held open, the crest raised and is sometimes accompanied by a gentle swaying from side to side. The sound is a continuous utterance that goes for a long time, possibly until the bird runs out of breath.

Kwee: This is a greeting of a parent returning to the nest. Occasionally it will call "Kwee" softly to its babies before feeding them.

<http://www.pacifier.com/~birdart>

Accessed: March 2005

## ARTICLE 048

### HEALTH

If fed a proper diet and given plenty of exercise, cockatoos are usually healthy and happy and can live a very long life. A Galah's life span is about 40 years, but unfortunately their life span can end up being much shorter, if they are not given proper care.

Health problems that are most common in cockatoo species are:

**Self-mutilation** - Feather mutilation can be seen in a number of ways and can be the result of sexual frustration, boredom, a skin irritation or a pain deep within the birds body. It can also be caused by a bacterial infection or other health problem. Mutilation of skin or feet, although less common can also occur. Anytime a birds shows signs of mutilation, they should be taken in for a veterinarian exam, even if they were recently examined to check for any physical causes. Once the many possible physical causes are ruled out, then psychological reasons can be explored by looking at the birds environment. Is it bored, is the cage large enough, does it have enough toys that it's interested in? Have there been any recent environmental changes?

**Psychotic behaviour** - this happens when a bird is ignored. Birds are social creatures, very intelligent and need daily interaction. If a bird is left alone in a room, a garage or basement, without light, social contact or toys psychotic behavior can be the result.

**Idiopathic liver cirrhosis** - There are several causes of liver disease. Perhaps the most prevalent cause in Galahs is obesity.

**Proliferative foot lesions** - this is caused by poor housing, unhygienic cages, dirty perches. Cages and perches toys etc. should be wiped down daily and sanitized weekly. A diet high in natural source Vitamin A, can help lesions heal quicker as well as help to keep a birds immune system stronger.

**Obesity** - Obesity can be a problem in Galahs after they reach sexual maturity, and even more of a problem after 6-7 years of age. Feeding a varied low fat diet, and assuring your Galah of proper exercise, you can hopefully avoid this problem. A good scale should be used to monitor a Galah's weight throughout its lifetime.

**Lipomas (Rose-breasted and Sulpher-crested cockatoos)** - Lipomas are fatty tumors that are sometimes found in obese birds. Most commonly they are found in Galahs and sulpher crested- cockatoos of the cockatoo species. Lipomas are usually located on the lower part of the abdomen, near the vent and if left untreated can become enormous in size. They can be prevented by a good low fat diet. Exercise and dieting can reduce lipoma size. If they should become ulcerated or start to affect a birds movement, they should be surgically removed.

**Cloacal prolapse** - The cloacal is the area where the urine, feces and urates wait to be passed. The vent is the outermost part of the cloacal and controls the frequency with which your bird will eliminate its droppings. A cloacal prolapse can be caused by a physical or psychological problem or both. This is a protrusion of the inner tissue

through the vent opening. This can result in exposed intestines, cloaca or uterus. This requires immediate emergency care by an avian veterinarian.

The best way to help your bird avoid possible health problems is to supply a nutritious diet. Good nutrition leads to good health and a strong immune system. A low fat diet, consisting of a variety of fresh foods. To feed a varied diet, some different foods should be offered at each meal, and variety will also change seasonally.

Vitamin A is synthesized from plant carotene's in plant material and is important for birds to be able to keep a healthy immune system . Birds on an all seed diet are likely to suffer from a vitamin A deficiency, as seeds do not contain adequate amounts of vitamin A. Symptoms of vitamin A deficiency vary but the most common affected area is usually a birds respiratory system. The best way to avoid a deficiency is to feed plenty of vitamin A rich foods. When buying food, choose the darkest color oranges and greens. There are several varieties of yams or sweet potatoes available, the ones that are the richest in vitamin A are the darkest in color.

Vitamin A rich foods, IU per 100 gms

Broccoli leaves	16,000
Dandelion greens	14,000
Carrots	10,000
Dark Orange Yams (sweet potatoes)	9,000
Collards	6,500
Mango	5,000
Cantaloupe	4,000
Endive	3,500
Swiss chard	3,300
Broccoli flowers	3,000
Papaya	2,000
Pumpkin seed	380

An important mineral for good health is calcium, whose major function is building and keeping bones strong. Minerals needed in conjunction with calcium to work properly are phosphorus and magnesium. Also important is Vitamin D. Cuttle bone and egg shells both will provide approximately 20 times the needed calcium. You can give cuttle bone whole or break it into small pieces and add some to dry food. Some sources of calcium are nonfatal organic yogurt, legumes, oats, oranges, berries, and green leafy vegetables.

Food sources of calcium in mg. provided by one cup:

Broccoli leaves	48
Chard	18
Dandelion greens	102
Mustard greens	57
Kale	90
Broccoli stem	50
Orange	72
Celery	48
Watercress	40
Yogurt-lowfat plain	199
Exercise	

Exercise is important for any parrot but has an added benefit for a Galah, to help fight obesity and avoid limpomas. Galahs are active curious birds, so if given plenty to keep them busy, they will be active most of the day. If they are not supplied with an adequately sized cage, adequate toys and perches to play on, then they may sadly end up sitting, without an outlet to burn energy. Playing on the floor with you, playing on a perch once you arrive back home, is not enough. They need objects to keep them busy throughout the day. Please see the Cage and Toys page for ideas if you have not already viewed it.

Some of the best exercise for any bird is when they flap their wings. You can exercise your bird by perching it on your hand, or gently holding onto its feet and placing your arms up over your head, putting your bird above you. Then gently lower your arms down in front of you as not to scare your bird. If it becomes frightened, then stop and take smaller steps, never pushing it to do what it is uncomfortable with. When you lower your arms, your bird should flap its wings. You can tell your bird "flap" and it will soon associate the word flap with flapping its wings. This is a good aerobic exercise.

Flying has exercise benefits, but also has many risks involved that always need very careful consideration by the caregiver.

Playing games with your rose-breasted will also help to exercise it. You can lay a towel out and when your Galah steps onto it, you can gently fold it over its head, then open the towel up again saying "peek-a-boo". Never start with the towel moving down over top of your Galah, this would resemble a predator motion.

You can take a familiar piece of cloth and tell your Galah "I'm gonna get you" and playfully keep the cloth behind it, as your Galah walks away. This is a fun game to play on an ottoman or sofa. It's important that you not chase your bird or continue this game if it seems at all alarmed or uncomfortable, because birds are prey animals. It is also important not to ever catch your Galah during this game, unless it decides to let you catch it, by walking up to you, perhaps looking for a head scratch.

Candida or Yeast infections: These infections are usually found in younger birds. This is a type of yeast fungus (*C.albicans*) that affects the upper gut, occasionally affecting the lower gut. The mouth, crop and esophagus are most often affected and a white

surface can usually be seen in the mouth. Candida is curable but is often a secondary infection to poor nutrition, mostly a diet lacking enough vitamin A. Candida can also be the result of poor husbandry, syringes and such not being cleaned properly.

**Metal poisoning:** Because galahs and other cockatoos are avid chewers, metal poisoning is a concern. This results when birds chew on metal such as lead or zinc and ingest minute pieces. These are digested and absorbed into the bloodstream causing metal toxicity. Pet birds can be more prone to lead poisoning if allowed to wander around the house, and chewing things they should not be chewing. Aviary birds can be more prone to zinc poisoning due to chewing on aviary wire. Aviary wire should be checked, scrubbed with a wire brush and washed with vinegar to help avoid zinc toxicity problems. Metal poisoning can be diagnosed by blood test or radiograph and is curable as long as it is caught early enough. Zinc sources for pet birds are galvanized "C" hooks that many toys are hung from. You can replace them with stainless steel "C" hooks. Also some powder coatings contain zinc and sometimes metal parts in toys.

**Viruses:** There are several viruses that can affect our companion parrots. Over the years research has been ongoing and some viruses have been isolated and there are even some vaccines available now. Currently more research is needed but funding is also an important part and without it research cannot continue. Donations are always needed and accepted. You can contact the International Aviculturists Society to make a donation to help stop PDD, currently one of the most puzzling viruses of all. We need to stop this virus before it takes any more of our precious birds.

\* Progress in Understanding PDD

**PBFD (Pssitacine Beak and Feather Disease):** (The acute form of PBFD is commonly known as "French Molt" in Australia) This is a virus that attacks growing tissue. Young birds seem to be the most susceptible. Feather follicles (the root of the feather) are often growing new feathers so this is where the virus will attack. It can also affect the beak (when the beak is affected, it is usually the upper beak) and on rare occasion the toenails. It might start out looking like a normal molt but the feathers will fail to regrow properly, leaving less and less feathers on the bird. A bird with PBFD often becomes immunosuppressed and dies from other secondary illnesses. PBFD is not curable but some birds do produce antibodies and survive. Once a bird has PBFD and survives it is then resistant to this disease. There is a vaccine but funding is needed for it to become available. Dr. Ritchie has been working with the Pssitacine Research Group, on the vaccine at the University of Georgia.

When bringing a new bird home, quarantine is important and so is testing for PBFD, even if no signs are present. This is done with a simple blood test that your veterinarian or breeder can perform. If a bird should test positive for PBFD and is not showing any clinical signs it should be retested in 90 days. During this time it should be kept isolated from other birds. If a bird has been exposed to PBFD and contracted the virus, this will show up with the DNA test two days after the exposure, even though the bird will not be showing any signs yet.

Incubation time varies, it is less in younger birds than in older birds. Incubation can be as short as 21 days or as long as 18 months. The age at which a bird is exposed can also affect how the disease progresses. It seems to generally be much quicker and more severe, the younger the bird is when it is exposed. PBFD is most likely to affect birds three yrs. old or less. When older birds are infected, they generally develop antibodies.

## DIET

**Natural diet in the wild:** A wild galah's natural diet is varied, consisting of several foods that will vary seasonally and depend upon location, mostly consisting of seeds, oats, wheat and several grasses (button, flinders, mitchell), weeds such as cape and storksbill. Galahs also dig in the dirt or grass for insects, larvae and shallow plant roots. These cockatoos also will eat budding new growth on trees, leaves and blossoms of various shrubs, trees, grasses and plants. Also berries and occasionally fruit such as passionfruit, mango, starfruit, pawpaw, lychee, although fruit does not seem to be their most relished food. Nuts such as pandanus and casuarina can be found on the ground and fed to native pet Galahs.

Diet for a pet Galah:

The difference in lifestyles between a wild and a companion Galah need to be considered when you are considering a proper and nutritious diet. A wild Galah uses a tremendous amount of energy on a daily basis, flying, playing, foraging for food, raising families, avoiding predators etc. A companion Galah does not expend the amount of energy to burn up the same amount of calories and because of this can easily become obese if fed the natural/wild diet that is high in fat.

A Galah needs to be fed a diet low in fat if it is going to have a chance of keeping its waistline in shape. Therefore a diet consisting, for example of sunflower seeds, would be totally inappropriate. Not only would this not be nutritionally sound, but would be very high in fat. Sunflower seed contents 35-49% fat, depending on the variety and would lead to an obesity problem for a Galah in no time. Cockatoos in general should be fed a diet consisting of no more than 5-8% fat on average, and a galah with its propensity towards obesity, should be on a diet of about 3-4% fat. This does not mean that a galah cannot have an occasional sunflower seed, or other seeds or nuts as a treat. The concern here, is the total fat percentage of the daily diet. Fat content, calories and carbohydrate intake all need to be considered.

Also a good diet does not consist of one or two items but a variety of items and those items should vary some on a daily basis.

Suggested foods are (organic foods if available): millet, sprouted seeds, grasses, vegetables, greens, cooked brown rice, grains, cooked legumes, wheat pasta, fruits, birdie bread

Why organic? Organic produce is often fresher and preferred by birds. Fresh foods from your garden are also, often more readily accepted than are chemically sprayed conventional produce from your grocer. Birds seem to sense, what is fresher. If you are having problems introducing your bird to new vegetables or fruits, try organic or fresh from your garden...it is possible that they will be more readily accepted.

Over the years our soils have become depleted, losing valuable nutrients. Organic farmers work the soil in a more natural way and their end product may possibly end up containing more valuable trace minerals and better overall nutritional content. When the digestive system lacks minerals, vitamins can simply pass through, unabsorbed. Trace minerals are absorbed through the gut and can help keep the gut working properly. Organic frozen vegetables can also be offered, whenever fresh is

not available or if it is simply more convenient for you. Fresh however, is the most ideal. Also, many seasonal items can be frozen such as pomegranates, pumpkin and cranberries. Organic produce is not always available to everyone. In this case the freshest produce possible is the next best choice, preferably using a vegetable wash (available in most produce sections) to remove pesticides.

Millet:

A good low fat seed (actually a grain) is millet at about 4% fat. There are several kinds of millet and your Galah might prefer one over another. Some tend to prefer the larger millets. Millet is one of the oldest and most nutritious foods we know. As a grain, it is nutritionally balanced, non acid forming and is rich in high grade protein (containing 10 essential amino acids), minerals, vitamins and lecithin. You can buy millet sprays at a bird supply store or unhulled millet at your health food store.

Mega-millet sold at bird supply stores, actually is not millet but the grain milo. Milo is approximately 4% fat, 11% protein and 2% minerals.

For variation, you can plump millet sprays by simmering them for about 10 minutes. You can also sprout millet. Also look for puffed millet in the cereal section of your local health food store, for something a little different.

Seeds:

Although seeds are a source of nutrition, some can be high in fat. If unsprouted seeds are fed, they should only be fed occasionally as treats. Here is a table showing averaged fat percentages of some common seeds.

	Fat	Protein	Carbohydrate
Canary Seed	5.6	15.6	65.6
White Millet	4.1	11.5	69.4
Groats	6.6	14.3	67.5
Sunflower (striped)	33.9	21.7	41.5
Sunflower (white)	47.0	24.0	20.2
Sunflower (black)	49.0	22.0	
Safflower	34.6	15.2	43.2
Pumpkin	42	32	

Sprouted seeds:

Seeds can be an important part of the diet, but must be from a clean source and be fresh. Seeds can provide vitamins such as niacin, riboflavin as well as essential amino acids and minerals. When you sprout a seed, it comes to life, changing its entire chemical composition. The fatty oils found in the seeds are converted to essential fatty acids.

Sprouts are an ideal source of protein that can also help the body to cleanse itself. Besides providing protein, sprouts are rich in almost every nutrient, vitamins (especially vitamin A, B vitamins, C, D and E), enzymes, essential fatty acids and minerals (including iron, potassium, magnesium, phosphorus, calcium, zinc and chromium) all of which are natural antioxidants that strengthen the immune system and protect against toxic chemical buildup. The few calories that are found in sprouts come from simple sugars, which makes them a quick source of energy.

Sprouting is easily done, and there are several "how to do" articles about it on the internet. Here are some links to a few sprouting sites: Dr.McWatters, Carolyn, Holistic Bird. Sprouting can be safe, as long as it is done properly by washing, soaking and rinsing with an anti bacterial, anti fungal agent such as grapefruit seed extract or a diluted bleach solution. Sprouting times can vary, depending on your area of the country, time of year, room used etc. You need only sprout seeds until a tail appears. At this time the maximum nutritional value has been reached. Most sprouts that are not greened up and only have tails, can be frozen for storage. It is often easiest to sprout hulled seeds that you can buy in your health food store. There are also sources where you can buy sprouting mixes for birds. China Prairie comes highly recommended, providing a fresh clean product with easy to follow instructions.

China Prairie has had success treating fatty tumors (lipomas) in Galahs with spouts. This is what they said:

The Avian FRESH Diet Program has shown numerous times that it can "remove" (resolve) fatty tumors on Galahs without surgery. Sometimes it takes six to eight months for the tumors to completely disappear, and on one 20 year old male with very large tumors it took nearly two years. What this demonstrates also is that Galahs fed The Avian FRESH Diet Program, that do not have fatty tumors, will be free of the problem. The fat content of a diet is not the most important factor. It is the ability of the bird to process and utilize that fat. Sprouting converts fats to fatty acids and sugars. The herbs in the AFD program contribute to the utilization. Sprouting is always a good thing, but what is sprouted is more important. The components in AFD have proven to be capable of balancing the birds nutritional intake so that elements like fats, proteins, and minerals are utilized whether they be in lesser or greater amounts than what is considered correct. Of course, if detrimental elements like synthetics and other toxics are present in the birds diet, optimum health is more difficult to achieve. Remember that each bird is unique and will respond to good and bad factors in it's diet differently (just like people).

Galahs at the China Prairie Breeding Facility consumed as much Avian FRESH Diet as they wanted without any sign of obesity, but they were fed little else. China Prairie Birdie Bread:

Birdie bread is most often corn bread, to which whole eggs (including the shells for added calcium), several chopped vegetables, grains and fruit have been added. Often sweet potatoes or carrots are added to help supply vitamin A. There are several recipes that can be found on the web.

Food suggestions:

**Vegetable suggestions:** Green peas, broccoli, cauliflower, red and green peppers, \*spinach, celery, zucchini, tomatoes, cucumbers, cooked white potato, cabbage, small amounts of yellow corn, only a few times per week

**Orange vegetables:** Limit these vegetables to 2-3 times per week with the exception of carrots due to their carbohydrate content: cooked sweet potato or cooked yams (dark flesh), butternut and acorn squash, carrots, pumpkin.

**Herbs:** Small amounts of the following might be enjoyed: rosemary, basil, watercress, thyme, garlic, dill, cilantro, savory

**Greens:** dark leaf lettuces, dandelion greens, collard greens, mustard greens, kale, beet greens, \*swiss chard

\* spinach and swiss chard contain high amounts of oxalic acid. Whereas several other foods contain a trace or moderate amount of oxalic acid of about 200-400 mg. per 100 g. of food, spinach and swiss chard contain over 1,000 mg. per 100 g. of food. Oxalic acid may interfere with the absorption or use of calcium or magnesium present in the diet. It may combine with these mineral elements to form highly insoluble compounds. It is recommended that the amount of spinach and swiss chard in the diet should be limited. Both of these greens are highly nutritious and oxalic acid fed in the proper amounts is beneficial for digestion. However, cooked spinach or chard should never be offered as the oxalic acid is rendered useless to aid digestion and it will still bind calcium and magnesium, preventing its absorption. So if feeding spinach or chard, feed it raw and in limited quantities. Excess amounts of cooked spinach have been linked to serious calcium deficiencies resulting in bone loss in humans. There have not been any studies done specifically on birds to know how they react to oxalic acid.

**Fruits:** pomegranates (a possible favorite), passionfruit, oranges, berries and apple (fed in limited amounts as apple is mostly fiber with little nutrition), cherries.....you might also want to try - cantaloupe, organic strawberries, nectarines, peaches, apricots, pears, bananas, plums, mango, figs, papaya, kiwi, star fruit

**Grass:** Wheatgrass can be found in some grocery or health food stores, growing live in containers. If you cannot find live wheatgrass, you can buy it powdered in capsule form and sprinkle it on food as a limited natural supplement.

Bean and rice mixtures are often greeted eagerly. These should be cooked. Homemade mixtures would consist of several varieties of legumes along with rice and grains. The mixture should be soaked for at least 6 hours, then boiled for 10 min., and simmered for 20 more min. and cooled before serving. Legumes, grains and potatoes are cooked to neutralize enzymes that inhibit digestion and also to neutralize toxins. You can find many of these bean and grain mixtures available premixed, look for the low fat ones. If you cook your own bean and grain mixture, using equal amounts of each, your mixture will contain approximately 2% fat and 10% protein.

Bean suggestions-pinto beans, black-eyed peas, adzuki, green and yellow split peas, garbanzo, black beans.

Grains-wheat, barley, triticale, brown rice, millet, oats

**Pellets:** This is a product that is fairly new on the market . Pellets were developed partially to help combat malnutrition in birds, which were being fed a 100% seed diet and also as a convenience for bird owners. If you are feeding pellets, they are not recommended to make up any more than 40% -50% of the diet. There are also some veterinarians who have lowered their pellet recommendation to 20-30% of the total diet. Be sure to offer a wide variety of other foods as well. When looking for a pellet

for a Galah, check the fat content. There are some low fat pellets with a 3% fat content available.

**Supplementation:** A wide spectrum water soluble vitamin supplement is one choice but not necessarily needed if feeding a fresh variable diet. You can store vitamins in the refrigerator, in a salt shaker, with several holes and sprinkle on wet or green food, sparingly 3-4 times a week, if you are not feeding a pellet based diet. NEVER put supplements in the water, as this can cause bacterial growth. If you feed pellets, be careful offering supplements, as they can easily be overdone. Only offer a sprinkle of them on food one or two times a week on the average. Suggested supplements that are not synthetic are wheatgrass, spirulina, blue green algae (occasionally some birds are sensitive to spirulina or blue green algae).

**Foods that should NEVER be offered are: Chocolate, Avocado, Alcohol, Caffeine**

**Other foods to avoid are:** refined sugar, dairy products (with the exception of nonfat yogurt and small occasional amounts of cheese), salt, fried foods

## **DIET SUMMARY**

An optimal diet for a Galah would consist mostly of fresh greens and green vegetables with the additions of orange vegetables 2-3 times a week. If your bird picks through the fresh food, only eating its favorites, then chop food finely or pulse it in a food processor, making a veggie mash. This will help ensure that your Galah is eating all of the variety of produce you have fed it. Finely chopped fruits can be added. Varieties of millet can be added to the diet for the hard seed and sprouts are a wonderful nutritious addition, which are highly recommended. Also a warm cooked bean and grain mixture and a treat of birdie bread will round out the diet. Fruits can be offered daily. Cooked egg can be offered in small quantities once or sometimes twice a week. Be sure that you offer a variety of foods, not just a lot of the same foods. Make every meal is a little different from the last one, this way you should be supplying adequate nutrition.

**Obesity:** If you have a galah that is overweight, you will need to make special considerations for its diet, along with making sure it is getting plenty of exercise. If your galah has a very sudden weight gain or loss, you should watch it carefully and consult your avian veterinarian. It should also be noted when referring to weight averages, that Australian Galahs, tend to be a bit larger than the Galahs found in the US and weights can range from 255 to 430gm, the average being 330. Males tend to be slightly larger than females. So you need to know the size of your galah, and what your vet recommends as it's individual ideal weight. The following are suggestions by a post from Sam Foster, who has bred Galahs and is now a professional avian behavioral consultant:

I have mentioned before to several people on the list that rose-breasted's are prone to obesity in domestic and captive environments. They have such naturally high 'energy' that it almost seems impossible for us to provide enough aerobic exercise for them to burn off the calories they 'eagerly' devour each day.

As you know, it can often be much harder to lose weight (whether human or avian) than to gain it. The objective in this situation should not necessarily be to lose the weight 'quickly', but to do so in a healthy manner that will reidentify, for the bird, his eating and exercise pattern. This is totally dependent upon the bird's owner.

I would suggest a moderate change in diet initially, and lay out a plan and goal to help the bird attain his 'normal' weight within a specific time frame. One of the keys of course will be to keep a daily chart of his weight, diet and exercise.

It will also be important to monitor his overall behavior during this time to be sure he is maintaining a normal (for him) playfulness and curiosity. If he begins to seem lethargic or reclusive, this needs to be noted and addressed immediately.

So what I suggest is that the owner, set goals realistically and with consideration for his physical and emotional health during this transition. Personally, I think a 4-6 month time frame would be an achievable goal. A weight of under 325g would be an excellent mark to shoot for, in my opinion.

If he is being fed a broad variety of healthy foods you should not see a 'sudden' weight loss. If this should happen, I would suggest consulting with your avian vet right away as there may be something else causing the problem.

### **Suggestions:**

-Reduce the amount of 'nuts' to one each day, but don't eliminate it completely. Let it be the 'treat' that he looks forward to.

-Give him a number of 'treats' during the day, but make these healthy treats, low in fat, sugar, salt and calories. But this doesn't mean that they can't be 'yummy' and visually interesting.

-Instead of seed, I love to feed all my birds, but especially cockatoos, and more specifically Rose-breasted's, fresh sprouts as their afternoon 'tea'. This is something they usually relish, in that it is fun to eat, interesting (assuming you are using a good variety of seeds for sprouting), and one of the most natural and nutritious foods you can possibly feed. I've said this before, but I cannot recommend China Prairie highly enough. The quality is excellent and it is a very simple (which is important for all of us) process to follow.

-Bake birdie breads with a corn bread base and add healthy fruits and veggies, as well as any supplements you might want to give to help with any stress he may feel during this change.

-As for pellets, Rosie's will indeed eat most anything you give them, and it's wonderful that he eats them well. However, if he will eat a broad diet of other foods that are more 'interesting' and fun, this will (in my opinion) make the entire process easier.

-Warm cooked foods are also relished by most birds, so one meal each day might consist of some type of manufactured birdie soak and cook mix (look for one that has no sugar additives, and that is low in natural sugars and fats). Probably stay away from a lot of sweet potato, using carrots and other orange veggies instead.

-Watch the level of simple carbo's.

-You can supplement the protein needs with cooked beans and appropriate vegetables, to make up for reducing the pellets (should you decide to do so).

As far as helping 'burn' calories:

-Let this little guys natural behavior and energy work to his benefit. Make a play area on the floor and let him run, push, hide, chase and toss to his heart's content for an hour or so each day

-Play 'weeeee' by holding his feet and letting him \*fly\* around the room until he is panting (don't overdo this of course)and getting some good aerobic exercise.

-Chase him around the room playing "I'm gonna' get you", then turn around and run and let him chase you. \*\*\*BE SURE not to ever corner a galah, or any parrot, where he feels trapped with no way out. Always make sure there is a visible avenue of escape in order to avoid making them fearful of being trapped by a potential predator. This seems to be very critical with rose-breasted's.

-I don't know what size cage he is in, but it should be big, and most importantly 'wide', with room to exercise and navigate back and forth easily. The same principle for play gyms or trees.

-Swings, ladders, ropes and things to hang from and climb are great.

-Plenty of soft wood to chew that will keep him burning fat, even when being fairly stationary (pine cones are great, and can be easily sanitized).

During this time, be sure he is getting a good night's uninterrupted sleep to help keep any potential stress to a minimum.

Once the weight has been reduced and stabilized for a period of time, it will be important to maintain a continued diet and exercise program to avoid the same problem he faces now.

By Sam Foster

## HOME ENVIRONMENT

**Cage size:** You and your Galah can have many hours of laughs and good times. You will find them to be even more intriguing and entertaining if given the proper space, such as a large cage and a variety of toys to keep them busy. Given a proper cage you might see your Galah hanging upside down, wrapping its wings around a hanging toy, chattering some sort of scolding and attaching it in a comical act. It might also hang from a rope, hanging from only a toenail, while flapping and carrying on. If the cage is too small, the galah will not be able to do such things and you will both miss out.

Galahs are very active birds, so cages should be as large as you can manage but no smaller than 24" deep x 36" wide. A larger cage is highly recommended if at all possible, as playful Galah's will use every inch of space. Height is not as important as floor space is for a Galah because these birds enjoy spending a great deal of their time playing on the ground. Because they enjoy being on the ground you will need to look closely at the cage grate, to make sure it will have proper, comfortable footing for your Galah. If your cage has the normal barred grate, you will want to consider covering the grate with a piece of laminate or a rubber mat that can be washed weekly, and keeping it covered with newspaper. Or consider removing the grate completely and only using newspaper if your cage allows this without the cage becoming unsafe by revealing a large escape area. No more than 3/4 inch to 1 inch bar spacing for the cage is recommended, to keep your Galah safe from danger.

One of my favourite suggestions about thinking of how our bird might view their cage, is that we should try to think if we would be happy in the cage if we were a bird, by looking at it and thinking of it as our living room. Would we have plenty of room to move around in? not feeling cramped? Is there plenty to keep us interested and not get bored? Is this or that toy suitable and in a good place? Basically, would we be happy if we were a Galah and were to call the cage our home.

## **CAGE TOY SUPPLY SUGGESTIONS:**

At least one boing is suggested which is a spiral shaped rope that hangs from the cage top.

Swing

Ladder

Plenty of hanging toys to chew and destroy, made out of different woods, leather, beads

A large crock on the cage floor to hold foot toys and wooden blocks of different shapes and colors, wooden tongue suppressors, wooden spoons or chopsticks, leather pieces

Safe clean untreated tree branches for chewing (if eucalyptus is available, this would be a favorite) untreated sanitized pine cones, untreated willow or grape vine wreaths

Acrylic toys- hanging and foot toys are available

Paper- such as unwaxed paper cups, wadded newspaper for a floor toy, folded newspaper stuck in-between cage bars, plain index cards

Cotton or sisal ropes, knotted or tied to the top of the cage, left to hang straight down like vines OR fastened to the top of the cage on both ends, but left to hang like a swing (When using rope perches or toys, keep a careful eye on loose strings and keep them clipped, to prevent the possibility of feet becoming tangled)

Wicker baskets with handles can hold foot toys and be fun toys themselves.

Toys should be rotated on a weekly basis and old toys replaced with new.

Perches:

Perches should be placed at varying heights and be of varying shapes, sizes and textures, such as:

different sizes and types of woods, some hard wood, some soft boing rope (When using rope perches or toys, keep a careful eye on loose strings and keep them clipped, to prevent the possibility of feet becoming tangled)

polly or concrete perches

PVC perches and/or roughed up acrylic perches

**Feeding bowls:** There should be at least 3 feeding bowls in the cage. One for water, which should be changed at least twice a day. One for any dry food such as cereals, wheat pasta or pellets. One bowl for fresh foods such as fruits and vegetables or mash. These should be placed in an area of the cage where they will not be soiled. To keep the water bowl cleaner, it sometimes helps to keep it on the side of the cage that is opposite of the feed bowls. You might want to experiment by putting a food crock on the cage floor and/or a crock of water, since Galahs are ground feeders. Be sure to use heavy crocks, so they will not be tipped over.

**Cage tray:** This should be lined with newspaper or some other type of paper, such as white butcher paper and changed once or preferably twice a day, since Galahs do run around on the bottom of the cage. Using paper lets the owner keep a constant eye on their birds droppings, which can be an important indication of a birds health and alert us to problems before they become more serious. Never use corn cob or walnut shell bedding. Corn cob bedding can be ingested, causing serious medical problems and in some cases death as it can expand once ingested. Walnut shell litter can also be ingested, causing serious problems. Either litter can harbor problem bacteria, unless they are completely changed everyday. Also, droppings cannot be viewed well when using litters.

**Cleaning:** You will want to wipe the cage down daily with soap and water or a bleach solution. Bleach loses its disinfecting power if it comes in contact with any organic material, so if using bleach, wipe off any organic material beforehand. For disinfecting you can use 1 TBS. bleach added to one quart of water. Once a week the cage should be disinfected. There are several products available for disinfecting cages.

**Cage placement:** Cages should be placed where your companion Galah can feel that he/she is part of the flock/family. It should also be in a place that your Galah can feel secure, by being able to view people entering a room, rather than being startled by unseen visitors. For example, you would not want to place a cage on a wall, just around the corner from an entrance. Birds like to see what or whoever is approaching. Also, window views can be nice but make sure there is nothing outside that could startle your Galah or cause it to feel threatened. A sunny window should never be an option, as the heat on a sunny day could be unbearable and your Galah would have nowhere to escape the heat.

**Covering the cage:** Covering the cage at night is not necessary but an option. It can help to give your bird a more secure feeling. Wild galahs do not sleep out in the open, but in nest cavities while nesting or nestled in tree branches at night the rest of the year. Covering them can help to simulate this and help give them more of a sense of privacy.

Being extroverts, these birds love to be in the middle of all the action but even a galah might want some occasional privacy. If your galah's cage is placed in front of a window, or busy area of the house, you can use partial covering to give them a place

of their own, a place of occasional quiet and escape if they like. Partial covering a cage can also be helpful if you are moving a bird, to give them a bit more security until they are adjusted. You can use a sheet to cover a corner of the cage, or perhaps one side if you like.

**Cage or environmental lighting:** UV lighting is important to the avian world. Galahs live and thrive in a world of sunshine most days in Australia. UV light, not only helps a bird to manufacture Vitamin D to help absorb calcium but light also affects a birds vision, because unlike us, a birds vision goes one step beyond ours. They have ultraviolet vision, enabling them to see things that we cannot and if not provided with UV light, they are not able to use their vision to full capacity. Having or not having proper light can also affect a birds overall attitude. Birds are not happy living in dark areas, they should have light, they are creatures of lots of natural sunlight. If birds are not able to receive natural sunlight such as having access to an outdoor aviary, then you should consider using UV lights. Having a birds cage near a window does not supply UV rays, as these rays are filtered out by modern window glass.

Sleep:

Wild Galahs, because of their location, living near the equator, receive 10-12 hours of darkness most every day of the year. To keep your companion bird healthy and happy, it should also receive 10-12 hours of dark and quiet, every night. It is sometimes thought that if a parrot gets less night time sleep than the required 10-12 hours, that it can make up for lost sleep by taking naps during the day. This is not true, as the quality of sleep is different. Birds are prey animals and sleep lighter than predator animals. They will sleep heavier during the night however, because they are less threatened by predators. This instinct carries over in companion parrots. Although companion birds will take naps, they sleep very light during daytime hours. If your parrot is sleep deprived, it might be more prone to being cranky, or plucking, screaming or it may not show any outwardly signs at all but sleep deprivation can wear on them, just like it can affect people and is not a healthy situation.

## **Solutions or Mutilation?:**

Mate Aggression of Male Cockatoos

by Shauna Roberts

*Update: Since this article was written, I am happy to say that the procedure of beak splitting is now frowned upon by the AAV, thanks to many people who voiced their opinions. It should be a thing of the past~!*

Cockatoo male aggressiveness towards their mates in captivity can be a serious problem in aviculture and in some cases mean life or death to a cockatoo hen. Hen abuse is a perplexing problem of which I feel questions need to be asked as to why it occurs and answers sought. Unfortunately I have read or heard from some angry and tearful breeders lashing out at the male cockatoos, blaming him for his rage towards a hen and not continuing to seek humane solutions to the problem. It should not be forgotten that male aggression towards the female has not been observed in the wild. Males need hens to pass on their genes and in turn males protect hens. Is it really correct to assume that the captive male is the one at fault when abuse takes place in aviaries? or should we be taking a look at what is wrong with aviary environments and seeking solutions? These male cockatoos are not naturally aggressive but aviary environmental problems are making them aggressive... These problems can be solved and have been solved for the most part in several countries, such as the UK and Australia. Many US breeders have also worked out solutions and are no longer seeing mate aggression, by using some or all of the suggestions that follow.

Regrettably, some breeders in the US, who claim to have tried all known options, (not realizing they have not gone to the needed extent), to stop mate abuse, have turned to a medical procedure labeled as beak alteration. This is a procedure where the veterinarian splits the males lower beak and mandible down the center from top to bottom. This procedure is viewed as being unethical in the UK and in many other parts of the world. Prominent Australian vets view the procedure as being barbaric. There are also several, avian vets in the US who, when asked their opinion, stated that they thought the procedure wrong and if asked to perform it, would refuse....further stating that they felt that any type of procedure that disfigured an animal or possibly could effect its psychological being was wrong unless there was a medical reason to justify it.

This is Alexander, a wild caught male ducorps cockatoo. Alex NEVER showed any aggression towards his mate. Another Ducorps in the same breeding facility had killed its mate, so shortly thereafter, Alex and all other Ducorps males lower mandibles were permanently split. Other alternatives were never tried. The nest boxes at this particular aviary only had ONE opening...leaving NO escape for the females. The aviaries were also very small, hardly giving the birds room to fly other than to hop a little from perch to perch. It is also my understanding they were not given wood to

chew or anything else, to help to keep themselves occupied and to help burn up some of that hormonal energy.

Surgical beak altering is a permanent procedure, leaving the males beak mutilated, unable to crack nuts, and certain seeds as testified by owners of beak mutilated birds. Think about how these males would have to drink water, using two separated lower beaks. Cockatoo males feed and nurture their babies, can a male with an altered/split beak ever feed babies again? Once the lower beak has been split, the now two new beaks will grow upwards like tusks and must be filed (or left to eventually break off on their own) for the rest of these birds lives. I have heard this procedure justified time and again by people, saying "If you have EVER held a mutilated hen in your arms, then you would understand" or a dead hen", or a hen with its beak ripped off, bleeding to death". I personally think that all we need to feel this heartache is to know what has happened to these hens. This is a deeply sad and heartfelt situation. It is not something that anyone wants to happen BUT in good conscience, should the male be mutilated for life because he is not acting correctly in a caged environment? I feel that we must step back, assess the situation and look for the real causes of the problem, taking the blame and responsibility upon ourselves. We need to ask questions and find out, why would a male cockatoo be driven to act so differently in an aviary situation, than his wild cousins?

In the wild, cockatoos grow up in flocks, getting to know each other. Learning each others communications and the expected socialization behaviours within their flock. They also have numerous other cockatoos to choose whom they might want to pair up with. If they do not like each other or have had enough of each others company, in the wild they have ample room to fly away and get their own space for a breather.

Once cockatoos pair up, they begin searching for their nest site. This site will be used year after year but first they will look perhaps at several possible sites before deciding on just one. After finding the perfect cavity to nest in, the male starts to work, chewing out the cavity to the pairs exact liking. He is also busy defending the nest and hen from other creatures and especially from other male cockatoos. The pair then raise their young and once the babies are fledged they rejoin the flock. When the pair rejoins the flock, if for some reason they no longer get along, they are free to seek a new mate...although cockatoos do for the most part stay with the same mate for a lifetime they can occasionally change bonds.

Breeders around the world have given the following suggestions to stop mate aggression. Following is a list of what has worked for them. Some of the same suggestions were given by avian vets. I would also like to urge cockatoo breeders for the pet trade to consider what seems to be a crisis of older cockatoos, over the age of 2 being passed from home to home, before breeding any more babies that could possibly end up in this sort of cycle. Also for the optimal health of breeding pairs consider limiting breeding to one clutch per year. Please put the birds first, parents and chicks, above all else and take responsibility for their lives.

The most important step to stopping mate aggression seems to be aviary size....more information is below.

One tool to fight mate aggression is to have an observation camera, enabling you to observe the cockatoos without being present. This can sometimes help to alert you to problem behavior in the earlier stages. It can also give a false sense of security, missing tell tale signs of trouble. You may observe obvious aggression by the male or less obvious flying to the ground by the hen to escape a male. Without a camera you can see if two cockatoos are sitting on opposite ends the perch, things are not right, they are not good, separate the birds.

Diet is important. If a cockatoo is not feeling well, due to a nutrient poor diet, he could become aggressive. Birds should be fed a variety of foods, including some fresh foods on a daily basis.

If possible let the cockatoos do their own mate selecting. They may not all pair up, but it would be better if they did not pair up than to have mate aggression occur. If for some reason you are unable to allow birds to choose mate themselves, then try pairing like personalities such as aggressive males with aggressive hens, layed back males with sweet hens etc.

Communication skills can be vital. Since these skills are learned from parents and flock groups, using hand-raised cockatoos for breeding should be avoided. Communication skills of parent raised birds can be better but they still lack the education of a flock language. Wild caught birds would make the best breeders.

Supply multiple wooden nest boxes initially, to let them establish their nest the way they want it to be, and the location they want it in. Australian aviaries provide two nest logs to breeding pairs. This way if one log is rejected, they have a second choice which helps to avoid frustration which could lead to aggression. Also supply toys, fresh branches and chewing materials at all times, to help keep the male busy. A wild cockatoo would never have time to become bored and a bored male in captivity with nothing but time on his hands can turn into a frustrated and aggressive male.

Some breeders have had success leaving same species cockatoos housed side by side (in large outdoor flights), giving the male an outlet for his aggression, but this seems to only work, if cockatoos pairs have a hidden area, when their nest hole is located. A secure and hidden area away from and seemingly out of sight of neighbors.

Make sure that after a nest box of their choice has been selected, that it has an escape, essentially two entrances so that the hen cannot be trapped inside by the male. Although a two entrance box, does not do a lot to assure a hens safety from a ranting determined male. Also do not add perches to the nest box, to encourage a male to hold a hen captive.

If the males wings are kept clipped and the hen is left flighted, then she can escape easier. Use good judgement in this case though...if the male is so aggressive that he needs his wings clipped, ask yourself if he should be in a breeding situation at all. This will not help to prevent aggression in the case of a male attacking a female in the nest box. ALL nest boxes should have escape holes. Some male cockatoos have been known to be infuriated when clipped, not easily being able to approach a hen. A few

of these males have taken the tactic of clipping off the hens primaries, leaving her unable to escape him.

Provide at least two feeding and water stations to avoid a situation where the male will not let the hen access food.

Aviary size plays perhaps the most important role for stopping mate aggression! Some aviaries have been expanded to 20 feet long on average but a higher success rate, at avoiding male aggression has been achieved in aviaries that are 30 to 40 feet long by 15 to 20 feet wide. I read one recommendation that simply stated cockatoo aviary flights need to be large enough to provide \*some\* flight. Obviously whatever size of cage this is referring to, it would not be of adequate size to stop mate aggression. Companion bird owners are told that if they cannot provide the needed space to provide a large enough cage for a cockatoo, then they should not get one. This also should be applied to breeders, if you cannot provide adequate aviary space to avoid mate aggression, then you should be looking into a different species. It has been noted by some breeders that if the aviary is too large, then their birds will not breed. This is because the male can no longer catch the hen. If the male is having to chase the hen, chances are that the pair is not paired up properly OR the male is too aggressive to be in a breeding environment and should be removed. He is not adjusting to a captive environment and the question might be asked, if he remains aggressive, is this the type of bird that should be passing on his genes? Is he actually capable of producing even tempered/pet quality babies or will his babies be aggressive later in their life to their caretakers and end up being passed from home to home? Another question about large aviaries was about whether or not they would be suitable in cold northern climates. There are breeders up north in cold climates who have provided large aviaries and the birds do very well. These birds also have a sheltered area within the aviary.

If you feel that a pair is not getting along, that they seem to squabble a lot, then IMMEDIATELY separate them, please.

If the male is acting aggressive, you might want to try a temporary separation. If you try this, do NOT remove the female from the aviary. Always remove the male from the aviary. If you remove the female, then the male could become territorial and when you reintroduce the female, she could possibly be attacked by the male as an intruder. Once separated you can watch for signs from the female that she is ready to breed, such as working the nest box or calling to the male. If a female should become ill and needs to be taken out of the aviary, then also remove the male at that time and then reintroduce both birds back to the aviary at the same time. You might consider reintroducing these birds by housing them next to each other in separate cages for a while, letting them meet each other all over again, before turning them loose into their old aviary.

Never put the same species of cockatoo in adjoining aviaries. Ideally the same cockatoos species males should not have

sight of each other as this can result in the males feeling challenged, keeping them emotionally on edge.

If a male has ever killed a mate, he should be permanently excluded from any breeding.

Hopefully, with some work, male aggression can be avoided by finding solutions, and by us making the commitment to our captive breeding cockatoos to do our best for both, hen and cock. And when a problem arises, we will look first to ourselves, ask what we might be doing wrong, what we can better provide them, rather than blaming the male and mutilating him for life.

### **FAQ's**

#### **My Galah uses its foot when it eats, but not to the extent that my other cockatoos do, why is this?**

In most instances, Galahs tend not to use their foot quite as much as most other cockatoos, although there can always be individual exceptions to this as with other behaviors. This does not say they do not or will not use their feet, but rather they do not use them as extensively for the most part as some other cockatoos, most notably the arboreal cockatoo species. \*It has been noted in field studies, that ground feeding species are not adept at using their foot as a hand, thus the Galah does this much less than other cockatoos with the exception of the cockatiel, in which using its foot is rare behavior. All other cockatoo species have this ability and use the foot, while feeding, much more than most other parrots.\*

note of interest: Forshaw noted that the Gang Gang cockatoo has the most advanced foot holding-technique while eating, of all the Australian cockatoos.

It was found in another field study of 5 years, that the Carnaby's or the white tailed black cockatoo, although having many similarities in behavior, to the Galah, the Carnaby's cockatoo uses its feet to handle food much more than Galahs do. These wild behaviors tend to be found in our pet birds, although as noted, there are always exceptions to any rule. The Galah for example uses its beak extensively in the wild and this is carried over in companion Galahs and is known as being "beaky".

\*from Rosemary Low's book Cockatoos in Aviculture

#### **How does my bird keep from falling off its perch while sleeping at night?**

When a birds leg bends at the knee, they have the ability to more or less lock their grip to their perch, thus keeping them from falling off while sleeping. If you bird is ever stubborn, not letting go of an object with its foot, a tip would be to straighten out its leg before trying to have it release the object from its foot.

### **I keep hearing that Galahs are "nippy" birds, is this true?**

This is a term that has recently been attached to them and has been overused. They are not nippy birds but do use their beaks a lot, so a better term might be to say that they are "beaky" birds.

### **I've heard Galahs called "beaky" birds, what does this mean?**

Galahs are commonly referred to as being 'beaky' due to the fact that they naturally use their beaks a great deal (in the wild, and in captivity) to explore, dig, chew, allo-preen, etc. Although most parrots, and especially cockatoos, use their beaks for these purposes, those who spend a good bit of time on the ground foraging for food, such as rose-breasted's, seem to utilize this practice more consistently. Sam Foster

### **My Galah is starting to nip hard, what can I do?**

You might think about providing alternatives for him to nibble on such as blocks of wood, pieces of leather. This does not mean of course that he will stop using his beak on your skin. After all, you are his flock mate and allo-preening is very much a part of Rose-breasted's behavior.

What might be of help is to increase your rose breasted's opportunities for scraping and rubbing his beak on other items. I have found that they particularly like something with texture, and if it makes a slight noise of some kind (such as when their little beaks scrape against tile) it usually just increases their enjoyment.

Keep his 'preening' sessions on your arm or neck limited to short amounts of time. Galahs can easily get themselves worked up into overload, and this is very easy to observe. So, when he is very calm and relaxed, that is when I would sit with him to allow him to 'preen' me. If he is very playful and energetic, I would encourage him to 'preen' something else, and probably best if he is not sitting with you during these times.

Since your bird is a young bird, he may be testing a bit as well to see what he can get by with. I've heard some people refer to rose-breasted's as not being as 'bright' as some other cockatoos. My response to that is "HA!". They are one of the cleverest little creatures in the world, and can very quickly learn how to turn a situation to their advantage.....which is probably one of the reasons they have continued to survive and thrive in their native habitat when other species have become threatened.

So, just as you would work to teach another one of your cockatoos that biting is not allowed, you will do the same with your Galah when he is being too rough. The principle of using a soft voice and calm demeanor will prove your best method. Galahs 'love' drama as much as any cockatoo (perhaps more), so a loud NO or sudden movement such as standing up and pulling your arm away will probably just make him more determined.

Find some eucalyptus branches and let him strip the bark. I can promise this is something he would relish and much prefer to pulling the hair from your arms or neck!

By Sam Foster

### **Why are birds so sensitive to fumes, becoming sick or even dying?**

We humans breathe using lungs. Whatever air we take in, goes out the same path it came in. Because of this our lungs do not empty completely and as a result only about 20% of each breath we take is absorbed by our lungs.

A birds breathing is quite different from ours and extremely efficient. When it takes a breath, it goes into the birds lungs...which is a small area, and does not go in and out to the degree that our lungs do, and is more of a box. The breath they took, then continues through tubes and into the rear air sacs. When the bird breathes out, the air continues to move, through more tubes and into yet another air sac. When another breath is taken, the first breath of air moves yet again, and finally, out of the bird. Every breath our birds take in, goes in the same direction through all of the air sacs, the air absorption of each breath a bird takes, is almost total, using close to 100% of each breath. This is much different that our 20%.

Having these airsacs, helps a bird to fly, as it keeps them lighter and more buoyant. Also because flying is so energy demanding, they need a large oxygen supply. Most birds have nine airsacs. They are found in the neck, upper chest and toward the back of the abdomen. Some bird species even have airsacs in their bones in the wings and legs.

Because of the efficiency of a birds breathing system, fumes can be deadly. Problem fumes to consider are any sprays, perfumes, household cleaners, smoke , PTFE, which can be found in nonstick cookware coatings, self-cleaning ovens, some hairdryers, iron plates, ironing board covers.

### **What is a safe cleaner for my floors, furniture, windows etc. ?**

A solution of white vinegar and water does a good job as an all-purpose everyday cleaner.

### **Can I feed my bird milk products?**

Milk products contain lactose and birds lack the enzyme lactase for its digestion. Cultured products such as cheese and yogurt however are digestible. Cheese is a good source of calcium and also contains vitamin B12 but when feeding it to birds, keep the high fat content of cheese in mind, only offering very small portions, on a few special occasions. Also, only offer \*real\* cheese to you birds, never give them imitation cheeses as these could cause serious problems. Many birds love yogurt. It not only contains calcium and vitamin B12 but also beneficial bacteria for the gut. If yogurt is fed, it should be offered in small amounts and preferably be organic. A no fat unsweetened organic yogurt is suggested.

### **I have heard that parrots, including Galahs need 10-12 hours of uninterrupted dark quiet time each night. However, I have read that Galahs will fly around at night, is the 10-12 hours really necessary?**

Even though Galahs have been recorded as being active through entire nights...this only happens occasionally. These occasions occur on clear nights, sporting a full moon. As a result the night is very well lit and they can almost see their own shadow. Activity only happens with the combination of a clear sky and a full moon and the nocturnal activity can continue for 2-3 days if conditions remain. After this time its once again dark enough that Galahs as well as other birds sleep through the night, unless momentarily disturbed by another bird or the sound of a predator.

This is only an occasional change of sleep pattern, as it does not happen every night, nor does it happen with every full moon or clear sky. Most nights Galahs do rest 10-12 hours in the wild and yes, your pet Galah should also receive a restful 10-12 hours every night.

<http://www.pacifier.com/~birdart>  
Accessed: March 2005

## ARTICLE 049

### **Wild, Wild Rose...**

By Sam Foster

Given recent theory that Congo African Greys may be raised in the wild similarly to the Rose-Breasted Cockatoo, and the fact that there is little research on wild Greys, we requested avian behaviour consultant and cockatoo breeder, Sam Foster, to write about the behaviour of Rose-Breasted Cockatoos in their wild natural habitats.

Perhaps no other bird is more widely recognized as a symbol of the Australian Continent than the Rose-Breasted Cockatoo, or galah. This unmatched combination of avian beauty, intelligence and gracefulness combined with their captivating spirit enhances and intrigues those who, like myself, are inexplicably drawn to the creatures we call Cockatoos.

The complexities of various Cockatoos offer a tremendous challenge to those humans who accept the roles of caregiver, teacher and flock member. In a domestic setting there is an even more formidable task...that of realizing and appreciating the unique behavioural traits of each species. Fortunately with Rose-Breasted's, we have the fieldwork of several leading ornithologists and aviculturists including Ian Rowley who have provided comprehensive and valuable data concerning natural habitats, breeding, flock structure, diet and behaviour.

### **EARLY SOCIALIZATION IN THE WILD**

Jane Hallander and I have spent many months considering some interesting similarities between Galahs and African Grey Parrots, particularly Congo's. Ironically, the basic personalities of these species contrast significantly. The Galah, which has a slang interpretation of 'fool' or clown, well defines the conduct of these exuberant little balls of fire. They are raucous, precocious, jaunty and often seemingly inexhaustible. African Greys would appear to be much more refined and dignified in comparison. Yet, there are some significant correlations to their actions and reactions in captivity. Perhaps their lifestyle in the wild is the common thread.

One of the most fascinating aspects of natural Rose-Breasted behaviour is the early socialization process. Galahs are raised unlike any other Cockatoos. As soon as the young have mastered the art of flight, they are taken to a creche tree, where all fledged Rose-Breasted's within the flock are taken by their parents. Here, they are watched during the day and night by "nannies," who might be adults without mates or older adolescents. Parents may still have babies in the nest, and remain to care for these birds, bringing them one at a time to the creche as they fledge. Mom and dad make the daily journey to the nursery tree and continue feeding their own young for a short period of time, able to identify the calls of their offspring from among dozens of other begging juveniles. Typically by three months of age, all contact with the parent birds has been severed.

These young Galahs therefore form bonds with others of their own age, learning by watching the behaviour of the adult birds in the primary flock, and from those who serve as their nannies. If we think about the mind-set of these particular birds, they are

forced in nature to become independent and much more self-reliant at an early age than other Cockatoos in the wild who remain within a family unit for many months, and in some cases, years. While Rose-Breasted's do indeed have a very strong social structure, they do not form that close family dependent bond.

If we correlate the creche system and resulting social structure to how Rose-Breasted's are raised in captivity, the majority of breeders and pet bird owners would raise a Galah exactly in the same manner that they would a Moluccan, Umbrella, or any other Cockatoo, and expect their behaviour to be similar. My feeling is that the methods often used to raise Rose-Breasted babies, combined with the limited knowledge by some of their uniqueness, may lead to behavioural disorders that are otherwise "unexplainable."

## **LIFESTYLE IN THE WILD**

During breeding season, Galahs may nest in sites very close to other Galahs, unlike many other Cockatoos who seek out safety and solitude of a more protected and distant location. So, during the entire process of breeding and raising the young, Rose-Breasted's are often exposed to other members of the flock participating in the same activities, combined of course with the shared creche. If this instinctive behaviour carries over into our captive-bred birds, which we believe it does, this is one possible explanation for the easygoing acceptance that is often observed between Galahs when they are put into an aviary or flock setting. Perhaps they do not share the fear of intrusion from others of the same species which can result in some Cockatoos becoming aggressive and protective of a particular site and surrounding territory.

If we think carefully how large flocks of Rose-Breasted's intermingle in the wild, it almost appears as if these graceful acrobats move in complete unison, as one entity. Even on the ground there does not appear to be a rule about "space," as with some other species. They often literally walk wing to wing, stepping on each others' feet, crawling over each other almost like ants, a mannerism also observed with African Greys who sometimes look like an inextricable grey mass when feeding on the ground. This type of social interaction seems to conflict somewhat with our interpretation that domestic Rose-Breasted's are more independent than other Cockatoos...that they are not as "cuddly." While those statements may be true, and many Galahs would much prefer a nice scratch on the head than being held against your chest for a long period, humans who enjoy the companionship of these creatures can attest to their absolute delight in lots of playful interaction, emotional stimulation, and being a part of daily household activities.

This is not to say that they are less devoted to flock members and mates than other Cockatoos. Like many parrot species, adult Galahs form monogamous relationships and there are documented instances, which prove the affection and attachment of a bonded pair. Preening is a favoured activity among pairs during periods of rest and prior to roosting.

I remember watching a film showing wild Galahs in southern Australia feeding on grain which had been spilled along a country highway by trucks transporting the grain to holding silos. As cars approached, the flock would rise to the sky, landing again once the automobile had passed. On occasion, serious injury or death would result

when a member of the flock did not react quickly enough. It was very poignant to see a Galah remaining close to its dead mate on the roadside, sometimes pushing the body with its own beak or foot in an obvious effort to encourage the lifeless body to take flight.

In the wild, Galahs spend a great deal of time on the ground foraging and grazing on surface seeds, or raking their beaks in the dirt to uncover a tasty morsel. The ground is also an arena for play and these little pink bundles of energy can be seen rolling over on their backs, playing tug of war with a small stick, or suddenly jumping straight up in the air several inches for no apparent reason, which is normally accompanied by a staccato 'eeh eeh.' Rose-Breasted's are regularly seen displaying their sheer delight just to be alive by hanging upside down on telephone wires or small branches, often spinning around and around in circles with wings outstretched and screeching to the world.

Rose-Breasted's are also little "sticky beaks" (one of my favourite Aussie expressions for being nosy and into everything). They are not content to sit on the arm of your chair or in your lap being held and stroked. I'm convinced that they feel it is their mission to uncover all the mysteries of life...What's this? How does this come apart? Can I turn this over? What's under here? And so on.

I do find it interesting that in Australia we had 5 breeding pairs of Rose-Breasted's, all wild caught. Two of our companion Galahs were wild caught and another was hand-raised, by my husband and myself. None of these wild-caught birds, nor any of the Galah babies we raised, exhibited any type of extreme negative behaviour. I feel strongly that allowing our captive-bred babies (some were parent-raised) to socialize with older juveniles and adult Galahs (SIMILAR TO CRECHE SYSTEM PREVIOUSLY DESCRIBED IN THE WILD—Ed) was a major factor in this positive outcome....not the 'only' factor, but an important one in my opinion.

I do not claim that there is not, never has been, or will never be, a wild-caught Galah or other Cockatoo who exhibits some type of extreme behaviour, a phobia, or mutilates either feathers or flesh. However, my personal feeling based upon experience, information gathering, consultations with other aviculturists and veterinarians, is that a wild caught phobic bird is the exception, not the rule.

I consider myself extremely fortunate to have had the unforgettable opportunity to personally witness the behaviour of some of these species in the wild, and to learn from those observations. My hope is to continue to learn and share that information with those who are interested. I don't have all the answers. I wish I did. In order to fully appreciate the differences between wild caught and domestically bred, hand-raised (even parent raised) birds, there are numerous factors to bear in mind. However, when we carefully reflect on the 'wild' chain of events that occur in a parrot's natural habitat, it becomes evident that no matter how hard we try to duplicate that process, it will never be the same.

We may teach them the art of foraging, encourage their natural curiosity, offer them opportunities to experience physical exercise and visual stimulation, provide fresh air and natural sunlight, an expansive cage and limitless play gyms and natural climbing trees. In some cases we might even allow them to fly within a controlled environment.

Yet nothing we teach can begin to compensate for the valuable and fundamental lessons birds learn from their parents and other avian role models about 'being a bird.'

When I witness a Galah in a pet or breeding situation and attempt to parallel the behaviour and quality of life to their predecessors in Australia, in my heart I must acknowledge that there is nothing like a Wild, Wild Rose.

<http://www.africangreys.com/articles/greys/wildrose.htm>  
Accessed: March 2005

## ARTICLE 050

### **Australian 12 Days of Christmas**

On the first day of Christmas,  
My true love sent to me,  
A kookaburra in a gum tree.

On the second day of Christmas,  
My true love sent to me,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the third day of Christmas,  
My true love sent to me,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the fourth day of Christmas,  
My true love sent to me,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the fifth day of Christmas,  
My true love sent to me,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the sixth day of Christmas,  
My true love sent to me,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the seventh day of Christmas,  
My true love sent to me,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the eighth day of Christmas,  
My true love sent to me,  
Eight dingos dancing,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the ninth day of Christmas,  
My true love sent to me,  
Nine crocs a-snoozing?  
Eight dingos dancing,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the tenth day of Christmas,  
My true love sent to me,  
Ten wombats washing,  
Nine crocs a-snoozing?  
Eight dingos dancing,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the eleventh day of Christmas,  
My true love sent to me,  
Eleven lizards leaping,  
Ten wombats washing,  
Nine crocs a-snoozing?  
Eight dingos dancing,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

On the twelfth day of Christmas,  
My true love sent to me,  
Twelve possums playing,  
Eleven lizards leaping,  
Ten wombats washing,  
Nine crocs a-snoozing?  
Eight dingos dancing,  
Seven emus laying,  
Six sharks a-surfing,  
Five kangaroos,  
Four lyrebirds,  
Three wet galahs,  
Two snakes on skis,  
And a kookaburra in a gum tree.

Tom Wills (2000)  
Accessed: March 2005