

Joe's Lorikeet feeding article for the Parrot society UK final draft 4-10-19

# PART 1

## Feeding Lorikeets - A special case and point of difference compared to other types of Parrots



### Introduction:

It is important when reading information that you gain an understanding of what biasness an educator has before accepting their thoughts on face value. So let's firstly look at my own bias so that you can sort out the wheat from the chaff in this article as it is presented to you.

I have been requested to submit an article on Lorikeet nutrition and diets for the PSUK by Veterinarian Dr Alan Jones BVSc MRCVS, Chairman of the Parrot Society UK. He has asked me to do so, as the previous article that was online appeared to me to include some (not the whole lot) outdated and erroneous information. This is my attempt to abide by his intent to educate people and to do so in a logical way in trying to bring together more than 40 years of bird keeping and 30 years of clinical experience as a Veterinary Nurse in my researching and developing a suitable diet for caged and hospitalised wild Lorikeets.

This is a big ask, especially being a student that failed English at High School. Nothing is impossible for anyone it seems. Despite the academic failings I have racked up in my report cards, I have completed a Certificate 3 in Veterinary Nursing with the auspicious allocation of the Queensland State's Graduating Nurse of the Year Award being placed upon me and also completing a human nursing Bachelor Degree. On the Veterinary side of things I personally anaesthetise tropical ornamental fish for the purposes of spawning via hormone induction. Giving an injection to very small fish is quite traumatic. Why? - the size of your tetanus needle looks much bigger in the eyes of a 5cm fish. So I anaesthetise them. On the human side of things, I also assist in Human Nursing specifically within the area of Operating Theatres and continue to assist hands on in and during human organ transplantation, brain surgery, Caesarians, Anaesthetics etc etc etc. If you haven't noticed - I adore anaesthetics and the critical thinking processes of clinical work. I have also done a brief stint as a Donor Liaison Officer for human organ and tissue donation and distribution.

Of the businesses I own and run; one includes manufacturing a Lorikeet diet since 1996 or thereabouts. Which was an accident. A long story. Don't ask.

Once I completed all the research of the diet I realised that I should sell the diet as the commercial mixes I saw around the market place were deficient in many ways - Which was actually the only reason that I started the journey of researching Lorikeet dietary requirements in the first place. I saw a problem that needed to be fixed... and I fixed it. Call me Bob... [click here](#)

We having been exporting overseas for a quite a while now. Yes our diet contains Australian Pollen Powder. And no, we do not have an endless supply of pollen powder in the type we use and therefore we can not supply the whole world.

At Dr Alan's request and my subsequent contemplation of his offer to do something constructive was and is the main impetus which convinced me to pull my finger out and do something worthwhile with my knowledge. Dr Alan knew almost nothing of any of the above prior to requesting I think about doing a write up. I have had some long thinking time (more than a year) before accepting his offer due to my biasness in being the owner of a Lorikeet diet manufacturing business, plus the failing English at school thing invoking more fear within myself of yet another failure at educative writing. I'm great at gathering, sourcing and processing scientific information - poor on communicating the information, especially in the written format in layman's or academic format terms. But who cares about me? Let us look at what your birds can benefit from in your gaining some education...because that is probably THE reason you are here reading this.

### **The nitty gritty, dirty and ugly truth**

At present, it seems most likely that the majority of sick birds that people see in the caged bird arena are sick because of our own faults in giving the birds either a poor

diet or our poor husbandry. Dr A K Jones BVetMed MRCVS, Chairman PSUK has said here in this website that he and his colleagues **know** that “the primary cause of disease problems in captive parrots is the result of **faulty nutrition**” (1). This apparent fact is not only a very sad state of affairs, but is also very easily rectified. Today we will explore the possibilities of doing the right thing as we know it in today’s contemporary avicultural world. What was old can also be something blue. Something new can also be the cause of making a bird look like they have the flu.

Come let us scrutinise what makes a good marriage between the bird’s and us in terms of what is undoubtedly **THE** most important subject in preventing disease, morbidity and death in our birds....the subject of FOOD.

For decades, we, us bird keepers and breeders, have developed a fondness in doing our own thing - just because we have a thought - “I’m in charge. I know best” kind of attitude. Alternatively, sometimes we simply do things because we have always done it or everyone else is doing something. However, that does not mean it is the correct way of doing something. The same can be said of science and conversely so can be said of ignorance. When it comes to making simple mistakes and following the leader mentality, we invoke the human learning behaviour we have developed within ourselves over the years. Acting like a spoilt teenager and by pretending we know everything will easily lead to disaster. Nothing can be more true as a generalisation than the teenager analogy in the feeding our birds. So, I invite us all to think in a mature and “Balanced” way when we come to feeding our birds.

Working on both sides of the fence means that I have come into contact with a catch phrase that is synonymous in human and animal nutrition alike. Eating a **Balanced Diet** with appropriate exercise is key to good health. Today we are discussing Lorikeet nutrition. The unsaid and obvious elephant in the room by us excluding all other types of parrots from this discussion; is that Lorikeets have **differing** dietary needs than other parrot species. Is this true or false? A well known avian author in Australia has said that no other type of parrot has received more dietary abuse than that which has been given to Lorikeets by us aviculturalists over the years (2). I believe that generalised statement to be very true of Aviculturalists as well as Lorikeet food manufacturers.

Well let’s look at the range of things that we can examine in order to help us understand what the different needs are of Lorikeets when compared to all the other “so called” seed eating parrots.

We can look at anatomy.

We can look at environment they live in the wild.

We can look at typical habits.

We can look at social patterns.

All of these are interdependent to each other in my opinion. Allow me explain further.

There are around 50 species of Lorikeets (11). They are a specialised group of parrots that are distinguished from other parrots in their having numerous adaptations both physically and socially that meets a niche within their environment that other parrots can not and do not mimic to any large degree; especially in their food preferences in the wild.

By far the most common reference given to these birds is the difference in anatomy of their tongue. If you wish to see what the difference is between the tongue of a “normal” parrot and that of a Lorikeet then please take the time to view this photo [on the link here](#)

Compare that kind of tongue to this tongue from a “seed” eating parrot [on this link here](#) and you can see after looking at these differences that the Lorikeet tongue **must** obviously be used for different eating methods than that of “seed” eating parrots. The reason for this difference is two fold. Lorikeets, certainly of the genera *Trichoglossus* in which I have done the bulk of my work with, have, what can be described as having a “hairy” tipped tongue. Whereas the tongue in a “seed” eating species will more accurately be described as having a bald and club tipped tongue.

In the wild, the “hairy” tongue of a Lorikeet has two helpful attributes. The hairs act like a paint brush being dipped into paint, in that it increases the functional surface area of the tongue as well as taking advantage of the osmotic pressure of the liquid nectar part of their diet extracted from flowers. Therefore the tongue holds a larger amount of food inside the beak than if they had a bald tongue. Secondly, with the tongue being wet with nectar, and also having the hair-like projections from the tip of the tongue, it makes the collection of pollen from flowers so much easier and very effective than if they had a bald and relatively water phobic tongues like their seed eating cousins. And when wild Lorikeets spend about 70% of their time feeding, it would seemingly be impossible for them to eat enough nectar and pollen in a day if they had a bald tongue. Hence the “seed” eating parrots do not waste their time eating nectar, because the diet and tools they have in their beak are not adapted in a way that makes the kind of diet suitable for their needs. You now have the basics as to why Lorikeets are considered “specialised” in their dietary needs and must therefore have a diet different to their seed eating cousins.



There are other internal gastrointestinal things but realistically, to discuss these things is beyond this article’s main function of making sure people know HOW to feed Lorikeets, not the encyclopaedia version of why. The differences between the nectar feeding and seed eating types of parrots is vast and is the reason why we must as bird keepers make sure we are feeding them properly.

### **Environments where Lorikeets live**

I have personally observed the same species (Rainbow Lorikeet) in all three environmental zones in Australia - and have stood at the exact same 3 locations shown below (two of the photos below I have taken myself).

They live from tropical rainforests as per below...



through to deserts such as here....smack bang in the middle of Australia



or the middle ground - dry arid areas of such as here...



And therefore, because of the climate where they live, the quantity and quality of the food they eat can and will change from season to season. Rainy season, dry season, or drought for years, very hot summers to 45-50 degrees Celsius, freezing winters to subzero temperatures. They can withstand a lot of environmental pressures and still live healthily and in fact, thrive.

To be true to my ethos in managing the husbandry of birds; make sure you know the geographical location where the species you intend to keep come from; because the diet will be different accordingly. My understanding of Lorries from the central indo pacific regions in the wild will have access to seasonal fruit in larger quantities than those found in the Australian landscape where I am located. Interestingly enough Elizabeth Koustos et al (14) says and Dr Alan infers; that it is obvious through clinical evidence, and common sense that diets based upon domestic human food items is substandard, as is the usual diets more closely align for seed eating parrots. Both diets are faulty. Koustos et al (14) informs us that a formulation of appropriate diets requires knowledge of the species “wild feeding strategy”, anatomy and physiology as all being very important attributes in a diet we feed captive or wild birds. It is up to us bird keepers and aviculturalists to understand the relationships between those aspects as best we can. Once we do this, we will be able to maintain and breed these birds with increasing success (14).

Personally, my favourite “go to” strategy is applying the “wild feeding strategy” as the primary concern for ensuring I feed any bird under my care as a Veterinary Nurse. This is Common Sense and once the natural elements of a diet are known, the anatomy & physiology requirements are automatically correct for the food offered. Am I wrong in my approach? Nature says I am correct. If you wish to argue with me then just think of this picture....is there a point to feeding porridge to an Owl, coconuts to a Pelican or expecting a Cat to eat a vegan burger?



### **Social differences**

Lorikeets within Australia adore being in close proximity to each other often in the hundreds of birds in a flock. As I write this, it is spring time and the Bottle Brush, Grevillea and Banksia are all flowering profusely and the birds are eating in the same manner as the shrubs are flowering - profusely and rather in your face and loud. Here is a photo 5 metres from my office window of a Rainbow Lorikeet partaking of it's afternoon "High Tea" ... below.





This communalism aids in flock protection with the many eyes on the predators, but it also means, they will also see who within their flock is eating what and will readily copy another's choice of foods. Lorikeets are probably one of the most curious birds on the planet and will inspect just about everything - partially also this is due to seasonality of available foods and the necessary need to try anything and everything. AND SO changing a Lorikeets diet will be easily achieved should there ever be a requirement to do so.

So what do wild birds eat?  
Anything vegetable will go down a treat.

Below - Callistemon/Bottle Brush in flower





In the wild, as you are probably aware, they ingest large amounts of nectar and pollen. They will also frequent fruit trees from wild trees or shrubs as well as in orchards. By adding fruits into their diet, they meet the important parts of their daily nutritional needs. In the wild pollen is well documented that Lorikeets eat profuse amounts of the stuff. To be fair, generally speaking, pollen is very low in methionine, a type of essential amino acid protein. An essential amino acid is a type that must be eaten and will never be made by their own metabolic processes. A non-essential amino acid is a protein that the bird can make for itself by using some of the proteins it ingests. Methionine is termed as an “essential” amino acid and thus they need to find a supplement in order to meet their metabolic needs. They overcome this deficiency by eating some insects.

Another matter that is not so widely known is seasonality. In that I mean, fruits are available in the wild according to the season and the water quantity (rain). Therefore, feeding captive populations with seasonal fruit will mimic this nutritional need the birds have. It will also increase their social/environmental awareness and emotional well-being by having stimulating and changing diets. Change creates emotional stimulation.



Personally, although the birds do not require seeds as part of their diets, I feel it imperative that sprouting seeds be offered to birds, especially during the breeding season. The preference would be to provide seeds that are very soft and do not need handling or too much manoeuvring by their tongue in their beak - thus not being too detrimental to the hairs on their tongue. I do stress though, don't over do it. Balance is key. Remember that phrase again? **Balanced Nutrition**. Keep things balanced at all times.



In captivity the idealistic diet will mimic as close as possible the natural diet. I am fully aware this is a fantasy - but the best diet is the wild one. So let's get nitty gritty in what may be a good weekly diet regimen for a Lorikeet.

Personally I "cheat" as I often do and go the whole hog. So I feed the birds pollen powder in their diet. Pollen has many benefits. There is no substitute to quality. Pollen increases the protein content in the diet, increases immunity accordingly in accordance with the beta-glucan theory, the carotene and a few other things I'd like to keep secret also increases plumage sheen. Research has shown (3), and for the life of me I can not find the scientific journal article that shows it so I can share the source with you, that pollen has a very similar amino acid / proteins profile as egg protein.

Pollen has had a significant amount of controversy in regards to it's digestibility in the research. Early publications say that it is poorly absorbed (4) others suggest the complete opposite. But the jury is totally convinced and saying that wild birds eat a lot of it. As such, it seems stupid to think that wild birds can not digest enough pollen to meet their protein requirements. Pollen forms the bulk of their protein intake and therefore must be a significant and important part of nutrition for wild populations. More recent research says exactly that (5, 6). There is also the train of thought whereby, Pollen is thought to possibly require less digestion requirements in Lorikeets compared to other birds because of the increased zonal area within the intestines found in Lorikeets enabling better digestion of pollen proteins. Plus pollen seems more readily available and easily sourced compared to the birds trying to actively search for and add insects into their diet (6). If they come across an insect, they may eat it during their feeding upon pollen and nectar, but they do not tend to actively search for insects as a food source. Pollen appears to be an important source of protein for these birds (5). This is something nature and you and I already knew. Interestingly, it seems that Lorikeets as adults require a lower than other parrot's need for protein in their diet (4). In that particular study, it is suggested just 2.7% is sufficient in the particular species that was studied (adult birds).



But how may we replicate a suitable diet for our birds at home? Well lets look at what a reasonable feeding regime be for the birds. Bearing in mind, we are not dealing with chickens or turkeys; which are single species. We are looking at a variety of species within a family or group of similar birds that we have collectively labeled as Lorikeets. Therefore, each species will have slightly different significant idiosyncratic requirements of one element when compared to another species. Below....Purple Crowned Lorikeets



Size and age of the bird is important. Generally speaking the smaller the bird the higher the metabolic rate will be. The age is also important. Unfledged birds will have a

higher protein requirement than adult non-breeding birds. Later on in this article we will look at the regular diet for an adult bird that we may use as a basic rule of thumb. Below...Grevillea in flower



Lastly, please look at the usual toxic plants and foods lists that are common to birds in general and definitely avoid those. I do not feel it is necessary to include all of the list here. Suffice to say that I can not stress enough, for a quick reference, to please read the UK Parrot Society's nutrition section so as to avoid the common toxic foods that are inadvertently fed to birds by unsuspecting owners. Just because a human can eat a certain fruit etc, does not mean it is healthy to parrots. Some human foods are lethal to parrots and vice versa. Make sure you're feeding is founded on correct information.

One other thing I need to mention is that some keepers have used milk replacements and human infant ingredients in their home made diets. There seems to be a concern that Lorikeets are sensitive to iron overdose because they absorb iron quite readily from their diets. If a breeder is using human infant milk supplementation or cereals as part of their ingredients, then beware !! Like I said earlier, what is good for bird is not necessarily good for a human and vice versa. Human infants are poor absorbers of iron. So the manufacturers have increased the iron content in their products to meet their human target audience. These manufacturers do not care about your Lorikeets or their needs. Don't blame them for any incompetence. Let's fix our own ignorance and stop feeding Lorikeets human baby foods. And then the problem wont affect your birds - because you are feeding your birds - bird food, not human food. While I am on the subject. Birds have feathers. Humans have fur, well I do - you might have hair. Lucky you. Humans naturally eat milk and lactose because they are mammals. Birds do not eat milk. So don't feed them milk. You wont need to feed them any probiotics trying to colonise their intestines with micro-biomes that do not belong in a birds intestine anyway. Such bacteria like *Lactobacillus caseii* etc adinfinitum that you may pick up from the pharmacy/ drug store or may be offered by bird food additive suppliers or found in commercial Lorikeet foods are a waste of money. These bacteria are not of any use in a birds intestine when they are fed properly with proper ingredients. Probiotics that are sold are mammalian intestinal organisms, not a part of a bird's natural gut flora. Spare the birds from any of the intestinal insult or inoculation from a foreign bacteria. Would you be ok

with being vaccinated with dog parvo virus or human small pox? You and I are smarter than to allow ourselves to be inoculated with dog parvo virus...so stop feeding (ie: inoculating) your birds things that just do not belong inside their intestines. Stop wasting your money. Alternatively, if you have a real need to throw money away, please send it my way. I promise I won't argue with you about wasting your money on me. On another tangent but certainly full of common sense...if you need to inoculate your birds intestines with a live bacteria that is "supposed" to be good for your birds...why do you have to repeat the process every day, day in, day out? Shouldn't the live bacteria you are force feeding to your birds replicate inside your bird's intestine and therefore you would not need to continue with adding it to the diet? If you have to continually add it to the diet, then obviously the bacteria do not survive in a bird's intestine. Why put them in there in the first place if it doesn't like living there? It's like dragging a Polar Bear from the sub zero North Pole and placing it into the 40 degree Celsius Southern Hemisphere Rainforest of the Tropical Amazon Forests of Brazil and expecting the bear to like it. Come off the grass !! Really? There is no way a Lactose (milk sugar) eating Lactobacillus bacteria is a suitable micro-organism for birds. Please be sensible.



OK - enough of the scientific mumbo jumbo that I like sinking my teeth into, but what about the reason we are here today? Let's look at specifics. **The Fun Stuff.**

So, we all now know that Lorikeets have a brush tongue. This tongue is very specifically adapted for collecting nectar and pollen from blossoms. In captivity, it is thought best to allow them to consume a nectar based diet. This is because seed based diets on a longterm basis cause permanent loss of the brush on their tongue (17). Therefore, Lorikeets should be fed on a variety of blossoms, fruit and a nectar substitute plus pollen or a pollen substitute. If you can feed your birds when they are seasonally available some blossom from Banksia, Bottle Brush/Callistemon, or Grevillea; this would be very much appreciated by your birds. Some people may be able to grow these trees and shrubs in their outdoor aviaries.

There are many commercial diets available and there are many nectar substitute formulations available and advice can be sought through your local bird club. If you are making your own formulation of nectar I highly recommend not exceeding sugar content

of 25% as nectar does not generally produce concentrations of sugars in their nectars greater than that. So a range of 15-25% sugar is adequate at the basic level (ie: 1 teaspoon sugar to 4 teaspoon of water will suffice). It must be noted that nectar **does not** contain only sugar. There a whole host of other goodies in there such as undigestible hexoses for fibre-like action within the gut, amino acids and minerals. Nectar IS NOT just sugar water and feeding your birds home made sugar water by itself is unhealthy and anyone who is doing just that should figuratively be taken for a date with the hanging tree at 3pm for all to view your parade. What I mean by that is, please be educated and keep learning whilst you are looking after animals that are totally dependant upon you. Listen, learn, act responsibly.

**Fresh fruit** should also be offered. There are many varieties. Remember, over indulgence of one type of fruit is called “not balanced”. So choose a variety of types, when they are in season. Seasonal availability will mimic the wild diet in that there is always a changing diet. If you can find them or grow them, Australian Fig trees have a protein content of around 4 to 15%. Australian native figs (ficus spp) also contain fats that are also of very high nutritional value (8). Presumably these extra fats and proteins found in these native figs would be ideal during the breeding season. In contrast, the vast majority of fruits often eaten and grown for human consumption has virtually zero protein or fats and are mostly carbohydrates ie: sugars. Although the birds will obviously enjoy the latter as well. Usual and easily found fruit may include apple, melon, citrus, papaya, lychee, stone fruit (not the seeds which are toxic due to the arsenic content I believe), lychee, rambutan, lilly pilly, grapes, banana, Kiwi/Chinese gooseberry, raspberry etc. Please check the PSUK website for fruit not to feed your Lorikeets due to toxicity. If it's not on the toxic list, then the chances are probable that the fruit itself will be fine for your birds.

Fresh vegetables and greens can be offered. They love corn cobs, but do not over do them - remember, we are looking for balance and seasonality in order to promote healthy living and eating. In addition you may also provide soaked and sprouting seeds, cleaned thoroughly in a strainer in the usual manner - with chlorinated tap water prior to serving up an amount that will be consumed within the hour or two. Something not mentioned often but probably worth a mention is green seed heads of milo/sorghum, millets, etc - prior to when the seeds form hard seed encasement. I have heard old timers call this type of seed head - milk seed heads for obvious reasons when you squish them between your fingers.

### ***Unhealthy Foods (7)***

Never feed fatty, salty, processed human foods.

Never feed dairy products {including milk digesting bacteria/probiotics (10) } – butter, cheese, milk etc.

Never feed tea, coffee, alcohol.

Birds just don't have the metabolism to cope with these foods.

Always be guided by what they would eat in the wild. Do Lorikeets hang off udders of cows? For those of you who say yes, all I have to say to that is: bull.