

I purchased My first golden-shouldered parrots in December 1998. They were in their second year and had full adult plumage. In April 1999 they went to nest with four healthy young fledging in early June of that year. This pair were micro-chipped in December 1998 and are still producing healthy young today. More importantly, their young now form a large proportion of my breeding stock consisting of eight breeding pairs. Pair one from Sydney, two pairs from northern NSW, a cock bird from a breeder in Brisbane and his hen from Sydney and their progeny. This is their story.

### **Housing**

I use both conventional and suspended aviaries for breeding these birds. They both have their advantages and disadvantages. The conventional flights measure 3.6 metres long, 1.8 metres high and 0.9 metre wide. They have 1/3 solid roof and 2/3 fibreglass sheeting (Alsonite roof). They have double wire partitions and a concrete floor covered with coarse river sand to about 25mm in depth. Golden-Shouldered parrots become aggressive in the breeding season so I house other quiet species beside them. At present I use Lovebirds, Turquoise parrots, Indian Ringnecks, and Western Rosellas as their neighbours. These conventional flights are hot in the early months of summer (November/December) so a wire strip 300mm wide runs along the entire length of the aviary back wall to allow maximum air flow. A fibro ceiling under the roofing iron in the shelter helps with insulation from the hot summer sun. The advantage of these flights is that the birds enjoy access to the sand and grit on the floor.

With a full roof, the birds remain dry in the wet season. Golden-Shouldered parrots sleep at the front of the flight and they have plenty of room when young fledge. Disadvantages are the summer heat and a management plan that requires the yearly removal and replacement of the sand and weekly raking to remove the birds droppings. Golden-shouldered parrots enjoy taking treats like bottle brush branches off the ground more than those hung in the flight so a clean floor is essential to their health.

My suspended flights measure 1.8m long, 0.9m high and 0.6m wide. They have half roof with fibro ceiling and half shade cloth cover. Nest boxes are externally mounted inside a covered walkway. The partitions between flights are single wire at the front half and a solid fibro sheeted section in the shelter; again compatible neighbours are important. I once housed another psephotus species, the Mulga parrot, next to my Golden-Shouldered parrots. I missed a breeding season with the Mulgas as the two cock birds were constantly fighting, and nearly a season with the Golden-Shouldered parrots. As soon as the Mulgas were shifted, the Golden-Shouldered parrots went to nest. Mulga parrots nest in September compared to March for the Golden-Shouldered.

The advantage of these flights is that you don't enter the birds space also suspended aviaries are less expensive to construct. Disadvantages are they still need cleaning weekly, and, if using a garden hose, a lot of water is used. I hose the wire floor on my suspended flights daily. The other disadvantage is that these flights need protection from predators like hawks. They don't have much room to escape their gaze. Young birds are more at risk as they fly hysterically up and down, attracting attention. I remove young birds from these flights as soon as they are independent. My preference for housing Golden-Shouldered parrots is the conventional flights.

### **Diet**

Fresh clean water in a large shallow dish is important to all birds and Golden-Shouldered parrots are no exception. They love to bath in the build-up and also during the breeding season, even on the coldest of mornings. Water needs to be changed daily. Calcium is provided in the form of cuttle fish bone. This is important prior to egg laying and is consumed throughout the breeding season. Change these bones as often as they need it;(sometimes three or four times during the breeding season). Fresh cuttle fish bone is always readily enjoyed.

Dry seed is a mixture of Golden Cob budgie mix and small parrot mix. This changes during the breeding season when only small parrot mix is fed. I will cover green food later but will talk more about dry seed first. In October 2001 I visited Artemis Station on Cape York Peninsula. Storms had not yet started and the country-side was parched and dry. At this time the birds were feeding on fire grass seed. It was on the ground everywhere, even blowing over rock surfaces. Fire grass seed forms a large proportion of the golden-shouldered parrots diet in the wild (up to 70%). It is an annual grass that produces over a thousand seeds per square metre. Fire grass seed is similar to millet only a lot smaller. This is the reason that during the non breeding season I feed mainly budgie and small parrot seed mix. In the non-breeding season my birds consume very little sunflower seed.

I will relate back to my first breeding in early 1999. All through the wet season I fed peas, corn, sprouted seed, seeding grass and egg and biscuit mix, a little to none of which was consumed. In early April we got our first week of fine weather from our wet season this brought instant breeding activity and the parents raised four healthy chicks. From what happens in the wild, I think it is totally important that the birds health and long-term well-being include a long period on a dry seed diet. Green feed consists of branches of bottle brush trees containing flowers and fresh shoots. The parrots

enjoy these immensely, crushing the flowers and seed pods, and chewing the shoot leaves and bark off the offered branches. When you look at the seed contained in these bottle brush pods, I feel very little food value is gained from them as the seed is sparse and small. The main benefit comes from chewing the leaves that the parrots then use for preening. My golden-shouldered parrots get very excited when I approach with fresh bottle brush branches, especially before nesting commences.

The other green food I use is a local thistle with a small purple flower. This dark green herb is consumed in large quantities prior to egg laying. It thrives in our early wet season and is enjoyed by my birds. I feed little to no vegetables to my golden-shouldered parrots. In the wild these parrots feed on the spurses and buds of the Cooktown Ironwood. It is likely these are toxic and when taking these foods in the wild, the parrots consume clay from the termite mounds. This behaviour is a known way of counter-acting the toxic effects of poisonous food. In the wild the birds eat such foods in the late storm to early wet season when dry seed has started to germinate and early perennial grasses have not started to produce seed. This time is a period of high mortality in the wild populations of Golden-Shouldered parrots. The main green feed I use for my parrots is celery. This is consumed in large quantities when young chicks have first hatched in the nest.

Sprouted seed is fed as a build-up to the breeding season. I use Golden Cob parrot mix for my sprouted seed. Sprouted seed provides a continuous source of highly nutritious food. The amino acids that lie dormant in the dry seed, spring to life and multiply when sprouting takes place. I feed this seed when the shoot breaks through the husk as this is the period of most benefit to birds as few, if any, eat the shoot that extends from the kernel. Golden-shouldered parrots eat very little sprouted seed until young are about two weeks of age. I will speak more about this in the breeding section.

### **Management**

A sound management program is critical with any captive population of birds and the Golden-Shouldered parrot is no exception. In my opinion these parrots are reasonably easy to care for though birds not looked after correctly and given what they need to survive and breed, have little chance of reproducing.

Cleaning is the most important aspect of captive management in all live-stock. This provides them with a healthy, parasite-free environment in which to live. Weekly raking or cleaning of floors, food and water containers is most important. Golden-Shouldered parrots leave a lot of husk and seed particles in their seed dishes so weekly washing of the dishes is very important, especially during the wet season.

Perches should be placed at each end of the flight and replaced at least twice a year. Minimum perch size should be 25mm in diameter. I use bottle brush limbs and other paperback species for perches as the parrots love to chew the soft bark. Perches over 50mm in diameter are fouled by the birds' droppings and should not be used. I never use upright saplings for perches as the lower branches are fouled by droppings and these are difficult to clean. No swinging perches are used as this can be the cause of infertile eggs in some birds. Help them make every shot count.

Water and food containers should never be placed under perches and should be placed in a position that allows for easy removal for cleaning and replenishment. Most of my food and water containers are now located in feed stations on the outside of the flights. This allows for minimum disturbance during breeding season and fallen or waste seed is collected outside the flight, helping with the problem of parasite worms.

Dishes should be of a smooth, non-porous, easy to clean material. I use plastic pot plant bases and glazed ceramic pot plant bases for my food and water. Stainless steel is expensive but is probably the best material to use although if used for water and in direct sunlight become very hot during the day causing algae to grow. Automatic water systems should have suitable drainage provided to avoid continually wet floors. The best floor surface for Golden-Shouldered parrots in my opinion is concrete covered with a layer of coarse river sand. This allows for a surface that can be washed and disinfected once a year then old sand replaced. The parrots love scratching through the new sand for grit etc. I believe, in Far North Queensland, fully covered aviaries are essential as our wet season provides us with too many problems. The other floor I like is a built-up sand filled floor with a suitable sub-surface drainage system. These work well in open roof situations.

Insect control is also important. I use Coopex residual insecticide to control cockroaches and a permethrin powder sprinkled in the nest boxes. Pesticide, Scatter 7 and Carbryl are all products I have used successfully. Worming is also important. With my management practice I find it only necessary to worm my birds once a year. I do this in December before the wet season starts. Young birds are well established by this time and breeding activity is a couple of months away. I use Avitrol Plus to worm my golden-shouldered parrots. Its active ingredients are Praziquantel or Droncit to control tapeworm and Levamisole to control round and other worms. I use 20mls of mixture to one litre of water sweetened with 1 1/2 to 2 tablespoons of honey. A repeat dose of wormer is given three weeks after the first treatment to kill any young worms that might have hatched after the first dose of medication. The sand is replaced in the aviary

after worming is completed. I have never had a worm problem with my birds using this method.

### **Breeding**

In the wild, breeding happens after a rush of green feed, namely cockatoo grass whose seed contains the sulphur-based amino acids that are thought necessary for egg formation in other seed eating birds. This grass seeds at the end of the storm season approximately 6 weeks after the first storms and into the start of the wet season. The other limiting factor in the wild is that termite mounds in which the birds nest, have to be sufficiently moist for the birds to excavate for their nest chamber. Hence wild parrots and my aviary birds become excited on the arrival of the storm season. This is when Golden-Shouldered leave family parties to pair up and move to nesting territories. During periods of heavy rain the birds do little. As soon as there is a break in the weather, nesting activity starts. On Cape York Peninsula this time is around mid March. The birds in my collection maintain these wild instincts. I feel that birds held in Townsville aviaries will always go to nest before the birds further north because their wet season finishes before ours as the Monsoon trough moves north. It might only be one or two weeks difference but the same goes for birds around the Cairns area they will commence nesting maybe a week before the wild population. Golden-shouldered parrots breeding cycle is more dependent on the wet season than any other factor. If this was not so they would be like budgies and breed at any time of the year. These wild instincts are still strong in my population. I breed Golden-Shouldered parrots in nest boxes made from 12mm ply, 300mm long x 200mm wide x 200mm high. A 48mm hole is made in the top right hand side of the box. This I have found to be important as the hen likes to sit at the entrance and fluff herself up to prevent entry by the male. An entrance hole 5mm larger makes a difference, she does not seem to like it as much. 50mm or larger holes might suit Hooded parrots but remember these are slightly larger birds. Nests measured in the wild were all around 50mm in diameter or smaller.

I don't use an entrance spout. I have never had my birds use a box with an entrance spout fitted. I know some people interstate swear by them though boxes with spouts have never interested my birds. What I have found though is that birds prefer the entrance hole on the right hand side top corner to any other box. I have talked about this with a Japanese film crew from NHK and they said that of the five nests they filmed inside of on the Cape York Peninsula, all turned to the left upon entry. Stephen Garnett, who surveyed over 200 nest sites, said this was not so important as some birds nest chambers were just inside the entrance.

I fill all my Golden-Shouldered parrots nest boxes with a mixture of moist sawdust and Coira brick used by the nursery industry in their potting mixes. It is made from treat coconut husks and holds moisture for about two months. The boxes are filled to just above the bottom of the entrance hole. The hen does all the excavation. I use this to stimulate what the birds have to do in the wild. I don't use broken up ant beds because this turns to dust quickly in the box. remember wild birds nest in moist termite mounds. Next year I plan to use some termite nests in my aviaries, both conventional and suspended, to see if the parrots will still accept them and have not lost all their wild characteristics. I don't use heated boxes we don't get cold enough here on the coast near Cairns. Further south and west to Charters Towers and beyond, these may be necessary. Golden-shouldered parrots leave their young in the nest before they are a week old - Stephen Garnett says at about four days after hatching so at this stage young are naked and susceptible to cold. The film crew from NHK Japan commented that the young in my nest boxes huddled together the same as the wild birds.

In my conventional flights I offer two boxes both placed about one metre above the floor - one on the back wall facing the front, and the other on the side partition facing north. The pairs choose different boxes from year to year. In the suspended flights the boxes are externally mounted in the back right hand top corner. They are always readily accepted. They are about two metres from the ground. Other people have bred them in Cockatiel nest boxes, hollow logs and an array of different style nest boxes. If the conditions are right, Golden-Shouldered parrots will nest anywhere though if you are having trouble I find the nest boxes I use work well for me. If you have a style of nest working well for you, I wouldn't change it.

The diet of my Golden-Shouldered parrots changes as chicks develop. About 2 1/2 weeks after the hen starts her incubation, I start to offer a small piece of celery every day. Incubation last for about 19 to 21 days and is carried out by the female. When the first chick hatches, the celery disappears as soon as it is placed in the flight. From this time on I feed as much as the birds will eat. One pair with five young will eat close to a whole stick each day.

It is important to feed the parrots twice a day at this time; morning and afternoon so that fresh food is always available to the young. A small amount of sprouted seed is also available at this time. At about the end of the first fortnight, the parents diet changes to large amounts of sprouted seed, mainly sunflower. This continues for about another two weeks then the chicks are weaned on dry seed. I always fill my dishes of small parrot mix every two to three days during this time so the parents feed the chicks what they want, when they need it. Young Golden-Shouldered parrots fledge at about five weeks after hatching, one bird leaves the nest each day. Sometimes the last chick may be a couple of days behind the rest. The young first start to eat sprouted seed before moving on to the dry seed mix after they have fledged.

Filming in the wild shows that although both parents feed the young, the male usually only feeds the first head that pops up. The hen makes sure all the chicks are full she is the important factor in the chicks survival. As in the wild, the first nest in captivity does not always produce 100% fertility. I offer two reasons for this in our aviaries. The first experiment that I conducted on my flock this year had disastrous results. As is consistent with budgies that are in good condition, fertility in the first nest is poor. This year I fed a mixture of 50% budgie mix and 50% small parrot mix right up until the end of February. Nest boxes were in place by the first week in February. As a green food I used a local thistle talked about earlier on.

As usual, the Golden-Shouldered parrots went to nest along with the first break in the wet season in March. This round of eggs produced nests of no young to nests of 1-2 or 3 young. The best results came from a young pair; their first breeding season housed in a suspended flight. This was not a pair I thought would give me my best results. One mistake I made here was to not catch the pairs before nesting commenced to feel their breast muscle to see if they were in breeding condition or overweight caused by the birds eating too much sunflower seed. I feel the main reason for the infertility though, was the lack of sulphur-based amino acids. The reason for better fertility in the second round of eggs is because if the pairs were overweight for breeding or in what is considered good condition they would lose this weight while feeding the first round of chicks. Also the better nutrition of the sprouted seed fed from the start of March would provide the amino acids missing from their diet earlier on. We will see what the second round of eggs produce. Remember these amino acids are available to the wild parrots from about the start of January. Nesting in this population doesn't start until mid March (a total of 43 young were produced from my pairs in this season).

Other experiments I have conducted are with juvenile birds to see if they would breed. I have had a 12 month old hen lay eggs and sit tight. I observed her partner, a 12 month uncoloured male, mating with her several times yet the eggs were infertile. Lee Ford of Sydney had a 12 month old male and a 5 month old female produce fertile eggs in 1990. Records also show females that did not lay eggs until they were four years old. The life span of Golden-Shouldered parrots in captivity in Australia appears to be 20-25 years with breeding results slowing after 10-12 years. My pairs always second clutch. I have never let my pairs try for a third nest. The reason for this is that I had a pair of hooded parrots produce 16 young from three nests one year and never produced a fertile egg after that. This is why I always stop at two nests, successful or not.

Mutations of the Golden-Shouldered parrot do exist in Europe. They are described as a fallow bird with bright red eyes, pallid feet and beak. In 1983 Stan Sindel hatched a chick with red eyes. It survived three days and the parents never produced another chick like it. Jack Stunnell of Sydney bred a female in 1991 that had the colouring tending towards a male bird. To this day only normal young have been produced from this hen. I have had several young cock birds fledge with yellow patches on their heads, this patch disappears in the first moult. They have never produced anything special in their young.. Stephen Garnett tells me this is consistent with wild populations. Maybe it is the gene pool getting smaller, both in our aviaries as well as in the wild.

I look forward to breeding these quiet little parrots for some time to come. I'm sure there is much I have forgotten to tell you, such as I leave the young with the parents till after the second clutch has hatched with the father not overly aggressive to his young. This extra information will make for another article some time soon.

#### References:

Management guidelines for Golden-Shouldered parrot conservation - Gabriel Crowley, Stephen Garnett, Susan Shephard

Australian Grass Parakeets Psephotus and Northiella Genera - S Sindel, J Gill

Breeding of the Golden-Shouldered parrot - J Griffith, August 1999, FNQBBC Newsletter

### **Golden-Shouldered Parrot: The Road To Recovery**

Once, at the turn of the 1890s to the early 1900s, these birds were found throughout Cape York Peninsula in large jewelled flocks collecting near waterholes at the end of the dry season. Now visitors to the peninsula are lucky to catch a glimpse of a few birds at one of their remnant haunts.

This parrot was first described by John Gould in the "proceedings of the Zoological Society" London 1857 from specimens collected by Dr JF Elsey on the 14th of September 1856, as part of an exploratory expedition conducted by AC Gregory. These birds (one male, one female and one juvenile) were taken from the banks of the Curran River on Hereford Station, east of Normanton. The golden-shouldered parrot no longer exists in this area.

Its closest relative, the paradise parrot of south-east Queensland, is now extinct. The more distant relative, the hooded parrot of the Northern Territory, is still secure although its range has also contracted. These small parrots live on seeds

that are abundant in the grassy woodlands of the peninsula. They are endangered because of changes to the land management over the last 120 years, that have affected both nesting and feeding habitat.

Over the past 13 years (1992-2004) detailed studies by Dr. Gabriel Crowley, Dr. Stephen Garnett and pastoralist, Susan Shepherd, have been carried out. During that time, land management through sections of the parrots' range, particularly fire management, has been adjusted to suit both the parrots' ecological requirements and to restore pastoral productivity. The parrots' distribution, which was still contracting between 1982 and 1998, has now stabilised. Although several nesting areas were abandoned between 1992 and 1998 (40km<sup>2</sup> of habitat), no losses have occurred since. If this trend continues, it is possible to conclude that threats to the golden-shouldered parrot have been significantly reduced. If this is so, the species could then be considered as vulnerable rather than endangered.

The plight of the golden-shouldered parrot will be reconsidered in 2007. Down listing of this bird will reward 15 years of effort of landholders and researchers. It will also indicate that land management on Cape York Peninsula has become more ecologically sensitive and sustainable.

### **Current distribution**

Golden-shouldered parrots once occurred throughout Cape York Peninsula from Croydon in the south-west to near Weipa in the north. At present two distinct sub-populations are known and plans to re-establish a third are under way.

### **Morehead population**

The largest population occurs at the headwaters of the Morehead River and nearby westward flowing streams. This area covers 1,340km<sup>2</sup> and has a population of about 3,800 breeding pairs.

### **Staaten population**

The second population occurs west of the Lynd River, west of Chillagoe and covers an area of 400km<sup>2</sup> which has a stable population of 1,000 breeding birds.

A further 1,600km<sup>2</sup> to the south may also support the species but may also be too cool and dry. Golden-shouldered parrots bred on Bulleringa Station to the south-east in the 1960s and Dorunda Station to the west about the same time, but there was no evidence of their presence in the 1990s.